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EDITORIAL

Reanimate Usage of Quality *Bhasmas*

Rasa Shastra' the science dealing with Metals, Minerals, Alloys and Gem stones as medicinal forms and is an important component of therapy in Ayurveda. The literary meaning of 'Bhasma' is an ash. Ancient texts dating back to the 5th century BC have recorded this concept in a most scientific manner. Modern medicinal preparations too use various organo-metallic/mineral salts of Fe++, Mn++, Ca++, Cu+++, Zn++ Na++ which are required by the human body. Our ancient science knew about the importance of such supplementation. Metals/Minerals were incinerated and triturated with organic herbs yielding powders or bhasmas of different colors and shades.

Elaborate processes are also described in the texts for them to be completely bio-available ('Mritani lohani Rasibhavanti'). Chemical and physical testing for checking the irreversibility of the organo-metallo-mineral complexes back to partial metallic states, studying toxic effects, drawbacks in preparation and methods to rectify them are carefully recorded. For centuries, knowledgeable and skilled Ayurvedic physicians administered therapeutically effective bhasmas in small doses free of toxic effects. Unfortunately during the present century self-proclaimed Ayurvedic physicians, ignorant of the tenets of this ancient science, have done disservice to Ayurveda with half-backed bhasma preparations.

There is an urgent need to throw out fake practitioners and their and their preparations to distinguish them from the genuine. Further, just as modern scientists especially in western people are exclusively studying ligand chemistry and the interrelationship between organic and inorganic chemistry, it would be pertinent if Indian scientists delve into the ancient science of 'Rasa Shastra' and establish the validity of this empirical science in today's scientific terms and probably improve and reanimate the usage of good quality bhasmas.

Prof. K. Shankar Rao
Director

Clinical Study

Study on the role of *Triphala Madhu Sarpi* in Computer vision Syndrome - A lifestyle disease.

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Abstract-

It is a single group clinical study conducted on patients of a newly burning issue related to modus vivendi "Computer vision syndrome". Being a disease of modern era, we won't get the direct reference and nearest resembling disease in Ayurveda excellence. But speculations are made on the basis of Dosha Dushya Sammurchana and Lakshana. Present study was planned with an aim and objectives, to compile and commemorate the references of computer vision syndrome and its related diseases in Ayurveda excellence, postulate the Samprapti Ghataka (Patho -physiology) of computer vision syndrome according to Ayuveda, hypothetically and rule out the effect of Triphala Madhu Sarpi in reliving the sign and symptoms of computer vision syndrome. Materials and methods of the study were planned on 50 samples who were the victim of CVS. It is a single group study administered with Triphala Madhu Sarpi in a dose of 3gm of Triphala powder along 5ml of Madhu & 5ml of Ghrita (Made from Dadhi of pure cow's milk) at night before meal. Effect of intervention is assessed once in 15 days interval. Result & Discussion of the study revealed that Triphala Madhu Sarpi has good result in relieving the subjective criteria's viz., eye strain, fatigue eye, burning eye, itching eye, headache, neck, shoulder and back pain and difficulty in focusing and objective criteria's like dry eye (by schirmer test), double vision and red eye after 2 month,

Key words: Computer vision syndrome, Ghrita, Modus Vivendi, Triphala Madhu Sarpi

सारांश–

आधुनिक मशीन निर्भर युग मे जहाँ प्रत्येक कार्य मशीनों से लिये जाते हैं, और उनके कई दुष्प्रभाव सामने आते हैं। उन्हीं दुष्प्रभावों का एक दृश्य यहां कम्प्यूटर पर निरन्तर अनियमित रूप से कार्य करनें के कारण होने वाले नेत्र विकार पर एक शोध कार्य किया गया है। प्रस्तुत कार्य का उद्देश्य कम्प्यूटर विजन सिन्ड्रोम के संदर्भों को एकत्र करना, आयुर्वेदानुसार इस व्याधि की व्याख्या तथा इन रोगियों में त्रिफला, मधु, सर्पि का प्रभाव देखना था।

यह शोध कार्य एक ही समूह के रोगियों पर किया गया है जिसमें सभी रोगियों का लाक्षणिक आंकलन करने के पश्चात् उहें शास्त्रीय योग त्रिफला मधु सर्पि का सेवन 2 माह के लिये कराया गया एवं रोगियों में लाक्षणिक सुधार देखे गये।

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Clinical Study

Study on the role of *Triphala Madhu Sarpi* in Computer vision Syndrome - A lifestyle disease.

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Introduction:

Modus Vivendi is the way a person lives and it reflects an individual's attitude and activities. Ailments which are the outcome of the improper lifestyle named as lifestyle disorder and also called as disease of longevity or disease of civilization.

Peoples of present era show the hype in the utilization the technology to fulfil their needs and to do much more work very faster. But at the same time it also gives some adverse effect on our health. Person who spend more time in front of computer, suffer from Computer Vision Syndrome (CVS). Study has been shows that 50 to 90% workers became victim of CVS at any point of their life.

The American Optometric Association defines CVS as that 'complex of eye and vision problems related to near work which are experienced during use of computer.

This is a temporary condition and there is no evidence, that it cause any permanent damage to visual apparatus. But eye being prime organ of visual execution becomes highly exhausted there by it decreases the "standard of living" or "Quality of life" by reducing the work efficiency.

India is being among the other country, use of computers increasing rapidly day by day, and is the world third internet user country with over 137 million as on June 2012.[1] There is lacking in achieving the permanent remedy for CVS in modern medicine, so there is urgently need to understand the dynamics of the problem through an Ayurvedic approach to prevent the CVS from becoming a epidemic. This is the cause behind the selection of the topic.

Aims and Objectives:

1. To compile and commemorate the references of computer vision syndrome and its related diseases in Ayurveda excellence.
2. To postulate the samprapti ghataka (Patho - physiology) of computer vision syndrome according to Ayurveda, hypothetically.
3. To rule out the effect of Triphala Madhu Sarpi in reliving the sign and symptoms of computer vision syndrome.

Materials and Method:

To meet the objectives of present research work, study was planned under two heading,

1. Conceptual Study:-

In context of review of literature, modern disease review has been presented after compilation and editing the literature available in

- Various authentic books of medicines
- Articles published in index journal,
- Information from various authentic websites.
- Information from related research works.

2. Clinical Study:-

A Single group clinical study over 50 samples of CVS was done with the trial drug Triphala madhu sarpi yoga.

Selection of samples:-

Patients were selected from IPD/OPD of National Institute of Ayurveda Hospital for present study.

Collection of trial drug:-

Triphala Churna, Madhu & Ghrita are the ingredients of the trial study which were collected and prepared from the pharmacy of National Institute of Ayurveda.

Table No:I

Inclusion and exclusion criteria:

Inclusion criteria	Exclusion Criteria
Age between 18 yrs to 50 yrs.	Age below 18 yrs and above 50 yrs.
Adult person (irrespective of sex, religion) who spends more than 3 hours / day in front of screen (T.V. or Computer).	Any systemic disorder like Hypertension, Diabetes, Migraine.
Person showing any ocular and extra ocular sign and symptom of computer vision syndrome.	Pre existing dry eyes or using lubricant or tear drop.
	Patient who undergone eye surgery.
	Patients on topical medication for long time

Table No:II

The sign & symptoms of CVS as follows:-

Red Eyes	Blurred near and distant vision	Difficulty in focusing
Burning Eyes	Double vision	Fatigue
Itching (Eyes)	Squinting (for better vision)	Neck/shoulder pain / back pain
Eyes Strain	Headache	

Nature of Clinical study:-

It is a single group study. 50 samples were registered and the entire patient has completed the trial.

The clinical study was divided into three parts. 1. Diagnosis. 2. Medical intervention. 3. Assessment (pre and post assessment).

1. Diagnosis:

In present study some of laboratory investigation was conducted to exclude other systemic and local eye pathology. Person who spends at least 3 hr/day in front of computer were diagnosed on the basis of clinical signs, symptoms and laboratory investigation. These all were recorded in the proforma prepared according to Ayurveda and modern parameters. The criteria adopted for the present study are as follows.

a) Clinical features of computer vision syndrome

b) Functional examination of the eye – Snellen's chart.

c) Other examination of eye –A complete examination of the eyelids, lacrimal glands, conjunctiva, sclera, cornea, Iris/pupil, lens, fundus and 3rd, 4th, 6th nerve was done to rule out any abnormalities.

d) Fluorescent sodium ophthalmic test-

e) Examination of tear film- Schirmer I strip test

f) Fundoscopy-It was done by direct and indirect ophthalmoscope after full mydriasis

g) Investigations- Routine blood examination was done to rule out any active disease.

2. Drug dose and duration:

Dose: 3 gm. of triphala powder along with 1 tsf (5ml) of madhu & 1 tsf (5ml) of ghrita at night before meal for 2 month.

Follow up: Follow up at 15 days interval.

Assessment: -

1. Self gradation was given to symptoms of CVS
2. Assessment done on the basis of pre and post observation found on this scale after completion of 2 months therapy.

Table No:III

Computer Vision Syndrome Symptom Gradeing

Red Eye, Burning Eye, Itching Eye, Eye Strain, Blurred Vision, Difficulty In Focasing, Double Vision, Squinting, Headache, Neck/Shoulder/Back Pain, Fatigue,	
Not present	0
After focusing screen 3 hours or more	1
Focusing less than 3 hours	2
Present all time even without focusing the screen.	3

Table No:IV

DRY EYE	
25 to 30mm after 5 minutes in schirmer-1 strip.	0
10 to 15mm after 5 minutes in schirmer-1 strip.	1
06 to 10mm after 5 minutes in schirmer-1 strip.	2
02 to 05mm after 5 minutes in schirmer-1 strip	3

3. Statistical Analysis:

Observations are analysed statistically in terms of B.T. and A.T, Standard Deviation, Standard Error, Paired' test at the level of $p<0.05$, $p<0.01$ and $p<0.001$.

Observations and Result:

Out of 50 sampales, the majority of samples belonged to 18-30 years of age and male, majority of the samples i.e. 37 were students, among them 24 were post graduate followed by graduate 21.

Out of 50 samples in clinical study, major 38 samples were using computer for 3-5 hours, maximum samples i.e. 41 uses computer in a distance less than 20 inches from eye; maximum 35 samples use computer in improper lighting condition; 32 samples has no family history of spectacle use. Majority of samples i.e. 33 were vata-pitta prakriti. 42 samples were Rajasika prakriti followed by 8 samples were Tamasika prakriti. Sara wise maximum number i.e. 16 samples were Twak sara, followed by 15 were Mamsa sara.

Table No:V Effects of Triphal Madhu Sarpi on CVS samples

Signs and symptoms	**Pt. no**	**Mean**		**Differ**	**Relief %**	**SD ±**	**SE ±**	**t**	**p**	**Result**
		BT	**AT**							
Eye strain	41	1.38	0.22	1.16	84.06%	0.79	0.11	10.36	p<0.001	H.S
Fatigue eye	40	1.08	0.12	0.96	88.88%	0.72	0.10	9.33	p<0.001	H.S
Burning eye	39	1.32	0.16	1.16	87.88%	0.84	0.11	9.74	p<0.001	H.S
Red eye	31	0.98	0.18	0.8	81.63%	0.80	0.11	07	p<0.001	H.S
Itching eye	28	0.86	0.12	0.74	86.04%	0.82	0.11	6.32	p<0.001	H.S
Headache	24	0.68	0.16	0.52	70.59%	0.61	0.08	5.53	p<0.001	H.S
N/S/Back pain	20	0.6	0.14	0.46	76.67%	0.76	0.10	4.27	p<0.001	H.S
Blurred vision	18	0.56	0.06	0.5	89.28%	0.76	0.10	4.63	p<0.001	H.S
Focusing difficulty	18	0.52	0.14	0.38	73.08%	0.66	0.09	4.03	p<0.001	H.S
Double vision	2	0.06	0.04	0.02	33.33%	0.31	0.04	0.44	p>0.1	N.S

Discussion

Discussion on every point from the selection of the topic to the outcome of clinical trial should be done to draw a proper conclusion.

Need for study:

India is being among the other country, use of computers increasing rapidly day by day, and is the world third internet user country with over 137 million as on June 2012. So there is an urgent need to understand the dynamics of these problems and prevent it from assuming epidemic proportions.

There is no pleasing and permanent relief in modern medicine yet of this apprehensive epidemic. Avoidance of use of VDT is the only way to get relief from this irritable condition, which is impossible in present technology dependent society. Aiming to give relief by an Ayurveda approach is the reasons behind selection of the topic as research work.

Discussion on conceptual study:

The main causative factors behind the disease are[2]

a) asatmaindriyartha samyoga
b) pragyaparadh
c) parinama.

There are three type of asatmyaindriyartha samyoga i.e. atiyoga, ayoyoga and mithyayoga are responsible for producing disease. Facing the bright (glare of) screen for long duration is atiyoga of cakshuindriya. Work in low or improper lighting condition and seeing ill-defined object, we can consider as ayoyoga. Visualizing any object from very near or far distance, or seeing very small word is mithyayoga of cakshu indriya.

Pragyaparadh also play a key role behind the pathogenesis. It is clear that symptoms are much more associated with duration spend before screen, wrong screen and sitting position. Doing work without proper knowledge or continuing work despite of knowing its ill effect is called as pragyaparadh.

All these lead to dosha vaishamya and hence produce disease in eye.

Vata, pitta and kapha, tridoshas are involves in this disease. Ocular symptoms like eye strain, double vision, squinting for better vision, eye fatigue and extraocular symptoms like neck, shoulder and back pain are due to vata doshas. Redness of eye is due to pitta dosha and itching eye is due to kapha dosha. The symptoms are mainly from either dristigata or sarvagata netraroga. Vata-pitta doshas play a key role to produce symptoms like burning eye and headache. So we can conclude CVS as vata-pitta pradhan tridoshaja vyadhi.

Selection of drug:

Acharya caraka[3] emphasize that the kapha dosha is the main apprehensive subject related to eye as it is the place of teja. So kapha dosha annihilating procedure should do in beneficial purpose of eye.

Acharya Vagbhatta[4] said that looking at sun or solar eclipse for long duration, looking at flame of fire or flash of lightning decrease eye sight. Sample should advice for santarpana therapy by snigdha (with ghritaa) and sheetal aahara.

Astanga Samgrahakar explains that daily intake of "Triphala Madhu Sarpi"[5] at night as a naimittika rasayana helps to prevent the diseases of eyes and to promote the proper function of visual apparatus.

CVS is vata-pitta pradhan tridoshaja vyadhi. Ghrita is vata-pitta nashaka and madhu is kapha-pitta nashak. Further Acharya Sushruta mentioned madhu as tridosha shamak. Acharya Sushruta also mentioned triphala as kapha-pitta nashaka and beneficial for netra[6]. According to Dhanwantari Nighantu and Bhavaprakashnighantu, haritaki is tridoshaghna and has chakshyuhita property. According to Bhavprakash and Rajnighantu vibhitak is Cakshusya and has netrahita property.

Discussion on cardinal features:

The therapeutic medicine contains triphala, madhu and sarpi. According to Ayurveda fundamental, CVS may consider as tridoshaja vyadhi.

Amalakai pacifies vata due to the amla rasa, pitta due to madhura and sheeta and kapha by ruksha and kashayatwa. Haritaki, due to amla pacifies vata, due to madhura and tikta rasa pitta and kapha by ruksha, kashaya. Vibhitaki is kapha-pitta hara and cakshushya. Madhu is tridoshaghna according to acarya sushruta and due to sukshma guna, it gives tarpana to netra through microcirculation. Ghrita is one of the best beneficial for eye[7]. It has tridoshaghna property and it reduces burning sensation and dryness of eye due to sheeta virya and snigdha guna.

Ghrita has samskarasyanuvarnat guna as well as beneficial for eyes[8] and madhu has sukshma guna. So netrahitakar effect of triphala, mixed with ghrita, give nourishment to eye through microcirculation and strengthen the eyes.[9] This drug act as rasayana and give relief from headache, neck, shoulder and back pain. Ghrita contains vitamin A, D, E and K and beta carotene. Honey contain almost 18 amino acids, vitamin B1, B2, B6, C and many minerals although in very little amount. Amalaki is huge source of vitamin C.

The symptoms experienced in computer vision syndrome are caused by three potential mechanisms: (i) Extra ocular mechanism, (ii) accommodative mechanism, (iii) ocular surface mechanism.

Table No:VI

Potential Mechanism	Symptoms
Extra-ocular	Neck pain, Shoulder pain, Back pain, Headache
Ocular-surface	Itching eye, Burning eye, Red eye
Accommodative mechanism related	Blurring of vision, Double vision, Difficulty in focusing, Squinting for better vision, Eye strain, Fatigue.

Ocular symptoms:

Dry eye was defined by the National Eye Institute as a "disorder of the tear film due to tear deficiency or excessive evaporation, which causes damage to the inter-palpebral ocular surface and is associated with symptoms of discomfort. There are three layers to the normal tear film which keep the front surface of the eye comfortably lubricated and optically clear. The outermost is a lipid (oil) layer, secreted by the meibomian glands and prevents tears from evaporating. The innermost layer called mucin, which binds the tears to the surface of the eye by making the eye tissue moist. This is secreted directly from the conjunctival surface of eye by goblet cells. Evaporation type of dry eye is seen in CVS due to low blinking rate. Absence of protective tear layer exposes the surface to external environment and chronic inflammatory change may occur. This precipitates burning sensation, itching sensation and redness of eye. Furthermore the electrostatic charge in the vicinity of the screen surface computers can cause the attraction and accumulation of dust and other airborne particles on the face of the computer screen. This dust and other particle also cause irritation into uncovered eye surface and causes redness, burning and itching sensation of eye. Irritation in front surface of eye causes vasodilatation and redness.

Study has been shown that vitamin E and C causes significant improvement in tear stability and secretion[8]. Vitamin A helps to maintain conjunctival epithelium integrity and reduces eye redness; the study medicine is good source of vitamin A due to presence of ghrita. Vitamin A also helpful to regenerate the conjunctival goblet cell[9], affected due to inflammatory changes, which help to maintain conjunctival surface moist. Ghrita is helpful to maintain normal activity of lipid layer, thus prevent tear evaporation and give relief from symptoms arise due to dryness. Vitamin C and E is potent eye antioxidant and supply proper nutrition and oxygen to intraocular structure. Study has shown that vitamin C and E therapy improves tear stability as well as secretion. Study drug is rich source of vitamin C due to presence of Amalaki and vitamin E due to ghrita. Vitamin C and E maintain ocular health and protect from oxidative stress.

According to the Ayurveda, itching in eyes is due to kapha dosha, burning eye is due to vata pitta and red eye is due to pitta dosha. Ghrita is madhur rasa, snigdha guna, sheeta veerya and madhur veepak that's why it is vata-pittaghna and very good daha prashamak.

Amalaki due to *madhur rasa* and *sheeta veerya* is *pitta shamak* and *daha prashamak, kapha shamak* due to *katu vipak*, and due to *amla rasa* is *vata shamak*.; *vibhitaki* is *kapha pittaghna* and *madhu* is also *kapha pitta shamak*. Triiphala is best for eye disease.

Over all study drug gives excellent result in ocular symptoms of eye, give relief from dry eye, hence from red and itching eye also.

Accommodative mechanism related:

Use of computer requires maintaining fixed focusing for long periods of time and the eye muscle become locked in this close range which put cilliary muscle on strain. This constant fixation on a computer screen causes difficulty in focusing, blurred vision, headaches, eye strain, and overall fatigue eye. The ability of the eye to change its focal power is called accommodation and varies with age. An image that is not focused accurately will appear blurred.

In addition to a strain on the muscles that control eye movement and focusing, prolonged computer use can also cause a tightening of facial muscles around the cheeks, temples, and nose. This facial tightening leads to reduced blood circulation, compounding the effects of eye fatigue.

Study shows that 1/3 of myopia patient got significant improvement by long standing calcium and vitamin D therapy10. Vitamin C, along with vitamin E and other antioxidant nourish sclera, cornea as well as intra ocular contents, especially uveal tract and lens. Proper blood supply, more oxygen increases muscular power of ciliary body and lens flexibility. Hence accommodation is maintained and reduces headache, eye strain, and fatigue, difficulty in focusing and other symptoms of accommodation deficit.

According to Ayurveda all these symptoms arise due to vata dosha. Amalaki is vata shamak due to amla rasa, haritaki is also vata kapha shamak. Triphala is beneficial for eye[11]. Is acts as rasayana.

Extra-ocular:

Improper seating posture for long duration during computer work precipitate neck/shoulder and back pain. The study drug has rasayana property and also vata shamak. Study drug shows good beneficial effect for this symptom.

Conclusion

- Computer vision syndrome is vata-pitta pradhan tridoshaja vyadhi.
- Aasatmyaindriyarthasamyoga and pragyaparadh are two main causative factors behind the pathogenasis according to Ayurveda.
- Low distance of screen from eye, improper room light and low blinking rate are the main causative factors.
- Eye strain, fatigue eye, burning sensation of eye and red eye were the main symptoms, complaint for majority of patient.
- The disease is not related with refractory error, but intensity of signs, symptoms increase for those persons with incorrect or under correct refractory error.
- Vata-pitta sharirik prakriti person are the main victim of this disease.
- Rajasika manasik prakriti person are more prone to the disease.
- Young (18 to 30) educated adults are the main victims of the disease.
- Study drug triphala madhu sarpi has shows statistically highly significant result for more of the signs symptoms except double vision and patients got markedly improvement.
- The study drug has tridoshaghna and cakshyusya property. It contain fair amount of vitamin C, A, E, B etc popularly known as eye anti-oxidant.
- No adverse effect of the trial drug was observed during trial period.

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Clinical Study

A clinical study to evaluate the efficacy of *Shoshjit Yog* in Malnutrition cases for improvement in the total serum protein level

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Abstract

A double blind placebo control study was carried out to evaluate the efficacy of *"Shoshjit Yog"*, a classical formulation mentioned in *Astanga Hridaya*[1] for the management of *Balshosh*. The clinical study was done in 60 patients of malnutrition randomly selected from OPD & IPD of N.I.A. Jaipur. The drug was administered in the form of granules at a dose of 200mg/kg/day in 2 divided doses with standard diet. The placebo was also administered in same dose with standard diet for 2 months. After 2 months of treatment drug group showed significant improvement in Haemoglobin level, highly significant improvement in total serum protein and no improvement in A:G ratio while placebo group showed moderately improvement in Hb% and total serum protein and no improvement in A:G ratio, inter group comparison shows highly significant difference in the improvement of total serum protein level. Thus *Shoshjit Yog* is a very good alternative for the improvement of total serum protein level in malnutrition cases along with standard diet therapy.

सारांश:

प्रस्तुत अध्ययन में अष्टाङ्ग हृदय में वर्णित शास्त्रीय योग शोषजित योग की बालशोष रोग में प्रभाव (efficacy) का प्लेसिबो नियन्त्रित अध्ययण किया गया है। इन चिकित्सिय अध्ययन के लिए 60 रोगी का क्रम रहित (random) तरिके से राष्ट्रीय आयुर्वेद संस्थान, जयपुर के बहिरङ्ग एवं अन्तरङ्ग इकाई बालरोग विभाग के से चयन किया गया। औषधि योग तथा प्लेसिबो को 200mg/Kg/day की मात्रा से विभाजित मात्रा में प्रात: एवं सायंकाल ग्रेन्युल के रुप में संतुलित आहार के साथ 2 महीनों के लिए रोगियों को सेवन के लिए दिया गया। 2 महीने की चिकित्सा के अवधि पूर्ण होने के पश्चात औषध योग जिन रोगियों में दिया गया उनके हिमोग्लोबिन स्तर (Hemoglobin level) में उत्साहजनक सुधार, total serum protein level में अति उत्साह जनक सुधार और A:G अनुपात में कोई सुधार नहीं हुआ। जबकि जिन रोगियों में प्लेसिबो दिया गया उनके हिमोग्लोबिन स्तर (Hemoglobin level) और total serum protein स्तर में मध्यम सुधार हुआ और A:G अनुपात में कोई सुधार नही हुआ। दोनो समुह की अन्तर समुह तुलना करने पर total serum protein level में अति उत्साह जनक अन्तर प्राप्त हुआ। अत: कुपोषण में total serum protein level में सुधार के लिए शोषजित योग एक अच्छा विकल्प है।

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Clinical Study

A clinical study to evaluate the efficacy of *Shoshjit Yog* in Malnutrition cases for improvement in the total serum protein level

Dr. Ramez Uddin, Dr. Rakesh Kr. Nagar, Prof. Abhimanyu Kumar

Introduction

Malnutrition is a major health problem, especially in developing countries. Water supply, sanitation and hygiene, given their direct impact on infectious disease, especially diarrhoea, are important for preventing malnutrition. Malnutrition essentially means "bad nourishment", i.e. insufficient, excessive or imbalanced consumption of nutrients. It concerns not enough as well as too much food, the wrong types of food, and the body's response to a wide range of infections that result in mal-absorption of nutrients or the inability to use nutrients properly to maintain health. Clinically, malnutrition is characterized by inadequate or excess intake of protein, energy, and micronutrients such as vitamins, and the frequent infections and disorders that result.[1] WHO defines malnutrition as "the cellular imbalance between supply of nutrients & energy and the body's demand for them to ensure growth, maintenance & specific functions" (WHO1993)

The latest data shows that 45% of Indian children are underweight and 70% are anemic. Of the underweight children 19.8% are wasted and 48% stunted. Most common age of malnutrition is between 6 months to 2 years and 6600 under five children die every day of malnutrition in India.[2] With the main features of weight loss and growth retardation, PEM produces a wide range of biochemical rearrangement of various body systems and functions with resultant vulnerability of child to secondary infections and mortality. Anthropometry provides the single most portable, universally applicable, inexpensive and non-invasive technique for assessing the size, proportions, and composition of the human body. It reflects both health and nutritional status and predicts performance, health, and survival.[3]

Aim and objectives

- To evaluate efficacy of drug in the management of malnutrition clinically
- To abolish sign and symptoms of Balshosha[4, 5]
- Promote growth and weight gain
- To reduce secondary infection & other complications

Materials and Method

Subjects

Source: For the study, Balshosha affected children were screened out clinically from O.P.D. and I.P.D. of Balroga department, National Institute of Ayurveda, Jaipur.

Age Group: Children between 1 to 10 years were selected for the study.

Number of cases: Overall 67 patients were registered out of which 60 patients completed the study and 7 cases discontinued. Group A comprising of 35 and Group B of 32 children. 5 patients of group A and 2 patients of group B discontinued.

Grouping of patients: The cases registered for the study were randomly divided into two groups

Group A - In this group trial drug *"Shoshjit Yog"* in granule form was administered to the patients with standard diet.

Group B - This group of patients were given placebo with standard diet.

Grouping of the cases was done by random selection. The coded medicine (Study drug / Placebo) was given as per instructions. The coding of study drug and placebo was done by another person not related with study. Coded document was sealed and kept under safe custody. The envelope

was opened after completing the study to decode it for interpretation. Observations documented during study were analyzed and findings were evaluated by using statistical analysis to establish the efficacy.

Trial therapy

Study drug: The proposed drug, Shoshjit Yog is modified form of *Shoshjit Ghrita*, a classical formulation mentioned in *Astanga Hridaya* for the management of *Balshosh*.1 It contains 8 drugs. The study drug was modified in the form of Granules in order to enhance its palatability and easy administration in children.

Dose and Duration -200mg/kg/ day in two divided doses for 2 months with milk.

Placebo: The placebo for the study was also in the form of granules prepared from starch and coloured like drug.

Dose and Duration - 200mg/kg/ day in two divided doses for 2 months with milk.

Standard diet

Standard diet was advised to both groups according to the present and expected body weight for age group with due recommendation to fulfil energy and protein requirements.

Diagnostic Criteria

A. Inclusion Criteria

- Age – between 1-10 yrs.
- Grade I to IV of malnutrition as per IAP classification i.e. weight less than 80% of expected weight
- Signs and symptoms of Balshosha as per classical text of Ayurveda.

B. Exclusion Criteria

- Tuberculosis
- Juvenile D.M.
- Chronic diarrhoea/ malabsorption syndromes
- Chronic liver diseases
- Metabolic disorders
- Other chronic debilitating diseases.
- Congenital anomalies.
- Endocrine disorders of growth

C. Discontinuation Criteria

- Appearance of any severe complications during trial
- Any other severe acute illness
- Any parents not willing to continue with the medicine

D. Side Effect And Adverse Effect Assessment Criteria

To rule out the possible adverse effects of studied drug, clinical criteria were adopted. It incorporated the records of information from the patient on each and every follow up, related to the features as nausea, vomiting, pain abdomen, loose stool, constipation and other non specific symptoms.

E. Assessment Criteria

For assessment of the improvement in total serum protein efficacy of the trial therapy blood sample of the patients were collected before treatment and after completion of treatment. All the investigations were done in the central laboratory, National Institute of Ayurveda, Jaipur. The following parameters were adopted for assessment of laboratory parameters.

Laboratory Parameters

- Blood-Hb%, TLC, DLC, ESR, etc.
- Total serum protein
- A:G ratio

Assessment Of Results

Assessment of gain in total serum proteins

● Very Good	1.5-2 gm% increase in TSP
● Good	1-1.5 gm% increase in TSP
● Average	0.5-1 gm% increase in TSP
● Poor	<0.5 gm% increase in TSP

Observation And Results

Investigations: Haemoglobin gm%

Table No. 01 Showing status of haemoglobin before treatment in both groups

S.No.	Haemoglobin (gm %)	Group A (n=30)		Group B (n=30)	
		No.	%	No.	%
1.	< 7	0	0.00	1	3.33
2.	7 – 9	11	36.67	2	6.67
3.	9– 11	9	30.00	9	30.00
4.	11– 13	9	30.00	14	46.67
5.	> 13	1	3.33	4	13.33
	Total	30	100.00	30	100.00

Maximum patients of group A, were having haemoglobin in the range of 7-9 mg% (36.67%) followed by 30% of patients in both 9-11mg% and 11-13mg% and only 3.33% were having the range more than 13mg % before treatment. In group B maximum nos. of patient were having haemoglobin in the range of 11-13mg% (46.67%) followed by 9-11mg% (30%) and more than13mg% (13.33%) before treatment.

Table No. 02 showing total gain in haemoglobin gm% after 2 months treatment

S.No.	Gain in Hb (In gm %)	Group A (n=30)		Group B (n=30)	
		No.	%	No.	%
1.	< 0.5	20	66.67	23	76.67
2.	0.5-1	6	20.00	4	13.33
3.	1-1.5	4	13.33	3	10.00
	Total	30	100.00	30	100

After 2 months of treatment maximum nos. of patients of both groups (66.67% in group A and 76.67% in group B) gained in haemoglobin below the range of <0.5mg%, followed by 20% of group A and 13.33% of group B gained Hb% in the range of 0.5-1gm% and 13.33% of group A and 10% of group B gained in the range of 1-1.5gm%.

Table No. 03 showing statistical analysis of improvement in haemoglobin percentage after treatment in both groups

Groups	Mean Hb (gm %)			N-1	%	SD ±	SE ±	't' Value	'p' value
	BT	AT	Diff.						
Group A	10.15	10.40	0.25	29	2.43	0.39	0.07	3.42	< 0.01
Group B	10.81	10.99	0.18	29	1.70	0.38	0.07	2.68	<0.02

Statistical analysis shows that gaining of Hb% in group A is significant in group A with "p" value<0.01 and significant in group B with "p" value<0.02

Total serum proteins

Table No. 04 Showing status of total serum proteins before treatment in both groups

S.No.	T.S.P. (Gm %)	Group A (n=30)		Group B (n=30)	
		No.	%	No.	%
1.	< 6	10	33.33	6	20.00
2.	6 – 6.5	19	63.34	17	56.67
3.	6.5 – 7	1	3.33	7	23.33
	Total	30	100.00	30	100.00

The maximum nos. of patients of both groups were having the total serum protein in 6-6.5gm% range (63.34% in group A and 56.67% in group B) followed by 33.33% of group A and 20% of group B were having the total serum protein in the range of less than 6gm% before treatment. Only 3.33% of group A and 23.33% of group B were having the serum protein in the range of 6.5-7gm% before treatment.

Table No. 05 showing gain in total serum protein gm% after 2 months of treatment

S.No.	Gain in TSP (In gm %)	Group A (n=30)		Group B (n=30)	
		No.	%	No.	%
1.	< 0.5	14	46.67	27	90.00
2.	0.5-1	12	40.00	3	10.00
3.	1-1.5	3	10.00	0	0.00
4	1.5-2	1	3.33	0	0.00
	Total	30	100.00	30	100

The table shows that maximum nos. of both groups (46.67% in group A and 90.00% in group B) gained total serum protein in the level below 0.5gm%. 40% patients of group A and 10% patients of group B gained total serum protein in the level 0.5-1gm%. 10% and 3.33% of patients of group A gained serum protein in the levels 1-1.5gm% and 1.5-2gm% respectively whereas no patients of group B gained the serum protein in these levels.

Table No. 06 showing statistical analysis of gain in total serum proteins after treatment in both groups

Groups	Mean T.S.P. (gm %)			N-1	%	SD	SE	't'	'p'
	BT	AT	Diff.			±	±	Value	value
Group A	5.98	6.48	0.50	29	8.30	0.42	0.08	6.53	< 0.001
Group B	6.15	6.24	0.09	29	1.46	0.18	0.03	2.73	<0.02

The result of statistical analysis shows that gain in total serum protein after treatment is highly significant in group A with 'p' value<0.001 and significant in group B with 'p' value<0.02

A: G Ratio

Table No. 07 Showing status of A: G ratio before & after treatment in both groups

S.No.	A:G Ratio	Group A (n=30)				Group B (n=30)			
		B.T.		A.T.		B.T.		A.T.	
		No.	%	No.	%	No.	%	No.	%
1.	< 1	2	6.67	0	0.00	1	3.33	0	0.00
2.	1-1.5	4	13.33	3	10.00	6	20.00	5	16.67
3.	1.5-2	10	33.33	14	46.67	14	46.67	12	40.00
4.	2-2.5	12	40.00	6	20.00	8	26.67	12	40.00
5.	> 2.5	2	6.67	7	23.33	1	3.33	1	3.33
	Total	**30**	**100.00**	**30**	**100.00**	**30**	**100.00**	**30**	**100.00**

Before treatment highest nos. of patients (40%) in group A were having A:G ratio in the range 2-2.5 followed by 33.33% in1.5-2 range and 13.33% in the range of 1-1.5. In group B highest nos. of patients (46.67%) before treatment were having A:G ratio in the range of 1.5-2 followed by 26.67% in 2-2.5 range and 20% in 1-1.5 range.

Table No. 08 showing statistical analysis of gain in A:G ratio after treatment

Groups	Mean A:G Ratio			N-1	%	SD	SE	't'	'p'
	BT	AT	Diff.			±	±	Value	value
Group A	1.92	2.07	0.15	29	7.64	0.43	0.08	1.87	> 0.05
Group B	1.90	1.93	0.03	29	1.58	0.20	0.04	0.84	> 0.10

Statistically results were insignificant in both groups with 'p' value >0.05 in group A and >0.10 in group B.

Overall Improvement in Total serum protein level

Table No. 09 Overall Improvement in total serum protein level in patients of Balshosha in Group-A and Group-B

Overall Improvement	Group A (n=30)		Group B (n=30)	
	F	%	F	%
Very Good	1	3.33	0	0.00
Good	3	10.00	0	0.00
Average	12	40.00	3	10.00
Poor	14	46.67	27	90.00

In both groups, there is poor improvement in total serum proteins level in 46.67% patients of group A & 90.00% patients of group B. But group A shows good improvement in total serum proteins level in 10.00% patients with very good improvement in 3.33% cases while in group B no case with very good or good improvement is seen. Average improvement in group A occurs in 40.00% cases and group B in 10.00% cases.

Inter-group comparison of laboratory parameters

Difference in changes observed in Laboratory parameters

Table No.10: Statistical status of inter-group difference of changes observed in laboratory parameters

Parameters	SD	SE (±)	't' Value	'p' Value
Hb gm%	0.383	0.099	0.70	>0.10
Total serum protein	0.321	0.083	4.9	<0.001
A:G Ratio	0.337	0.087	1.61	>0.10

In laboratory parameters highly significant difference in improvement was observed statistically in total serum protein between two groups ($p<0.001$). Other parameters like haemoglobin, A: G ratio, total leukocyte count and ESR shows insignificant difference in improvement in between two groups ($p>0.10$).

Discussion

Effect on laboratory parameters

The main laboratory parameters studied was Hb gm%, total serum proteins, A:G ratio as all these are disturbed in malnutrition. In addition TLC, DLC and ESR were also done to check out that is drug altering normal parameters or not.

- **Improvement in hemoglobin level-** In present study the mean Hb gm% of patients in both groups were 10.15 gm% in group A and 10.81 gm% in group B. The mean gain in Hb in group A was 0.25 gm% while in group B it is 0.18 gm%. On statistically analysis, the results are significant in both groups ($p<0.01$ in group A and $p<0.02$ in group B) (Table no. 03). Post test result with paired't' test shows insignificant differences in both groups with 'p' value>0.10 (Table no.09).So, it can be said that the improvement in the level of Hb% is not due to the study drug.
- **Improvement in total serum protein-** Total serum protein is a good indicator of protein malnutrition and is usually low in malnourished children. In present study mean total serum protein in group A was 5.98 gm and in group B it was 6.15 gm. After two months of treatment a gain of 0.50 gm in group A and 0.09 gm in group B was observed. Maximum of 46.67% patients in group A gain TSP in the range below0.5 gm followed by 40% in the range0.5-1gm,10% in the range1-1.5 gm and 3.33% gained in the range1.5-2gm whereas maximum 90% patients in group B gain TSP less than 0.5 gm followed by 10% gained in the range 0.5-1gm. (Table no.81). The gain is statistically highly significant in group A ($p<0.001$) whereas in group B it is significant ($p<0.02$) (Table no. 06). Intergroup difference in total serum protein gain is statistically highly significant ($p<0.001$) indicating that drug have positive effect on total serum protein level on malnutrition (Table no.09). Total serum proteins are taken as an indicator of Rasa Dhatu and their increase denotes formation of healthy Rasa Dhatus. This action may be attributed to Brimhana, Rasayana, Jeevaniya properties of drug. Pippali[6], Yastimadhu[7] are known to have a positive effect on absorption and bioavailability of nutrients which may also be the reason behind increase in total serum proteins.
- **Improvement in A:G ratio-** Albumin is the most abundant serum protein and globulins are second to it. There ratio remains fixed to a range in all healthy individuals. In malnutrition as albumin levels fall; so A:G ratio increases. In present study the mean A:G ratio in group A was 1.92 and in group B it was 1.90. After treatment an increase of 0.15 in group A and 0.03 in group B was noticed in A:G ratio. These results are statistically insignificant for both groups ($p<0.02$ in group A and $p>0.10$ in group B) (Table no. 07). This shows that drug doesn't have any effect on A: G ratio which may be due to a high A: G ratio before treatment.

Conclusion

Improvement in the level of total serum protein is the good sign of recovery in protein energy

malnutrition. In the present study it is seen that highly significant difference in gaining total serum protein level in comparison to simple standard diet. So it can be concluded that indigenous drug Shoshjit Yog along with standard diet is a good alternative for the treatment of malnutrition as it enhances absorption of nutrients and increase the total serum protein.

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Clinical Study

Clinical Evaluation of the Efficacy of *Shankhapushpi Panak* and *Shirodhara* with *Mansyadi Kwatha* in the Management of *Chittodvega* W.S.R. to Generalized Anxiety Disorder

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Abstract

Chittodvega is a psychological disease which resembles Generalized Anxiety Disorder (GAD). It is characterized by excessive, uncontrollable and often irrational worry about everyday things that is disproportionate to the actual source of worry. Present study was conducted on 60 clinically diagnosed cases of *Chittodvega* by dividing them randomly into two equal groups. Patients of Group I were administered Shankhapushpi Panak in the dose of 15 ml twice a day for one month and *Shirodhara* with *Mansyadi Kwatha* daily for 21 days. In Group II, patients were administered Tab. Sertraline 50mg once a day at bed time for 30 days. Effect of both therapies were assessed and compared on the basis of improvement in sign and symptoms of *Chittodvega* and GAD by using DSM-IV criteria, Hamilton Anxiety Rating Scale. Statistically highly significant improvements were observed in both Groups. Ayurvedic treatment had produced similar and comparable effect on various scientific parameters as compared with Tab. Sertraline.

Key Words - *Chittodvega*, Generalized Anxiety Disorder, *Shirodhara*

सारांश–

चित्तोद्वेग एक मानसिक बीमारी है जो जनरलाइज्ड एंजाइटी डिसॉर्डर के समरूप है । दैनिक जीवन की चीजों के बारे में अत्यधिक, अनियंत्रित एवं प्राय: तर्कहीन चिंता करना इसके लक्षण है, जिसका चिंता के वास्तविक कारण से कोई सामंजस्य नहीं होता है। प्रस्तुत अध्ययन चित्तोद्वेग के नैदानिक निर्धारण किये हुए 60 रोगियों को दो समान वर्गो में बिना क्रम के विभाजित कर किया गया। समूह–I के रोगियों को शंखपुष्पी पानक 15 मि०ली० दिन में दो बार एक माह तक एवं मान्स्यादि क्वाथ से शिरोधारा प्रतिदिन 21 दिनों तक दिया गया। समूह–II के रोगियों को टैबलेट सरट्रालिन 50 मि०ली० रात को सोते समय एक बार 30 दिनों तक दिया गया। दोनों चिकित्साओं का मूल्यांकन एवं तुलना चित्तोद्वेग एवं जनरलाइज्ड एंजाइटी डिसॉर्डर के लक्षणों में आए सुधार द्वारा DSM IV CRITERIA एवं HAMILTON ANXIETY SCALE की सहायता से किया गया। दोनों वर्गो में अत्यधिक महत्वपूर्ण सुधार देखे गये । आयुर्वेदिक उपचार ने विभिन्न वैज्ञानिक मापदण्डों पर सरट्रालिन के समान एवं तुलनात्मक प्रभाव उत्पन्न किया ।

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Clinical Study

Clinical Evaluation of the Efficacy of *Shankhapushpi Panak* and *Shirodhara* with *Mansyadi Kwatha* in the Management of *Chittodvega* W.S.R. to Generalized Anxiety Disorder

Dr. Udai Raj Saroj, Dr. Purnima Rao, Prof. R. K. Joshi

Introduction:

Chittodvega is *Manas Roga* and develops due to vitiation of *Raja* and *Tama*[1]. *Chittodvega* can be defined as a *Chitta* (mind) + *Udvega* (anxiety) = *Chittodvega* – 'Anxious status of a mind". *Nidana Sevana* aggravates *Raja*, which aggravates *Tama*[2] along with *Vata* and *Pitta*. There is lack of description of symptoms of *Chittodvega* in Ayurvedic texts. *Unmada* is a major psychological disorder (impairment of orientation i.e. psychosis) and *Chittodvega* is one of the minor psychological disorders (no disorientation as the patient can perform his day to day activities without much difficulty i.e. neurosis) and neurosis may develop psychosis. Keeping these points in mind, the prodromal features of *Unmada*, like *Shirash Shoonyata, Chakshushorakulta, Ucchawasasya-dhikyam, Udvega, Dhyana, Hridgraha, Ayasa, Unmattchittatvam, Anannabhilasha, Sammoha, Swanokarnayo* and *Avipaka*,[3] were taken as symptoms of *Chittodvega*. *Chittodvega* can be correlated with Generalized Anxiety Disorders on the basis of its etymology (*Chittodvega* = anxious state of mind), pathology (neurotic disorder) and symptoms (both are psychosomatic disorder).

Generalized Anxiety Disorder present with persistent, excessive, and/or unrealistic worry associated with muscle tension, impaired concentration, autonomic arousal, feeling "on edge" or restless, and insomnia. In present era, the occurrence of many diseases has increased and one of them is mental disorder, which is mentioned as 3rd health burden in India according WHO survey.[4] The data suggest that in Anxiety Disorders clinics approximately 12% of the individuals suffering with Generalized Anxiety Disorder,[5] also approximately 6.8 million American adults[6] and 2 percent of adult Europeans, in any given year, experience GAD.[7] The modern medical treatment of this disease requires long term use of sedative, hypnotic and anxiolytic drugs, which may lead to the side effects. But the treatment should cure the disease without developing any other disease,[8] so we should search for better treatment with less complication.

Shankhapushpi Panak described in *Ayurveda Sara Sangraha* under *'Panak Kalpana'* was selected for trial in the present study. It contains *Shankhapushpi, Brahmi* and *Sharkara*. *Shankhapushpi* is *Tridoshshamaka* especially *Vata-Pittashamaka* and has *Medhya Prabhava*, Secondly, *Shirodhara* with *Mansyadi Kwatha* was also selected in this research work. *Mansyadi Kwatha* described in *Siddha Yog Sangraha*, contains *Jatamansi, Ashwagandha* and *Parseek Yavani*, is mentioned as a treatment for *Anidra* and *Shirodhara* is well known procedure used in *Manas Roga*. For the comparison of effects of these drugs Sertraline was selected as a control drug which is drug of choice for GAD.

Aims and Objectives:

1. Clinical and conceptual studies of Chittodvega vis-à-vis Generalized anxiety disorders on the Ayurvedic terms.
2. To evaluate clinically the efficacy of *Shankhapushpi Panak* and *Shirodhara* with *Mansyadi Kwatha* for *Chittodvega*.
3. To compare the efficacy of *Shankhapushpi Panak* and *Shirodhara* with *Mansyadi Kwatha* with a standard drug i.e. Sertraline.

Material and Methods –

The study was conducted on 60 clinically diagnosed patient of *Chittodvega* (GAD). The selection of patients were made from the Out patient and in patient of P.G. Department of *Kayachikitsa* at National institute of Ayurveda Hospital Jaipur, SSBH Jaipur, Satellite Hospital and Psychiatric centre and

De-addiction centre, Jaipur, Rajasthan after obtaining informed consent from them and were randomly divided into two equal groups.

1. **Study Design-** Single centre, Open label, Randomized, Standard, Controlled, Clinical Interventional type.

2. **Inclusion Criteria-**

   a) Patients fulfilling the Diagnostic and Statistical Manual of Mental Disorder, Fourth edition (DSM-IV) Criteria.

   b) Patients who score at least 14 on the Hamilton Anxiety Rating Scale (HARS-A) at baseline visit.

   c) Patients in the age group of 18-65 years of either sex.

   d) Female patients who agreed to use acceptable methods of birth control throughout the study.

3. **Exclusion Criteria –**

   a) Patients below 18 and above 65 years of age.

   b) *Chittodvega* due to direct physiological effect of a substance (e.g. A drug abuse, a medication) or a general medical condition (e.g. Hyperthyroidism)

   c) Occurrence of *Chittodvega* exclusively during mood disorder, a psychotic disorder or a pervasive development disorder.

   d) Patients having chronic diseases like Diabetes Mellitus, Ischemic heart disease, Hypertension, Malignancies, Chronic Renal Failure, any Endocrinological disorder etc.

4. Administration of Drugs

Group I-30 registered patient were treated with *Shankhapushpi Panak* in the dose of 15 ml BD with equal amount of water after meal and *Shirodhara* with *Mansyadi Kwatha* 45 minutes daily in the morning hours for 21 days.

Group II-30 registered patients were treated with Sertraline 50 mg once a day at bed time for 30 days.

Criteria of Assessment:

1. Symptoms of *Chittodvega*: *Shirash shoonyata, Chakshushorakulta, Ucchawasasyadhikyam, Udvega, Dhyana, Hridgraha, Ayasa, Unmattchittatvam, Anannabhilasha, Sammoha, Swanokarnayo* and *Avipaka*. Change in each symptom was scored by a Symptom Grading Scale.
2. DSM-IV criteria for GAD.
3. Hamilton Anxiety Rating Scale (HAM-A).

Grading of Symptoms of *Chittodvega* :

1. *Shirash Shoonyata* (Mind going blank)

i. Not present	0
ii. Occasionally	1
iii. Once in a week	2
iv. Daily but not always	3
v. Always	4

2. *Chakshushorakulta* (unsteady eyes)

i. Normal eyes	0
ii. Eyes are unsteady while talking	1
iii. Eyes are unsteady even at rest	2

3. *Swanokarnayo* (Tinnitus)[9]

i. Not present	0
ii. Audible only in silent environments	1
iii. Audible only in ordinary acoustic environments, but masked by loud environmental sounds; can disturb falling asleep, but not sleep in general	2
iv. Audible in all acoustic environments, disturbs falling asleep, can disturb sleep in general, and is a dominating problem that affects quality of life	3

4. *Ucchwasasyadhikyam* (Dyspnoea)

i. Normal respiration	0
ii. Frequent sighing but not noticed by the patients	1
iii. Frequent sighing and patient think he is dyspnoic	2

5. *Hridgraha* (Chest tightness)

i. No chest tightness	0
ii. Mild tightness around chest	1
iii. Feeling of choking sensation around chest	2
iv. Difficulty in breathing due to choking	3

6. *Dhayana* (Unrealistic Apprehension)

i. Not present	0
ii. Occasionally	1
iii. Once in a week	2
iv. Daily but not always	3
v. Daily and always	4

7. *Ayasa* (Easily become fatigue)[10]

i. No limitation of normal activity	0
ii. Comfortable at rest, but ordinary physical activity results in fatigue	1
iii. Comfortable at rest, but less than ordinary activity causes fatigue.	2
iv. Unable to carry out any physical activity without discomfort.	3

8. *Sammoha* (Illusion)

i. Not present	0
ii. Occasionally	1
iii. Once in a week	2
iv. Daily but not always	3
v. Daily and always	4

9. *Udvega* (Palpitation)	
i. Normal emotions	0
ii. Emotional easily even in normal conditions	1
iii. Emotional during expressing his/her feelings	2
iv. Always emotional	3
v. Unable to handle her/his emotions	4
10. *Unmattchittatvam* (Inability to concentrate)	
i. No complaint	0
ii. Feel that loss of concentration than earlier	1
iii. Cannot do work of concentration	2
iv. Many often I forget the matters	3
v. Forget thing / matter of few minutes ago	4
11. *Anannabhilasha* (Anorexia)[11]	
i. Normal appetite	0
ii. Loss of appetite without alteration in eating habits	1
iii. Oral intake altered without singnificant weight loss or malnutrition	2
iv. Associated with significant weight loss or malnutrition	3
v. Life threatening consequences	4
12. *Avipaka* (Impaired digestion)	
i. Food digests in 4-5 hrs	0
ii. Food digests in 6-10 hrs	1
iii. Food digests in 11- 15 hrs	2
iv. Food digests in 16-20 hrs	3
v. Food digests in more than 1 day	4

Statistical Methods Used: Observation obtained were analyzed statistically with the help of Instate Graph pad software 3.1. Following tests were used for the purpose-

1. Wilcoxon matched-pairs signed ranks test- Intra group comparison.
2. Mann-Whitney Test- For calculating the Inter group comparison.

Observation:

Majority of patients were young (age 16-25 years - 25%), male (61.67%), married (53.3%), primarily educated (35%), middle class (45.0%), Hindu (56.7%), from urban habitat (38.3%). Maximum no. of patients had mixed diatary habbit (61.7%) and relevant family history (71.67%), along with 1-5 years of chronicity of disease (56.7%).

Majority of patient had *Vata-Pittaja Sharira Prakriti* (41.7%), *Rajasika Manas Prakriti* (63.33%), *Madhyama Sara* (86.66%), *Madhyama Samhanana* (80%), *Avara Satva* (68.3%), *Madhyama Abhyavaharana Shakti* (30%), *Avara Jarana Shakti*

(45%) and *Avara Vyayama Shakti* (54.1%). Maximum number of the patients had *Madhyama Koshtha* (60%), *Vishmagni* (58.33%), Regular bowel habit (50%), *Samanya Mutrata* (85%). Most of the patient had disturbed sleep (38.3%) and were addicted to Tea (46.65%) and worried due to death of close ones (23.3%)

Among symptoms of *Chittodvega* 96.67% had complaint of Dhyana, 95% had complaint of Ayasa, 75% had complaint of *Sammoha, Udvega, Unmattchittatvam* each, 66.6% had complaint of *Shirash Shoonyata*, 45% had complaint of *Avipaka*, 33.34% had complaint of *Hridgraha*, 26% had complaint of *Chakshushorakulta*, 23% had complaint of *Anannabhilasha* and 18% had complaint of *Ucchawasasyadhikyam* as well as *Swanokarnayo* each.

Among symptoms of GAD maximum i.e. 100% had complaint of Excessive worry, difficulty to control worry along with restlessness each, 96.67% had complaint of irritability, 95% had complaint of easily fatigability, 93.33% had complaint of disturbed sleep, 75% had complaint of Difficulty in concentration or mind going blank and only 20% complained for muscle tension.

Occurrence of *Kapha Dushti* symptoms in *Chittodvega* showed that 45% were suffering from *Agnimandya*, 33.33% from *Avsada*, 23.34% from *Aruchi*, 9.8% from *Praseka* and 1.7% from *Tandra*. Occurrence of *Pitta Dushti* symptoms showed that 95% was suffering from *Balahrash*, 90% from *Amlika*, 40% from *Atisweda* and 23.3% from *Daha*. Occurrence of *Vata Dushti* symptoms showed that 100% was suffering from *Vepathu*, followed by 93.33% from *Nidranasa*, 66.67% from *Shiroruka*, 65.7% from *Hriddravata*, 40% from *Gadhavarcha*, 13.2% from *Padasuptata* and 5% from *Udarveshtana*. Occurrence of *Ojas Dushti* symptoms showed that 95% was suffering from *Daurbalya*, 68.3% from *Bhaya*, 8.2% from *Pramada* and 6.6% from *Rukshata*.

Results:

Table No. I : Showing effect of Therapy on Hamilton Anxiety Rating Scale (HAM-A Scale) (Wilcoxon matched paired single ranked test)

Group	Mean		Mean	%	SD	SE	P	S
	BT	AT	Diff.	Relief	±	±	Value	value
Group I	44.46	15.86	25.40	57.1%	9.12	1.66	<0.001	HS
Group II	44.90	15.36	26.23	58.4%	9.26	1.69	<0.001	HS

HS: Highly Significant

On intergroup comparison both the groups were statistically insignificant.

Table No. II : Showing effect of Therapy on DSM-IV criteria for GAD (Chittodvega) (Wilcoxon matched paired single ranked test)

Variable	Group	Mean		Mean	%	SD	SE	P	S
		BT	AT	Diff.	Relief	±	±	Value	value
Excessive worry	Group I	3.20	0.50	2.60	82.2%	0.49	0.89	<0.001	HS
	Group II	2.96	0.53	2.43	82.0%	0.50	0.92	<0.001	HS
Restlessness	Group I	2.23	0.40	1.83	82.0%	0.79	0.14	<0.001	HS
	Group II	3.00	0.50	2.50	83.3%	0.73	0.13	<0.001	HS

Variable	Group	Mean		Mean	%	SD	SE	P	S
		BT	AT	Diff.	Relief	±	±	Value	value
Fatigability	Group I	1.93	0.33	1.60	82.7%	0.93	0.17	<0.001	HS
	Group II	1.96	0.33	1.63	83.0%	1.03	0.18	<0.001	HS
Difficulty in	Group I	1.56	0.36	1.20	76.6%	0.92	0.16	<0.001	HS
concentrating	Group II	1.80	0.36	1.40	76.3%	0.96	0.17	<0.001	HS
Irritability	Group I	2.96	0.40	2.53	85.3%	0.62	0.11	<0.001	HS
	Group II	2.96	0.13	2.56	86.5%	0.56	0.10	<0.001	HS
Muscle tension	Group I	0.46	0.13	0.33	71.4%	0.66	0.12	<0.001	HS
	Group II	0.40	0.10	0.30	75.0%	0.65	0.11	<0.001	HS
Sleep disturbance	Group I	3.03	0.40	2.63	86.8%	0.71	0.13	<0.001	HS
	Group II	2.66	0.40	2.26	85.0%	1.20	0.21	<0.001	HS
DSM-IV criteria	Group I	18.4	5.36	11.76	63.9%	5.93	1.08	<0.001	HS
for GAD as a whole	Group II	19.6	4.80	13.33	67.7%	5.50	1.01	<0.001	HS

HS: Highly Significant

On intergroup comparison both the groups were statistically insignificant.

Table No. III : Showing effect of therapy on the symptoms of Chittodvega (Wilcoxon matched paired single ranked test)

Variable	Group	Mean		Mean	%	SD	SE	P	S
		BT	AT	Diff.	Relief	±	±	Value	value
Shirash Shoonyata	Group I	1.10	0.23	0.86	78.7%	0.81	0.14	<0.001	HS
	Group II	1.40	0.26	1.13	80.9%	0.77	0.14	<0.001	HS
Chakshushor-	Group I	1.10	0.33	0.76	69.6%	0.43	0.07	<0.001	HS
akulta	Group II	1.03	0.33	0.70	67.7%	0.46	0.08	<0.001	HS
Swanokarnayo	Group I	0.43	0.16	0.26	61.5%	0.58	0.10	<0.05	S
	Group II	0.36	0.13	0.23	63.6%	0.56	0.10	<0.05	S
Ucchwasasya-	Group I	0.86	0.33	0.53	61.5%	0.50	0.10	<0.001	HS
adhikyam	Group II	0.93	0.16	0.60	64.2%	0.56	0.10	<0.001	HS
Hridgraha	Group I	0.43	0.10	0.33	76.9%	0.47	0.08	<0.001	HS
	Group II	0.66	0.30	0.23	77.7%	0.43	0.07	<0.001	HS
Dhyana	Group I	3.16	1.50	1.66	52.6%	0.84	0.15	<0.001	HS
	Group II	2.93	1.13	1.80	61.3%	1.18	0.21	<0.001	HS

Variable	Group	Mean		Mean	%	SD	SE	P	S
		BT	AT	Diff.	Relief	±	±	Value	value
Ayasa	Group I	1.93	0.33	1.60	82.7%	0.93	0.17	<0.001	HS
	Group II	1.96	0.33	1.63	83.0%	1.03	0.18	<0.001	HS
Sammoha	Group I	2.00	0.43	1.56	78.3%	1.25	0.22	<0.001	HS
	Group II	1.76	0.30	1.46	83.0%	1.30	0.23	<0.001	HS
Udvega	Group I	1.60	0.36	1.23	77.0%	0.93	0.17	<0.001	HS
	Group II	2.06	0.46	1.6	77.4%	0.85	0.15	<0.001	HS
Unmat- chittatava	Group I	1.56	0.36	1.2	76.6%	0.92	0.16	<0.001	HS
	Group II	1.80	0.36	1.4	76.3%	0.96	0.17	<0.001	HS
Anannabhi-lasha	Group I	0.40	0.13	0.26	66.6%	0.44	0.08	<0.001	HS
	Group II	0.30	0.10	0.20	66.6%	0.40	0.07	<0.001	HS
Avipaka	Group I	1.00	0.36	0.63	63.3%	0.49	0.08	<0.001	HS
	Group II	0.96	0.73	0.2	20.7%	0.40	0.07	<0.05	S

(HS: Highly Significant S: Significant)

On intergroup comparison both the groups showed statistically insignificant difference in all the symptoms except in Avipaka in which both the groups had significant difference (p value <0.05).

Discussion

Manas is very important in Ayurveda as it is an essential component of Ayu, Tridanda (a metaphysical faculty of person), process of knowledge, site for disease development, good health and salvation. The main seat of Manas is Hridaya (Brain) and it performs its function by moving in whole body through Srotas along with Vata, Pitta and Kapha. Raja & Tama are two Manasika Doshas which vitiates the Hridaya, the seat of Buddhi, and then obstruct the Manovaha Srotas & produce various types of psychological disorders like Chittodvega etc. It can be correlated with Generalized Anxiety Disorders on the basis of etymology of Chittodvega (anxious state of mind), type of psychological disorder (neurotic disorder) and symptomology (both are psychosomatic disorder).

Shankhapushpi Panak which is mentioned in Ayurveda Sara Sangraha under Panaka Kalpana contains Shankhapushpi, Brahmi and Sugar, is stated to be Medhya, Smritiprada, Shirahshoolahara, and useful in Chittavibhrama and Manasika Ashanti.

Shankhapushpi is Tridoshshamaka especially Vata-Pittashamaka, has Tikta Rasa, Snigdha and Picchila Guna, Sheeta Virya, Madhura Vipaka and Medhya in Prabhava. Acharya Charaka has mentioned it as best 'Medhya Rasayana'. Due to Vata-Pitta Samaka property, Shankhapushpi acts on Raja Guna by pacifying Vata Dosha. It is Medhya in Prabhava so it improves Medha and decreases probability of Pragnyaparadha because literally, the term "Medhya" means substances that are beneficial for "Medha" or in a functional term Pragya[12]. In recent studies, it is mentioned as anxiolytic, tranquillizing and antiamensic[13]. It is quite good for improving memory due to its chemical composition, including phytonutrients like Scopoline ß- Sitosterol, Convoline and Confoline[14].

Brahmi is Tridoshahara, has Tikta, Kashaya and Madhura Rasa, Laghu and Sara Guna, Sheeta Virya, Madhura Vipaka and Medhya Prabhava. By pacification of Vata and Pitta, there is reduction of Raja Guna along with Tama. Due to Medhya Prabhava it improves Medha and reduces the Pragnyaparadha. In recent studies, it is mentioned as sedative[15], anti-

stress[16], and enhancer of cognitive performance[17] and acts through triterpenoid, saponins and their bacosides. Brahmi is said to affect the GABA-ergic system which involves the nerves and synapses of the central nervous system, where memory originates and is stored. The saponin and hersaponin is reported to possess sedative and spasmodic properties. A comparative study of hersaponin and pentobarbitone indicates that hersaponin has a superior sedative effect[18].

Among all the Vikaras of Ikshu, Sharkara has best Vata-Pittashamaka property, it has Madhura Rasa, Guru and Snigdha Guna, Sheeta Virya, Madhura Vipaka. It increases Kapha Guna and improves the general physique and has a soothing effect on the mind or produces tranquillity in the mind and enhances "Dharana Karma".

Probable mode of action of Shirodhara with Mansyadi Kwatha

According to Acharya Charaka, the Shirash is the seat of Prana and all Indriyas (sense organs) has shelter in Shirash. So Shirodhara with Mansyadi Kwatha provides strength to Prana & Indriya which are mainly vitiated in case of psychological disorders.

According to Yoga Sutra, between both eye brows one of the Shada Chakra, i.e. Agya Chakra is located which controls the function of other Chakra, and it is also responsible for intellect, knowledge etc. So when the patient meditate on Dhara, it enhances the power of Agyachakra, which in turn starts functioning properly & also regulates the function of other Chakra and relieves the symptom of Chittodvega.

Paka Prakriya by Bhrajaka Pitta situated at Twaka absorbs Virya of drugs directly without alteration in properties[19] and acts directly on the site of pathology i.e Shira. Also, scalp is richly supplied by blood vessels, so there is readily absorption of active principles.

In a study the psycho–neuro--immunologic changes of Shirodhara were studied. The results show that Shirodhara has anxiolytic and ASC-inducing effects, and it promotes a decrease of noradrenaline and exhibits a sympatholytic effect, resulting in the activation of peripheral foot skin circulation and immunopotentiation[20].

Jatamansi is Tridoshashamaka, has Tikta, Kshaya and Madhura Rasa, Snigdha and Laghu Guna, Sheeta Virya and Katu Vipaka. Acharya Charaka has stated it as Sangyasthapaka. Jatamansi comes packed with GABA and it increases the power of the GABA produced by the body. The end result is a relaxed day or a good night's sleep[21].

Parseek Yavani is Kapha-Vatashamaka and Pittavardhaka, It produces sedative effect due to Madaka Prabhava, reduces headache due to Vednasthapaka Prabhava. It has Scopolamine alkaloid, which is muscarinic receptor antagonist and anticholinergic that's why it produces sedative effect[22].

Ashwagandha is Kapha-Vata Samaka, has Tikta, Katu and Madhura Rasa, Laghu and Snigdha Guna, Ushna Virya and Madhura Vipaka. It pacifies Vata due to Madhura Rasa, Snigdha Guna, Ushna Virya and Madhura Vipaka. Its extract has negative effect on stress, including elevated levels of the stress hormone cortisol[23]. Its extract inhibits acetylcholinesterase and their by produces sedative effect[24].

Conclusions

Following conclusions can be drawn from the current research project -

1. Mind is prime factor in health and disease.
2. Various psychic factors affects at somatic levels too.
3. Among various psychological disorders described in Ayurveda Chittodvega is nearest term for Generalized Anxiety Disorder. Rajas with vitiation of Vata plays an important role in Chittodvega.
4. Shankhapushpi Panak and Shirodhara with Mansyadi Kwatha produced similar results in sign and symptoms of Chittodvega (GAD) on Hamilton Anxiety Rating Scale as compared with that of Tab. Sertraline.

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Clinical Study

"Clinical Evaluation Of *Palasha Kshara* And *Pashanbheda Kwatha Churna* In The Management Of Urolithiasis"

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Abstract

The urinary stones have peculiar tendency of recurrence, despite of their surgical removal, which prove that surgery only be a part of treatment, but not the complete treatment. To avoid the incidence of recurrence after surgical removal of stone and in search of an effective conservative treatment the present work has been performed.

The present study was conducted in 43 clinically diagnosed patients of Urolithiasis were treated with *Palashakshara* and *Pashanbheda Kwath* for 84 days. Statistically significant improvement was observed in Urolithiasis (*Mutrashmari*).

Key Words: -*Urolithiasis, Mutrashmari, Palashakshara, Pashanbheda Kwath.*

सारांश –

मूत्राश्मरी रोग मे शल्य चिकित्सा द्वारा ईलाज करवाने के पश्चात भी देखा गया है कि इस रोग की पुनरावृत्ति हो जाती है, अतः यह चिकित्सा पूर्ण नहीं है। इस रोग की पुनरावृत्ति को रोकने के लिये एवं एक उपयुक्त औषधीय चिकित्सा की खोज में यह अनुसन्धान कार्य किया गया, और परिणाम उत्साहजनक रहे।

प्रस्तुत अध्ययन पूर्व विनिश्चित मूत्राश्मरी रोग के 43 रोगियों में पलाश क्षार और पाषाण भेद लगातार 84 दिन तक देकर देखा गया सांख्यिकी परिणाम संतोषजनक पाये गये।

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Clinical Study

"Clinical Evaluation Of *Palasha Kshara* And *Pashanbheda Kwatha Churna* In The Management Of Urolithiasis"

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Introduction

Management of various types of *Ashmari* has been described in *Sushruta Samhita* in *chikitsasthan*[1]. Treatment has been advised to be undertaken in the early stages of the disease. *Ghrita* recipes for three types of calculi have been mentioned along with indication of appropriate food, drinks and other measures[2]. Indication for the surgical management has maintained along with a note of caution regarding its risk and doubtful chances of success.[3] It was to be undertaken only on failure of conservative treatment and when death becomes inevitable if not treated surgically[4]. Among the many modalities available *Palashaakshara* and *Pashanbheda-kwathachurna* is supposed to be effective looking in the management of *Ashmari*, probably these drugs have *'Guna'* that may resolve the condition.

The above combination of drugs is cost effective and can be prescribed, on **OPD** basis. These two formulations are indicated in Urolithiasis. **Dept. of AYUSH** along with its central apex body & **CCRAS** have developed these formulations according to standards mentioned in **API**. However the next step was to validate its clinical efficacy in Urolithiasis. The present study was a part of the project of **APC** (*Ayurvedic* Pharmacopoeia Committee), well known by **ACTURO** (Ayurveda Clinical Trial – Urolithiasis).

Project was organized by **CCRAS** & sponsored by **Dept., of AYUSH**. It was a multi centric trial. The aim of the project was to validate the ancient valuable *Ayurvedic* remedies & to promote research activities in Ayurveda.

Clinical Study –

Aims And Objectives

Aim

To evaluate the efficacy of *Palashakshara* and *Pashanbheda kwatha churna* inthe management of Urolithiasis *(Mutrashmari)*.

Objectives

Primary Objectives:

To assess the clinical efficacy of *Palasha Kshara* and *Pashanbheda Kwatha Churna* in the management of Urolithiasis *(Mutrashmari)*.

Secondary Objectives

To assess the clinical safety of *Palasha Kshara* and *Pashanbheda Kwatha Churna* in the patients of Urolithiasis.

Plan of The Study (Selection of Cases)

Source– Patients for the present study were screened out, from the O.P.D. of *Shalya Tantra,* Department, NIA, Jaipur.

Age Group – Patients of age group between 18-65 years were selected for the study.

Number of Cases – Total 50 cases were selected, out of which 7 cases discontinued. Thus, final study was conducted with 43 patients.

Diagnostic Criterias Adopted

Inclusion Criteria:

1. Patients of either sex, of age group 18-65 years.
2. Patients having Radiological / Ultrasonological evidence of single calculus / multiple calculi $\leq$10 mm each, present in kidney(s)/ ureter(s) / urinary bladder.
3. Patients who willing and able to participate in trial upto 16 weeks.

Exclusion Criteria

1. Patients with Urinary Tract Infection (UTI).
2. Patients having any type of obstructive uropathies.

3. Patients with known metabolic/endocrinal disorder favoring calculus formation.
4. Patients with evidence of malignancy.
5. Patients with poorly controlled Diabetes Mellitus (HbA1c > 10%).
6. Patients suffering from major systemic illness necessitating long term drug. treatment (Rheumatoid arthritis, Psycho-Neuro-Endocrinal disorders, etc.)
7. Patients who have a past history of Atrial Fibrillation, Coronary Artery Disease (CAD), Acute Coronary Syndrome, Myocardial Infarction, Stroke or Severe Arrhythmia in the last 6 months.
8. Symptomatic patients with clinical evidence of Heart failure.
9. Patients with poorly controlled Hypertension (> 160/100 mm Hg)
10. Patients on prolonged (6 weeks) medication with corticosteroids, antidepressants, anticholinergics, etc. or any other drugs that may have an influence on the outcome of the study.
11. Patients with concurrent serious hepatic disorder (defined as AspartateAmino Transferase (AST) and / or Alanine Amino Transferase (ALT), Total Bilirubin, Alkaline Phosphatase (ALP) > 2 times upper normal limit) or Renal Disorders (defined as S. Creatinine>1.2mg/dL).
12. Patients with severe Pulmonary Dysfunction (uncontrolled Bronchial Asthma and / or Chronic Obstructive Pulmonary Disease [COPD]), Inflammatory Bowel Disease or any other condition that may jeopardize the study.
13. Alcoholics and/or drug abusers.
14. H/o hypersensitivity to any of the trial drugs or their ingredients.
15. Patients who have completed participation in any other clinical trialduring the past six (06) months.
16. Pregnant or lactating woman.
17. Any other condition which may jeopardize the study according to Principal Investigator will be excluded.

Procedure

Permission for conduction of clinical trial and no objection certificate from Institutional Ethical Committee was taken.

Assesment Criteria

1) **Subjective Criteria:**

a) Pain in flanks b) Strangury
c) Blood in urine d) Turbid urination
e) Interrupted stream of urinef) Urgency of urine
g) Frequency of urine h) Burning micturition
i) Nausea j) Vomiting
k) Fever

2) Objective Criteria:

A) Size of calculus - Not > 10mm

B) No. of calculus - Single or multiple calculi

C) Site of calculus

Baseline Screening –

Screening of 50 OPD & IPD patients irrespective of sex, presenting with urinary complaints from our institute Hospital, were employed. Routine Laboratory Investigations was performed to exclude any other pathology at the time of Baseline screening.

A) Blood Investigations:

1) Hematology-	Haemogram
	Blood Sugar Fasting
	ESR
2) Biochemistry-	Blood Urea Level
	Serum Uric Acid
	Serum Creatinine
	Liver Function Test
	Serum Lipid Profile
	Serum Calcium

B) Urine Analysis:

Physical – Albumin, Sugar

C) Microscopic – Red Blood Cells, White Blood Cells, Crystals

D) Ultrasonography: Abdomen and pelvis.

E) Radiological Study:

- Plain X-ray KUB (After Preparation)
- Intravenous pyelography (if necessary).

F) ECG

Clinical Study –

- ❒ According to selection criteria, 50 diagnosed patients were selected for study.
- ❒ Written informed consent was obtained from every patient.
- ❒ Proper case history was taken according to specially designed case proforma.
- ❒ All Clinical findings were recorded as per case proforma.

Trial Group – All 50 patients were treated with *Palasha Kshara + Pashan bheda Kwatha Churna* for a period of 84 days.

Drug regimen:-

1. *Palashaa Kshara*

(API-Part II-Vol.-I: Pg. 109-110)

Dose:	One tablet (500mg) twice daily
Dosage form:	Tablet
Route of Administration:	Oral
Time of Administration:	Twice a day after food
Anupana:	Water
Packing form:	Plastic Jar containing 30 hard gelatin capsules of 500 mg each
Duration of therapy:	12 weeks

2. *Pashanbheda Kwatha Churna:*

(API-Part I-Vol.-I: Pg. 120-121)

Dose:	25 gm twice daily
Dosage form:	*Kwathachurna* (Coarse powder for decoction)*
Route of Administration:	Oral
Time of Administration:	Twice a day before food
Anupana:	Water
Packing form:	Plastic Jar containing 30 sachets of 25 Gms each
Duration of therapy:	12 weeks
Method of Preparation:	Take 1 sachet (containing 25 g of *Pashanbheda Kwatha Churna*) and add 200 ml of drinking water. Heat on mild flame till itis reduced to 50 ml (approximate). Strain the sachet; stir the contents & usein luke warm state.

Observations And Results:

According to data out of 43 patients of *Mutrashmari*, it was observed that 32 (74.4%) patients were males and 11 (25.6%) were females.

It was observed that *Mutrashmari* is common in age group 21-40 years.

Religion wise distribution showed that 29 patients (62.5%) were *Hindu*, 14 patients (32.5%) were *Muslim*.

Maximum no. of patients were*vata-pittaj* (46.5%) & then *Kapha-Vata* (34.9%).

Out of 43 patients, 27 patients (62.8%) were having Vegetarian and 16 patients were (37.2%) mixed.

Table 1: Involved site wise distribution of calculi

Position of Calculus	No. of cases			
	Before trial	(%)	After trial	(%)
Calyx	28	65.11	15	34.88
Ureter	5	11.62	1	2.3
Calyx + Ureter	3	7.0	0	0
Medulla	5	11.62	2	4.65
Medulla+ureter	2	4.65	0	0
Total	43	100	16	41.83

Table 2: Involved sidewise distribution of cases

	No. of cases			
	Before trial	(%)	After trial	(%)
Right	22	51.2	9	21.0
Left	10	23.2	6	14.0
Bilateral	11	25.6	3	7.0
Total	43	100	18	42

Table 3: State of stone after trial

	No.of cases	%
Passed	25	58.14
Dislodged	7	16.28
No change	9	20.93
Passed & persisting	2	4.65
Total	43	100

Table 4: Symptom wise distribution of percentage of cases

Symptom	Percentage of cases		
	Before trial	After trial	Follow Up
Pain in flanks	100	6.97	2.32
Strangury	0	0	0
Blood in urine	4.65	0	0
Turbid urination	2.3	0	0
Interrupted stream of urine	6.97	2.3	0
Urgency of urine	0	0	0
Frequency of urine	16.27	2.3	0
Burning micturition	18.60	4.65	0
Nausea	11.62	0	0
Vomiting	2.3	0	
Fever	4.65	0	0

Statistical Analysis Tables:-

1. Subjective Parameters:

Symptoms	*n*		Mean	SD ±	SE ±	*'t'* Value	'p' value	Significance
Pain in Flanks	43	BT	25	0	0			
		AT	1.744	6.444	0.927	23.664	<0.0001	E.S
		FU	0.5813	3.812	0.5814	42.000	<0.0001	E.S
Blood in urine	43	BT	1.1627	5.327	0.812			
		AT	0	0	0	1.431	0.1597	N.S.
		FU	0	0	0	1.431	0.1597	N.S.
Turbid urination	43	BT	0.581	3.812	0.5814			
		AT	0	0	0	1.000	0.3230	N.S.
		FU	0	0	0	1.000	0.3230	N.S.
Interrupted stream	43	BT	1.7441	6.444	0.9827			
of urine		AT	0.581	3.812	0.5814	1.431	0.1597	N.S.
		FU	0	0	0	1.775	0.0832	Not Quite Significant
Frequency of Urine	43	BT	4.0697	9.339	1.424			
		AT	0.581	3.812	0.5814	2.610	0.0125	Significant
		FU	0	0	0	2.858	0.0066	V.S.
Burning micturition	43	BT	4.6511	9.844	1.501			
		AT	1.1627	5.327	0.812	2.610	0.0125	Significant
		FU	0	0	0	3.098	0.0035	V.S.
Nausea	43	BT	2.9069	8.109	1.237			
		AT	0	0	0	2.351	0.0235	Significant
		FU	0	0	0	2.351	0.0235	Significant
Vomiting	43	BT	0.5813	3.812	0.5814			
		AT	0	0	0	1.000	0.3230	Not significant
		FU	0	0	0	1.000	0.3230	Not significant
Fever	43	BT	1.1627	5.327	0.8124			
		AT	0	0	0	1.431	0.1597	not significant
		FU	0	0	0	1.431	0.1597	not significant

2. Objective parameters:-

Parameters	***n***		**Mean**	**SD ±**	**SE ±**	***'t'* Value**	**'p' value**	**Significance**
Size of calculus	43	BT	6.8767	1.837	0.2802			
		AT	2.5883	3.735	0.5695	6.930	<0.0001	E.S
No of calculus	43	BT	1.3953	0.6597	0.1006			
		AT	0.5348	0.9347	0.1425	5.215	<0.0001	E.S
Site of calculus	43	BT	2.0	0	0			
		AT	0.6511	0.8419	0.1284	10.506	<0.0001	E.S

3-SF-36 Health Survey Score Scales:-

Scales	***n***		**Mean**	**SD ±**	**SE ±**	***'t'* Value**	**'p' value**	**Significance**
Physical Functioning	43	BT	91.3953	17.705	2.700			
		AT	98.0232	5.684	0.8668	2.884	0.0062	V.S.
		FU	98.0232	5.684	0.8668	2.884	0.0062	V.S.
limitation due to	43	BT	86.0465	29.531	4.503			
Physical Health		AT	58.1395	24.833	3.787	5.163	< 0.0001	E.S
		FU	57.5581	24.112	3.677	5.310	< 0.0001	E.S
Role of Limitation due	43	BT	96.8992	9.797	1.494			
to Emotional Problems		AT	50.3875	42.020	6.408	7.176	< 0.0001	E.S
		FU	51.6279	40.727	6.211	7.286	< 0.0001	E.S
Energy/ Fatigue	43	BT	66.9767	12.108	1.846			
		AT	77.6744	7.742	1.181	5.403	< 0.0001	E.S
		FU	78.2558	8.229	1.255	6.037	< 0.0001	E.S
Emotional well being	43	BT	72.8372	9.383	1.431			
		AT	79.0697	8.455	1.289	3.440	0.0013	V.S.
		FU	80.5581	7.122	1.086	5.222	< 0.0001	E.S
Social Functioning	43	BT	58.1395	15.402	2.349			
		AT	79.9418	12.241	1.867	6.998	< 0.0001	E.S
		FU	81.3953	12.312	1.878	7.432	< 0.0001	E.S.
Pain	43	BT	51.8604	21.740	3.315			
		AT	84.9418	11.134	1.698	8.678	< 0.0001	E.S.
		FU	83.3139	11.949	1.822	7.610	< 0.0001	E.S.
General Health	43	BT	50.8139	9.059	1.381			
		AT	63.2558	10.572	1.612	5.492	< 0.0001	E.S.
		FU	63.4883	10.994	1.677	5.464	< 0.0001	E.S.

E.S-Extremely SignificantV.S. -Very Significant

Discussion

AGE: *Mutrashmari* common in between 21-40 years age group[5].

SEX: Sex wise incidence shows that males (74.4%) are more prone for *Mutrashmari*[6].

RELIGION: Higher incidence of *Mutrashmari* was found in Hindu(67.5%) religion.

OCCUPATION: It was found that maximum 53.44% patients were in desk work in spite of field work.

PRAKRITI: Higher incidence of *Mutrashmari* were noted in *vata-pittaj Prakriti* patients.

DIET: Maximum *Mutrashmari* patients were Vegetarian (62.8%).

Number of stone: Maximum number of *Mutrashmari* patients 67.44 % had single stone.

Site of calculus: Maximum incidence of calculus were seen in Calyx 65.11% of patients.

Side of calculus: Maximum patients i.e. 51.2% were having right sided calculi, followed by 25.6% bilateral sided calculi and least 23.2% were on left side before trial, which reduced to 21%, 7% and 14% in right, bilateral and left sided calculi respectively after treatment.

Overall Effect of therapy on the symptoms:-

According to the results, effect of therapy on clinical features after 84th days of treatment, it can be said that relief was observed in the signs and symptoms i.e. pain in flank, blood in urine, interrupted stream of urine, frequency of urine, turbid urination, burning micturition, nausea, vomiting & fever etc.

Effect of therapies on SF-36 Health Survey:

All the scales of SF-36 Health Survey of life showed the statistically significant improvement. The trial drugs are effectively improves the physical health & emotional problems of the patient which improves the social functioning, reduces the body pain, increases the energy & overall the general health of the patient.

Laboratory Investigations:

The pathological & bio-chemical reports of all the patients were in normal range before & after treatment. All the parameters of Urine examination showed improvement in mean values which means drugs are effectively improving urine quality.

Overall Effect of therapy on the calculi:-

Out of 43 patients, 58.17 % patients had dropped their stones completely after trial while 20.93% patients were still persisting their stones & 16.28% patients dislodged the calculi from the original site. It might be due to the diuretic, analgesic lithotripsic properties of the ingredients in *Palashakshara* and *Pashanbheda kwatha churna*.

Probable mode of action:-

The trial drugs *Palashakshara & Pashanbheda kwatha* having the properties of *chedan, bhedan, lekhan, tridoshaghan, ashmarighna, mootrala* and alkaline nature properties. Most of these properties are of *kshara. Pashan bheda* having properties of *mootravirechaniya* and *ashmabheda* so after braking the stone flush out through urine.

Statistical view- This treatment also convinces its effect on the ground of statistic. As statistical tests, applied to all the assessment criteria found extremely significant, it can be strongly concluded that this treatment is useful in Urolithiasis.

Conclusion

Mutrashmari is one of the most common and painful disease of urinary diseases. Sushruta has described the problem of *Mutrashmari* widely and comprehensively during early civilization. The concept of *Mutrashmari,* its etiological factors, clinical features, pathology, classification, complications and management have been described with both medical and surgical procedures.

From the clinical trials we can reach upto following conclusions –

- *Mutrashmari* (Renal Calculus) common in between 21-40 years age group.[7]

- Sex wise incidence shows male are more prone for *Mutrashmari*.[8]
- Higher incidence of *Mutrashmari* was found in *Hindu* religion.
- It was found that maximum 53.44% patients were in desk workinspite of field work.
- Higher incidence of *Mutrashmari* noted in vata-pittaj Prakriti patients.
- Maximum *Mutrashmari* patients were Vegetarian (62.8%).
- Maximum number of *Mutrashmari* patients 67.44 % had single stone.
- *Palashaa kshara* and *Pashanbheda kwatha churna effective* in treatment of mild grade symptoms of Pain in flanks, burning micturition frequency of urine. Interrupted stream of urine during 12 week drug trial.
- Hematuria, Turbid Urination, Nausea, Vomiting and fever completely disappeared in all cases after treatment.

  For further establishment of this fact, trial should be conducted on larger sample size.
- Maximum incidence of calculi were seen in Calyx 65.11% of patients and maximum stones (46.42%) which were expelled from renal calyx site. Which was statistically significant. But drugs were not quite effective to expel stones from medullar site.
- Right sided calculi are more expelled out than left side & bilateral side.
- 16.27 % patients not got symptomatic relief after treatment.
- 58.17 % patients had dropped their stones completely after trial while 20.93% patients are still persisting their stones & 16.28% patients dislodged the calculi from the original site.
- Maximum patients felt nausea & vomiting after taking *Pashanbheda kwatha* in the initial phase of the trial.
- Action of drug is due to its *chedan, bhedan, lekhan, tridoshaghan, ashmarighna, mootrala* and alkaline nature properties.

The study conclude that administration of *Palashaa kshara* and *Pashanbheda kwatha churna* is an effective treatment modality for *Mutrashmari* which overcomes the surgical intervention by easy and painless expulsion of *Ashmari.*

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Clinical Study

Clinical evaluation of *Ksira Basti* and *KsiraPaka* of *Balya* drugs on *Karshya*

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Abstract

Context: Individuals who are lean and underweight are considered in Ayurveda as suffering from *Karshya* that may leads to diminished immunity level. **Aims:** Due to more prevalence and unavailability of the satisfactory management for *Karshya* in modern medicine this clinical trial has been done. Primary objective was to treat the patients who were suffering from *Karshya* on the basis of classical principles of Ayurveda with *Balyamahakashaya Ksira Basti* and *Balyamahakashaya Ksira Paka*. **Settings and Design:** Open labelled randomized trial. **Methods and Material:** 30 patients of Karshya were selected and randomly divided into three groups. In Group A *Balyamahakashaya Ksira Paka* were administered for 30 days .In Group B *Balyamahakashaya Ksira Basti* were administered for 21days. In Group C combined regime of *Balyamahakashaya Ksira Paka* (30 days) and *Balyamaha kashaya Ksira Basti* (21 days) were administered. The criteria's of assessment were *Pipasa Asahyata* (thirst intolerance) , *Kshudha Asahyata* (hunger intolerance), *Bharavahana Asamarthata* (inability to lift weight), *Kriya Alpa Shakti* (less physical activity), Body weight, BMI, total blood protein, HB%, TLC and Anthropometric measurement of Hip and waist. **Statistical analysis used:** Paired and unpaired t test were used for analysis. **Results:** Significant result was found in all groups. Group-C was most effective followed by Group-B on all parameters. **Conclusions:** Combined therapy of Group C is better than individual therapy.

Key-words: *Balya Mahakashaya Ksira Paka, Balya Mahakashaya Ksira Basti,* Emaciation *Karshya,* Underweight

सारांश–

समाज में अच्छे आर्थिक एवं सामाजिक स्तर होनें एवं किसी ज्ञात रोग से पीडित हुए बिना भी अत्यधिक दुबले पतले लोग सामान्य रूप से मिलते है। आयुर्वेद में यह कार्श्य रोग के रूप में वर्णित हैं। आयुर्वेद में वर्णित कार्श्यता एक वात प्रधान व्याधि हैं; जिसका उपचार बस्ति एवं संतर्पण हैं। यह चिकित्सकीय प्रयोग कार्श्यता को बल्य महाकषाय क्षीर बस्ति एवं बल्य महाकषाय क्षीर पाक से चिकित्सा करने के उद्देश्य से किया गया हैं। चिकित्सा में कुल तीस आतुरो को तीन वर्गो में दस–दस कर बांटा गया। वर्ग अ में बल्य महाकषाय क्षीर पाक 30 दिन, वर्ग ब में बल्य महाकषाय क्षीर बस्ति 21 दिन के लिए तथा वर्ग स में दोनों सम्मिलित चिकित्सा दी गयी। आकलन का आधार क्षुधा, असह्यता, पिपासा असह्यता, भारवहन असह्यता, अल्प क्रिया शक्ति, शरीर भार, बी एम आइ, कुल रक्त प्रोटीन, हीमोग्लोबिन, टी एल सी एवं कमर नितम्ब के माप थे। वर्ग अ में आब्जेक्टिव लक्षण एवं वर्ग ब में सब्जेक्टिव लक्षणों पर ज्यादा प्रभाव मिला। वर्ग स में क्षीर बस्ति एवं बल्य महाकषाय क्षीर पाक के सम्मिलित प्रभाव के कारण अधिकतम् चिकित्सकीय प्रभाव प्राप्त हुआ।

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Clinical Study

Clinical evaluation of *Ksira Basti* and *KsiraPaka* of *Balya* drugs on *Karshya*

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Introduction:

Suskha Sphika, Udara, Griva (emaciation of hip, abdomen and neck region), *Dhamini Jala Santata* (visible veins on the body), *Twakasthishestha* (skin and bones are the only visible residual part of body), *Sthoola Parva* (the joint are more prominent on extremities due to emaciation) are the *signs* and symptoms of *Karshya* as described by Acharaya Charaka. [1] Intolerance of hunger, thirst, cold, heat, wind and rain, inability to lifting the weight, less physical activities, likely to suffer from *Vata* diseases and Death after suffering from any one of Dysponea, cough, *Sosha* (tuberculosis), splenic and heapatic enlargement, *Agnimandhaya*(diminished digestive power), *Gulma* and *Raktapitta* (various bleeding disorders) diseases are sign and symptoms described by Acharya Sushruta.[2] These signs and symptoms of *Karshya* can be correlated with emaciation. Every young person in society wants to have good physical body structure in the present scenario. Nobody wants to be seen excessive lean or obese. Emaciation increases the risk of infection and infectious disease. There are changes in body which are most evident in the gastrointestinal tract, skin, blood cells, and nervous system as indigestion, malabsorption, skin lesions, anaemia, or neurologic and behavior changes. The loss of immune function that accompanies severe malnutrition is of special concern. Thus due to unavailability of the satisfactory management and to find out more effective and safe therapy for *Karshya*, this was selected for the research work. In modern science the etiology of weight loss may not be found in about 25% of weight loosing or underweight patients, despite extensive testing.[3] This type of the patients whose etiology is not found is taken into consideration in *Ayurvedic* texts as a *Swatantra Karshya Vyadhi* (primary emaciation illness) or *Prakrita* or S*wabhavika Karshyata*. In Ayurveda *Karshyata* is considered as a *Vata* predominance disorder because most etiological factors of this disease are the aggravator of *Vata Dosha.* In this trial work *Basti* in the form of *Balyamahakashaya KsiraBasti* and *Santarpna* in the form of *Balyamahakashaya Ksira Paka* (both *Ksira Basti* and *Ksira Paka* were *kalpita yoga* based on classical principle of treatment of *Karshya*) were taken into the consideration for the treatment of *Karshyata* as line of management for *Vata* predominant disorders are *Basti and Santarpna* (~to treat nutritional deficiency) treatment.

Material and Methods:

Study design and patient selection - The 30 patients, those who were satisfactory fulfilling the inclusion criteria for *Karshya* were selected and randomly placed in three groups of 10 patients each from O.P.D. and I.P.D. wing of P.G. Department of *Panchkarma,* National Institute of Ayurveda Jaipur.

An elaborative case taking proforma was specially designed for the purpose of incorporating all aspects of the disease in the *Ayurvedic* and modern parlance.

Inclusion criteria –

a) Patients of either sex between the age of 15 years and 35 years.

b) Patients with BMI more than 13 and less than 18.5 Kg/m^2

c) Patients without Anorexia, with apparently normal appetite and digestive capacity.

d) Patients without any systemic diseases.

Exclusion criteria

a) Patient suffering from Abdominal pain triggered by food intake: pancreatitis, intestinal ischemia

b) Patients with impaired transit of diet, e.g., benign or malignant esophageal, gastric, or intestinal obstruction

c) Patients with Intestinal malabsorption of dietary constituents, e.g., celiac disease

d) Patients with Acute trauma, e.g., accident, burns, major surgery

e) Patients with Increased energy demands, e.g., chronic obstructive pulmonary disease

f) Patients with Abnormal metabolism and decreased biliary digestion, e.g., chronic liver disease

g) Patients with Protein-losing enteropathy and chronic inflammation, e.g., Crohn's disease, ulcerative colitis

h) Alcoholic Patients

i) Pregnant and lactating women

Investigation-

Physical examination with weight determination and documentation of vital signs, The skin, oral thrush or dental disease, thyroid gland enlargement, adenopathy, and respiratory or cardiac abnormalities and a detailed examination of the abdomen, Rectal examination, including prostate examination and testing of stool for occult blood in men; pelvic examination in all women, Psychological examination for mental status assessment [based on Mini Mental State Examination (MMSE) scale] and screening for depression [based on Hamilton's depression rating scale] were done. Routine hematological (complete blood count with differential, serum chemistry tests including glucose, renal and liver tests), urine and stool examination were carried out before the treatment to assess the general health. These tests were done to rule out the patients of exclusion criteria.

Ethical clearance

Institutional Ethical Committee of N.I.A. Jaipur approved the design of the study. Written consents were taken from each patient willing to participate before the start of the trial.

Study medication procedures and dosage

The selected patients were placed in each group by simple randomization method and studied under following three groups:

Group A: In10 registered patients *Balyamahakashaya KsiraPaka* was administered for 30 days.

Group B: In10 registered patients *Balyamahakashaya KsiraBasti* was administered for 21 days.

Group C: In10 registered patients combined regime of *Balyamahakashaya Ksira Paka* (30 days) and *Balyamahakashaya Ksira Basti* (21days) were administered.

Ingredient of *Balyamahakashaya-*

Brahmi (Bacopa monnieri (L.)PENNELL), Kapikacchu (Mucuna prurita HOOK), Shatavari (Asparagus racemosus WILLD), Mashaparni (Teramnus labialis (L.F.) SPRENG), Vidarikanda (Pueraria tuberose (ROXB. EX. WILLD.)DC.), Ashwagandha (Withania somnifera DUNAL*), Salaparni (Desmodium gangeticum (L.)DC.), Katuki (Picrorhiza kurroa ROYLE EX BENTH) Bala (Sida rhombifolia L.) and Atibala (Abutilon indicum (L.)SWEET)* each drugs in equal parts. [4]

Process of *Basti* administration

***Purva Karma* (preparatory phase)**

A. Preparation of the patients

1. Local *Abhyanga* (massage) with *Dashmoola* oil on lumbo sacral region, inguinal region and lower abdomen was administered in each patient.

2. Local *Nadi Swedana* (hot fomentation by tube) with *Dashmoola* vapours on lumbo sacral region, inguinal region and lower abdomen was administered.

B. Preparation of *Balyamahakashaya Ksira Basti*

Balyamahakashaya Ksira Basti was a *Kalpita yoga*. For preparation of each *Ksira Basti,* the *Balyamahakashaya Yavkuta churna* (coarse powder) were taken in 125 grams to prepare the decoction, in 16 times of water (2 liters).The prepared decoction was approximately 500ml. After making the decoction, 500 ml of milk was added in it and again boiled, till the quantity of milk was remained. Then 15 grams of guda (jaggery) were

taken in separate vessels and was mixed with warm water to form uniform solution, separately 50ml of tila taila (sesame oil) and 50ml of *ghrita* was heated to remove the *Amata Dosha*.

A porcelain pestle and mortar was taken, in which jaggery was mixed with 5 grams of rock salt then *Tila (Sesamum indicum L.) oil* and *ghrita* was also added to it with continuous mixing. At last *KsiraPaka* was added and stirred well. Thus the total quantity of 620 ml of *Balyamahakashaya Ksira Basti* was prepared for the administration to each patient for each day.

Method of administration -

Patients were advised to lie down in left lateral position with their left leg stretched out, while the right leg flexed at knee and held near abdomen. Lubrication was done to the anus of patient and distal end of Bastinetra. The other end of Bastinetra (nozzle) was attached to the polythene bags and which was already filled with the 620 ml of drugs of Balyamahakashaya Ksira Basti. Then the Bastinetra was introduced slowly and steadily parallel to the vertebral column and the polythene bags was squeezed with appropriate pressure to facilitate the entry of Basti at once. With some part of Basti Dravya residing in the polythene bags, the Bastinetra was gently removed.

Paschat Karma (post Basti procedures) - The buttocks and soles were gently tapped for proper distribution of basti and patient was asked to relax in supine position. After some time, they were allowed to go with the advice to make a note on retention time. The patients were also advised to take bath with lukewarm water after complete Pratyagamana (evacuation) of basti.

Drug dose - The dose of Balyamahakashaya Ksira Basti was 620 ml/day (Kalpita dose as like Sataprasritc Basti).[5]

Duration of clinical trial of *basti* - 21 Days

Preparation of Ksira Paka for oral administration -

For preparation of each *KsiraPaka* 10 grams of *Balyamahakashaya* powder was added to 320 ml of water and 80 ml of milk then the above mixture was boiled till the milk was left, then the prepared *KsiraPaka* was filtered, 10 grams Jaggery was added and then it was administered to the patient.

Drug dose – The dose was 100ml twice a day for 30 days. [6]

Diet and restrictions - In all the groups, no special diets were recommended. Patients were kept on their routine diet in home and in routine hospital light diet when they were admitted.

Follow up period- once in 15 days for 2 months after completion of trial.

Criteria for Assessment of outcome - The improvement in the patients were assessed on the basis of subjective and objective criteria's.

Scoring pattern-

Subjective criteria-

Pipasa Asahyata (thirst intolerance)

- Can tolerate thirst for more than 30 minutes - 0
- Unable to tolerate thirst for more than 30 minutes - 1
- Unable to tolerate thirst for more than 10 minutes - 2
- Unable to tolerate thirst - 3

Kshudha Asahyata (hunger intolerance)

- Can tolerate hunger for more than 1 hrs - 0
- Unable to tolerate hunger for more than 1 hrs - 1
- Unable to tolerate hunger for more than 30 minutes – 2
- Unable to tolerate hunger - 3

Bharavahana Asamarthata (inability to lift weight)

- Can lift 10 kg wt and Climb 20 steps - 1
- Can lift 10 kg wt and walk 100 metres - 2
- Can lift 10 kg wt - 3
- Unable to lift 10 kg wt - 4

Kriya Alpa Shakti (less physical activity)

- Able to do any physical activity - 0
- Able to do physical Activity but for relatively less duration - 1
- Unable to do heavy physical Activity - 2
- Unable to do Slight heavy physical Activity – 3
- Unable to do Daily routine Activity - 4

Objective criteria

- Increase in Body weight
- Increase in BMI
- Increase in total blood protein.
- Increase in HB%
- Increase in TLC
- Anthropometric measurement of Hip and waist

Statistical analysis:

Statistically in terms of mean score (X), Standard deviation (S.D.), Standard Error (S.E.). Paired and unpaired t test was carried out at the level of 0.1, 0.05, 0.01, and 0.001 of P levels. The results were interpreted as – P>0.05 as Non significant (N.S.), P< 0.05 as Significant (S.).

Result:

Results obtained in all three groups were significant. The percentage relief of all signs and symptoms were most in the combined groups (Group C). The percentage reliefs of Objective parameters were more in *KsiraPaka* of *Balya Mahakashaya* (Group A) than *Balya Mahakashaya Ksira Basti* (Group B). Subjective parameters such as body weight, BMI, Hb%, Anthropometric measurement of Hip, blood protein and TLC, percentage relief were more in *Balya Mahakashaya Ksira Basti* (Group B) than *Ksira Paka* of *Balya Mahakashaya* (Group A). [Table No. 4]

On comparison of the effectiveness of three Groups it was found that in *Pipasa Asahyata*-Group B was more effective than Group A while other groups were equally effective. [Table No.5] In *Kshudha Asahyata*- Group C was most effective. Group B and Group A were equally effective [Table No.6] In *Bharavahana Asamarthata* and *Kriya AlpaShakti*- Group C was most effective. Group B was more effective than Group A in these parameters. [Table No.7-8] In Body weight and in BMI parameters – All the three groups were having equal efficacy. [Table No.9], [Table No.10] In total blood protein - Group A was more effective than Group B. Group C was most effective in this parameter. [Table No.11] In Hb% parameter- Group A was equally effective as Group B and Group C. Group C was more effective than Group B on this parameter. [Table No.12] In TLC –Group A and Group C were equally effective but both groups were more effective than Group B. [Table No.13] In Anthropometric measurement of Hip-Group C was most effective while Group B was more effective than Group A. [Table No. 14] In Anthropometric measurement of Waist-Group C was most effective while Group A was more effective than Group B. [Table No.15] So from the result it was clear that the combined group (Group C) was most effective on many parameters followed by *Basti* group (Group B).

Discussion:

Karshya is considered in Ayurveda as a *Swatantra* (primary disorder) as well as *Partantra Vyadhis* (secondary disorder). As causative factors, signs and symptoms and treatment of *Karshya* are clearly mentioned and *Karshyata* is also found as prodromal symptoms, signs and complication of other diseases it can be stated that *Karshya* is described as primary as well as secondary disorders in Ayurveda.

Due to *Kshaya* (depletion) of *Rasa* and *Raktaadi Dhatu* (micronutrients, tissues and other essentials of body), *Sharira Bala and Prana Shakti* (the strength and vitality of body) decreases. In this state the *Doshas* (three humors of body), *Dhatu, Mala* (excretory product), *Agni* (digestive power and conversion function of liver) are not in natural proportion, thus the individual could not be called healthy. So *Karshya* is considered as a disease.Although *Krishata* is a disease that are due to many causative factors but *Prakrit* or *Swabhavik* (natural) *Krishata* is also there. There is no pathology found in some conditions. These conditions are –*Vata Prakriti, Krisha Deha, Garbhini Awastha* (pregnancy), *Vriddhaawasatha* (old age), *Kala* (time), and *Jangal Desha (*dry and desert places).

According to *Ayurveda* the *Brimhana Chikitsa* (anabolic therapy), use of *Dhatu Pustikara*

(nutritional), *Balya* (strength giving), *Brimhaniya* (anabolic), *Jeevaniya* (vitalizing) diet and drugs are the treatment of *Karshya*. Some *Manasika Bhavas* (psychological factors) are also playing important role in anabolism of body. [7, 8]

In modern science, *Karshya* can be considered as emaciation (the state of being extremely lean) which is not considered as a primary disease. It is considered as a secondary disease. In modern science the cause of involuntary weight loss *(Karshya)* is found in most cases. Careful history and physical examination, in association with diagnostic testing may identify the cause of weight loss and underweight in 75% of patients. [3] The etiology of weight loss will not be found in the remaining patients, despite extensive testing. Patients with negative evaluations tend to have lower mortality rates than those found to have organic disease. These types of the remaining patients are also taken into consideration in *Ayurvedic t*exts as *Swatantra Karshya Vyadhi* (primary emaciation disease) or *Prakrit* or *Swabhavik Krishata*.

Causes of emaciation (weight loss) include decreased food intake, malabsorption, loss of calories, and increased energy requirements. Food intake may be influenced by a wide variety of visual, olfactory, and gustatory stimuli as well as by genetic, psychological, and social factors. Absorption may be impaired because of pancreatic insufficiency, cholestasis, celiac sprue, intestinal tumors, radiation injury, inflammatory bowel disease, infection, or medication effect. These disease processes may manifest as changes in stool frequency and consistency. Calories may also be lost due to vomiting or diarrhea, glucosuria in diabetes mellitus, or fistulous drainage. Energy expenditure decreases with age and can be affected by thyroid status. Beginning at about age 60 yrs, body weight declines by an average of 0.5% per year. Body composition is also affected by aging; adipose tissue increases and lean muscle mass decreases with age.

On the basis of pharmacological action and properties of drugs it can be said that *Balyamahakashaya* drugs have specific action on different *Dhatus* level such as *Brahmi* and *Ashwagandha* act on psychological factors and mental stress.[9,10] Though all the drugs of *Balyamahakashaya* group have properties to act on all the seven *Dhatu* [especially *Brahmi, Ashwagandha, Salaparni, Shatavari* and *Vidarikanda* as these are considered as *Rasayan*] yet these drugs have specific action on specific *Dhatu* level.[11,12,13] *Shatavari* and *Vidarikanda* has specific action on *Rasa Dhatu* (micronutrients and essentials elements) and correct nutritional deficiency at this level. *Salaparni* has specific action on *Mansa Dhatu* (muscular tissues). *Bala* and *Atibala* have specific action on *Meda Dhatu* (adipose tissue). [14] *Mashaparni* and *Ashwagandha* have specific action on *Asthi Dhatu* (bone tissue).[15] *Brahmi* and *Shatavar*i have specific action on *Majja Dhatu* (bone marrow tissue). *Kapikacchu* has specific action on *Sukra Dhatu*. [16] These drugs also have phytosteroids, potassium nitrate, Chloride, Magnesium Phosphate, Calcium, Carbonate alkaloids, ephedrine, Starch, Glucose, and Amino Acids etc that have anabolic activities. *Katuki* has specific action on *Jatharagni* (digestive power) and *Bhutagni* (various liver functions).[17]

In *Balyamahakashaya KsiraPaka*, drugs were processed in milk and by this method these drugs also get the *Dhatu Pustikara, Balya, Brimhaniya* and *Jeevaniya* qualities of milk. [18]

Balyamahakashaya Ksira Basti is a modification of *Yapana Basti*. [19] This type of *Basti* can be given in any time. *Yapana Basti* has the effect of *Sadhyobalajanan* (improves the strength quickly) and *Rasayan* (rejuvenation). It also has the specific effect on *Sukra Mansa* and *Rakta Dhatu*. The *Basti* acts on *Samana Vayu* which is responsible for *Agni Sandhukhsana* (improving digestive power) and *Sarakittavibhajana* (separation of nutritious and waste product) and by this it nourishes the *Rasa Dhatu*. *Basti* Drugs have influence on intestinal flora therefore increases production of vitamin B12 and vitamin K which are one of the factors participating in the formation of *Rakta Dhatu* (blood). Basti act on *Purishadharakala and Pittadharakala* which is also considered as *Asthidharakala and Majjadharakala* by *Dalhana* [20] and by this it nourishes the *Asthi* and *Majja Dhatus*. Various lipids and lipid soluble products in *Basti* have effect on *Mansa* and *Meda Dhatu*. Sushruta has mentioned that from 4th to 9th *Basti* has the effect on *Rasa to Majja Dhatu*. [21] *Basti* has *Srotoshodhana* (purification of micro channels) properties.[22]Due to the use of unwholesome diet,

with the length of time, leads to clogging of the micro channels present in GIT that absorb *Rasa Dhatu*. Furthermore due to stagnation, these *Mala* get reabsorbed in the body. These reabsorbed Mala produce various ailments. *Basti* radically removes these entire *Mala* factor from the intestines and thus cures the *Karshya* disease. Formation of any element in body depends upon unimpeded micro channels, *Dhatvagni and Vayu* if nourishing factors are properly provided. [23]Many of the drugs used in *Balyamahakashaya Ksira Basti* like *Ghee*, jaggery, *Tila oil* and milk are diet products. Thus, these are *Sahaja Satmya* (wholesome) and do not act adversely. Being diet products these drugs possess the most important *Pranadharana* (to keep continuity of life and immunity) quality. These drugs have the nourishing factors for *Dhatus* in the form of milk, jaggery, *Ghee* and certain drugs like *Bala, Atibala*, and *Salparni* etc. Many of *Kwatha (decoction)* drugs possess *Srotoshodhana* property. Thus the *Balyamahakashaya Ksira Basti* has all the qualities which are essential for the *Brimhana* treatment such as *Dhatu Pustikara, Balya, Brimhaniya, Jeevaniya* diet and drugs which have specific action on psychological factors. Thus *Janana* (formation of body elements) and *Brihman* property of *Yapana Basti* is due to purification of micro channels and nourishing substances used in it. So *Balyamahakashaya* when used in *Ksira Basti* form is also have an additional effect of *Basti Karma* and treat *Karshya* by working on *Srotas, Dhatvagni and Vayu*. It is stated that all *Yapana Bastis* can adversely suppress *Agni* if administered for long time and it can produce complication as edema, anemia, pain, fever, diarrhea and *Parikartika* (fissure). [24] Acharya Sushruta has mentioned that 18 *Basti* should be administered to act on the *Sukra Dhatu*. [25] In this trial *Yapana Basti* was given for 21 days.

In this clinical trial no drop out cases were noted from any groups during the trial. From the demographic data it is evident that maximum patients were anxious followed by irritated and depressed mood and having *Avara Satva* were said to be more prone to mental stress. *Balyamaha-kashaya* drugs had effect on *Karshya* by action on psychological factors and mental stress. It was also seen that maximum patients were having *Krura Kostha* that were due to the deranged *Apana Vayu* and were having *Avar Ahara*, *Abhyavaharana Shakti* and *Jarana Shakti* which were due to *Agnimandhya*. So the result of *Basti* and combined groups were more because of the action of *basti* on *Saman and Apana Vayu*. The dominance of *Vatik and Rajasika Prakriti* (constitutional built) suggests that *Vata* plays a major role in the manifestation of the disease. Thus *Basti* and combined groups were more effective. Positive family histories were also found which supported the fact on constitutional lean built.

After analyzing the result it was clear that the combined group (Group C) was most effective on maximum parameters followed by *Basti* group (Group B) which indicate the additional effect of *Basti* Karma on Karshya disease. On the completion of follow up study it was found that the recurrence of symptoms were minimum in combined group (Group C) and *Basti* group (Group B) which further indicates the additional effect of *Basti Karma*. [Table No.16] In this clinical trial *Basti* was used in *Yapana* form which also had the effect of *Rasayan* and *Vajikaran* (aphrodisiac) to treat *Karshyata*. Only providing good nutrition is not sufficient remedy for *Karshya* patients. To treat these patients *Ayurvedic* classical principle are necessary. These findings proves that *Santarpna* in the form of *KsiraPaka* and *Basti Karma* treatment are very good remedy for the patient suffering from *Karshya* disease as indicated in classical text.[26] This open study was done at one centre and sample size was 30 patients with 10 patients in each group. For further study in future, trial should be done on multicentre and on large sample size for minimization of effect of *Desha* and *Prakriti* on the treatment of *Karshya*. This was an important study because no such study was done or published to treat *Karshya* disease on the principle mentioned in classical texts of Ayurveda.

Conclusion

Combination of *Ksira Paka* and *Ksira Basti* therapy in *Karshya* is better than individual therapy with *Ksira Paka* therapy or *Ksira Basti* Therapy. The observed effect may be due to the synergistic effect of *Ksira Paka* and *Ksira Basti*.

Table No.1: Effect of trial on objective bio-chemical & subjective parameters of group A

Symptoms	*n*	Mean		Diff.	%	SD	SE	*t*	*p*
		BT	AT		Change	±	±	Value	value
Pipasa Asahayata	10	2.70	1.30	1.40	51.85	0.48	0.15	9.09	<.001
Kshudha Asahayata	10	2.80	1.40	1.50	53.57	0.55	0.17	8.52	<.001
Bharavahan Asamarthata	10	3.50	1.70	1.80	51.42	0.50	0.16	11.18	<.001
Kriya Alpa Shakti	10	3.70	2.60	1.20	32.43	0.40	0.12	9.52	<.001
Body weight	10	42.5	47.6	5.1	12.00	1.65	0.52	9.76	<.001
BMI Kg/m2	10	15.51	17.48	1.90	12.25	0.65	0.20	9.47	<.001
Total Blood Protein	10	6.55	7.81	1.26	19.23	0.36	0.11	11.05	<.001
HB%	10	11.10	12.87	1.77	15.94	0.62	0.19	9.03	<.001
TLC	10	6110	8210	2100	34.36	26.50	8.30	253.00	<.001
Hip Circumference	10	77.80	87.00	9.20	11.82	2.97	0.93	9.79	<.001
Waist Circumference	10	62.00	68.60	6.70	10.80	2.43	0.77	8.70	<.001

N = numbers of patients, B.T. =before treatment, A.T. =after treatment, S.D. = standard deviation, S.E. = standard error, t=student test value, p = probability, > = greater than, < = smaller than

Table No. 2: Effect of trial on objective bio-chemical & subjective parameters of group B

Symptoms	*n*	Mean		Diff.	%	SD	SE	*t*	*p*
		BT	AT		Change	±	±	Value	value
Pipasa Asahayata	10	2.90	0.40	2.20	75.86	0.74	0.23	9.32	<.001
Kshudha Asahayata	10	2.40	1.20	1.30	54.16	0.47	0.15	8.57	<.001
Bharavahan Asamarthata	10	3.80	1.40	2.40	63.15	0.87	0.27	8.72	<.001
Kriya AlpaShakti	10	3.80	1.70	2.10	55.26	0.70	0.22	9.50	<.001
Body weight	10	42	46.9	4.9	11.66	1.28	0.40	12.06	<.001
BMI Kg/m2	10	15.28	17.08	1.80	11.78	0.59	0.18	9.62	<.001
Total Blood Protein	10	6.88	7.91	1.03	14.97	0.33	0.10	9.90	<.001
HB%	10	11.4	12.90	1.51	13.24	0.55	0.17	8.67	<.001
TLC	10	6090	7460	1370	22.49	20.25	6.40	214.00	<.001
Hip Circumference	10	78.70	88.30	9.60	12.19	3.11	0.98	9.74	<.001
Waist Circumference	10	61.6	68.2	6.60	10.71	2.28	0.72	9.15	<.001

N = numbers of patients, B.T. =before treatment, A.T. =after treatment, S.D. = standard deviation, S.E. = standard error, t=student test value, p = probability, > = greater than, < = smaller than

Table No. 3: Effect of trial on objective bio-chemical & subjective parameters of group C

Symptoms	*n*	Mean		Diff.	%	SD	SE	*t*	*p*
		BT	AT		Change	±	±	Value	value
Pipasa Asahayata	10	2.50	0.40	2.10	84.00	0.70	0.22	9.48	<.001
Kshudha Asahayata	10	2.80	0.50	2.30	82.14	0.77	0.23	9.82	<.001
Bharavahan Asamarthata	10	3.80	1.00	2.80	73.68	0.91	0.28	9.68	<.001
Kriya AlpaShakti	10	3.60	0.80	2.80	77.77	0.94	0.300	9.33	<.001
Body weight	10	41.5	47.1	5.6	13.40	1.33	0.42	13.24	<.001
BMI Kg/m2	10	15.39	17.45	2.06	13.44	0.67	0.211	9.76	<.001
Total Blood Protein	10	6.47	7.72	1.31	20.24	0.36	0.11	11.39	<.001
HB%	10	10.30	12.50	2.17	21.06	0.72	0.22	9.51	<.001
TLC	10	5960	8330	2370	39.76	27.94	8.83	268.40	<.001
Hip Circumference	10	72.40	92.10	12.10	16.71	3.94	1.24	9.71	<.001
Waist Circumference	10	59.2	66.40	7.20	12.61	2.29	0.72	9.93	<.001

N = numbers of patients, B.T. =before treatment, A.T. =after treatment, S.D. = standard deviation, S.E. = standard error, t=student test value, p = probability, > = greater than, < = smaller than

Table No. 4: Comparative study of results in all the groups

Cardinal Sign & Symptoms	Result in percentage		
	Group A	Group B	Group C
Pipasa Asahayata	51.85	75.86	84.00
Kshudha Asahayata	53.57	54.16	82.14
Bharavahan Asamarthata	51.42	63.15	73.68
Kriya Alpa Shakti	32.43	55.26	77.77
Body weight	12.00	11.66	13.40
BMI Kg/m2	12.25	11.78	13.44
Total Blood Protein	19.23	14.97	20.24
HB%	15.94	13.24	21.06
TLC	34.36	22.49	39.76
Hip Circumference	11.82	12.19	16.71
Waist Circumference	10.80	10.71	12.61

Table No.[5-15] Comparision ofeffects of intergroups on various signs and symptoms by using unpaired T test-

Table no.5 Pipasa Asahayata (thirst intolerance)

Groups	S.D.	S.E.	t	p value
C:A	0.060	0.026	33.50	<.001
C:B	0.050	0.026	0.00	0 .00
B:A	0.060	0.026	33.50	<.001

S.D. = standard deviation, S.E. = standard error, p = probability, t=student test value, : = verses, > = greater than, < = smaller than

Table no.6 Kshudha Asahayata (hunger intolerance)

Groups	S.D.	S.E.	t	p value
C:A	0.195	0.087	10.28	<.001
C:B	0.192	0.0977	7.164	<.001
B:A	0.218	0.097	2.06	>.05

S.D. = standard deviation, S.E. = standard error, p = probability, t=student test value, : = verses, > = greater than, < = smaller than

Table no.7 Bharavahan Asamarthata (inability to lift weight)

Groups	S.D.	S.E.	t	p value
B:A	0.076	0.03414	8.787	<.001
C:A	0.067	0.029	23.344	<.001
C:B	0.0760	0.0341	11.71	<.001

S.D. = standard deviation, S.E. = standard error, p = probability, t=student test value, : = verses, > = greater than, < = smaller than

Table no.8 Kriya Alpa Shakti (less physical activity)

Groups	S.D.	S.E.	t	p value
B:A	0.068	0.0307	29.31	<.001
C:A	0.057	0.0258	69.76	<.001
C:B	0.073	0.0307	29.31	<.001

S.D. = standard deviation, S.E. = standard error, p = probability, t=student test value, : = verses, > = greater than, < = smaller than

Table no.9 Body weight

Groups	S.D.	S.E.	t	p value
A:B	1.522	0.680	1.02	>.05
C:A	1.52	0.683	0.73	>.05
C:B	1.56	0.683	0.29	>.05

S.D. = standard deviation, S.E. = standard error, p = probability, t=student test value, : = verses, > = greater than, < = smaller than

Table no.10 Basal metabolic index

Groups	S.D.	S.E.	t	p value
A:B	0.349	0.1562	2.5691	>.05
C:A	0.356	0.1595	0.1880	>.05
C:B	0.3814	0.1705	2.170	>.05

S.D. = standard deviation, S.E. = standard error, p = probability, t=student test value, : = verses, > = greater than, < = smaller than

Table no.11 Total Blood Protein

Groups	S.D.	S.E.	t	p value
A:B	0.01329	0.0059	16.8312	<.001
C:A	0.019791	0.008846	3.391216	<.001
C:B	0.015	0.005941	21.88056	<.001

S.D. = standard deviation, S.E. = standard error, p = probability, t=student test value, : = verses, > = greater than, < = smaller than

Table no.12 Haemoglobin percent

Groups	S.D.	S.E.	t	p value
A:B	0.3100	0.138	0.261	>.05
C:A	0.317	0.141	2.61	>.05
C:B	0.159	0.138	2.88	<.01

S.D. = standard deviation, S.E. = standard error, p = probability, t=student test value, : = verses, > = greater than, < = smaller than

Table no.13 Total leucocytes count

Groups	S.D.	S.E.	t	p value
A:B	283.36	126.66	5.92	<.001
C:A	198.74	88.83	1.35	>.05
C:B	257.60	126.66	6.86	<.001

S.D. = standard deviation, S.E. = standard error, p = probability, t=student test value, : = verses, > = greater than, < = smaller than

Table no.14 Anthropometric measurement of Hip

Groups	S.D.	S.E.	t	p value
B:A	0.354	0.158	8.20	<.001
C:A	0.363	0.162	31.3	<.001
C:B	0.421	0.158	23.9	<.001

S.D. = standard deviation, S.E. = standard error, p = probability, t=student test value, : = verses, > = greater than, < = smaller than

Table no.15 Anthropometric measurement of waist

Groups	S.D.	S.E.	t	p value
A:B	0.548	0.245	1.63	<.001
C:A	0.528	0.236	9.31	<.001
C:B	0.520	0.245	7.34	<.001

S.D. = standard deviation, S.E. = standard error, p = probability, t=student test value, : = verses, > = greater than, < = smaller than

Table no.16: Recurrence of symptoms during follow up (two months)

Follow up	No of patients				
	Group A	Group B	Group C	Total	Percent
Recurrence	3	2	0	5	16.67
No Recurrence	7	8	10	25	83.33

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Clinical Study

Clinical Evaluation On The Effect Of *Lodhradi Churna* And *Ksheera Valkala Kwath* In The Management Of *Dantaveshta* W.S.R. To Pyorrhoea

*Dr. Devendra Singh, **Dr. Gulab Chand Pamnani, ***Dr. Ajay Kumar Sharma

Abstract-

In Ayurveda the diseases of the oral cavity has been mentioned in Sushruta Samhita in a systemic way under the title of 'Mukharoga'. Acharya Sushruta has described the disease 'Dantaveshta' under the caption of 'Dantamulagata Roga'. Sushruta has told that vitiated Raktadosa gets accumulate in Dantaveshta (gums) and gives rise to Raktamishrita Puyasrava (blood mixed purulent discharge) from gums and loosening of teeth.

'Dantaveshta' can be compared with 'Pyorrhoea which is presently known as 'Periodontitis '. Poor oral hygiene is the most common cause of periodontal disease. Besides microbial plaque, calculus, food compactions are also causative factors of periodontal disease.

Incidence of Dantaveshta is increasing day by day in our society due to altered life style, unhealthy practices like tobacco chewing, junk food intake etc.

The present study shows highly significant reduction in the puyasrawa, Raktasrawa, Dantshula, Daurghandhya, Krishnata and Chaladanta with the application of Lodhradi Churna Pratisarana & Ksheera Valakala Kwath Gandusha.

Key words: Dantaveshta, Pyorrhoea, Lodhradi Churna Pratisarana & Ksheera Valakala Kwath Gandusha.

सारांश-

आयुर्वेद में मुखगुहागत रोगों का वर्णन सुश्रुत संहिताओं में मुख रोग शीर्षक के अन्तर्गत क्रमबद्ध रूप से किया गया है। आचार्य सुश्रुत ने दन्तवेष्ट को दन्त मूल गत रोगों के अन्तर्गत वर्णित किया है। सुश्रुत ने कहा है कि दूषित रक्त दोष मसूड़ों में एकत्र होकर रक्त मिश्रित पूय का स्राव करते है और दाँत गिर जाते है।

दन्त वेष्ट की तुलना पायरिया से की जा सकती है। जिसे वर्तमान में पेरिओडेन्टाइटिस से जाना जाता है पेरिओडेन्टल रोग का मुख्य कारण मुख गत स्वच्छता की कमी है। इसके साथ-साथ माइक्रोबिएलप्लग, कैल्कुलस, भोजन का मुख में फँसना भी इस रोग के कारण है।

परिवर्तित जीवन शैली, अस्वास्थ्य जनक क्रियाएँ जैसे तम्बाकू सेवन, अस्वास्थकर भोजन के सेवन के कारण दन्त वेष्ट रोग हमारे समाज में दिन प्रति दिन बढ़ता जा रहा है।

प्रस्तुत शोध कार्य में इस व्याधि के प्रमुख लक्षण जैसे पूय स्राव, रक्तस्राव, दन्त शूल, दौर्गन्ध्य, कृष्णता और चलदन्त मे लौध्रादि चूर्ण प्रतिसारण एवं क्षीरवल्कल क्वाथ के गण्डूष प्रयोग द्वारा सर्वाधिक सार्थकता प्राप्त हुई है।

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Clinical Study

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Introduction

Ayurveda, the science of life, is a tradition we have inherited. It is an outcome of continuous experimentation and experience of our ancient sages. Ayurveda is an eternal science which deals with every aspect of life. Being an extension of Atharvaveda, it is considered as a mixture of science, art and philosophy.

Ayurveda, as a holistic science, recommends various regimens which help human being to achieve healthy living, while modern scientific medicine concentrates to a large extent on curative aspect of the disease. Ayurveda is not only a treatise related to treatment of diseases but it has closed concern about healthy man too, which is very clear from its aim of maintaining the health of a person, and treating their diseases.

Ayurveda has given prime importance to Shirah, considering it as one of the three principal vital organs of the body where the Prana i.e. life resides. Charaka explains that all the sense organs and the channels carrying the sensory and vital impulses from the Shirah are like the rays from the Sun. (Cha. Si. 9/4)

AcharyaSushrutahas classified Ayurveda in to eight subdivisions.

शल्यं, शालाक्यं, कायचिकित्सा, भूतविद्या, कौमारभृत्यम्, अगदतन्त्रं, रसायनतन्त्रं वाजीकरणतन्त्रमिति ॥

(सु.सू.1/7)[1]

These eight branches of Ayurveda deals with all the diseases of various parts of the human body. Amongst them "Shalakya Tantra" also named as UrdhwangaChikitsa deals with the diseases of precious supra clavicular organs, head and neck with its management.

AcharyaSushruta has mentioned the disease 'Dantaveshta' under the caption of 'Dantamulagata Roga'. While describing the disease, Sushruta has told that vitiated Rakta gets accumulate in Dantaveshta (gums) and gives rise to Raktamishrita Puyasrava (bloodtinged and purulent discharge) from gums and loosening of teeth. The Nidanas of 'Dantaveshta' are not described in any Ayurvedic texts, so the general causative factors of Mukharogas can be considered as the causes of 'Dantaveshta'.

स्रवन्तिपूयरूधिरं चलादन्ता भवन्ति च ।[2]
दन्तवेष्टः स विज्ञेयो दुष्टशोणितसम्भवः ॥

(सु. नि. 16/18)

The principles for treating the periodontal diseases are removal of the irritants by scaling, curettage and elimination of pockets either surgically by flap surgery or otherwise. In addition, correction in the systemic factors responsible for occlusive forces as well as intensive oral hygienic care and regulation of diet with sufficient supply of vitamins, antibiotics with the maintenance of oral hygiene and scaling – polishing have been considered as a line of treatment.[3] Even though these therapies have been established but not satisfactory and free from post operative complications.

On the other hand local treatment described in Ayurveda like Visravana, Pratisarana, Gandusha, Nasya etc. break the pathogenesis of the disease and tighten the gums also. Thus, the therapy is effective on both–the disease and the complications. Therefore all the texts of Ayurveda emphasize more on local therapy for Dantaveshta. Beside this, we also get description of oral medication like Bhadramustadivati etc.

Incidence of Dantaveshta is increasing day by day in our society due to altered life style, unhealthy practices like tobacco chewing, junk food intake

etc.So it is decided to evaluate the effect of Lodhradi Churna & Ksheer Valkal Kwath[4] on Dantaveshta due to their healing &anti inflammatory properties and to find an economic, easily available treatment module for Dantaveshta.

Aims And Objectives

The present research trial has been under taken with the following main objectives-

1) Conceptual and clinical studies on Dantaveshtaw.s.r. to Pyorrhoea& its management in ayurvedic Parlance.

2) To evaluate the combined efficacy of LodhradiPratisarana and Ksheervalkalakwath in the management of Dantaveshta (Pyorrhoea).

3) To explore a correlation between Dantaveshta and Pyorrhoea.

4) To estimate the role of the local treatment 'Pratisarana' and'Gandusha

5) To know the level of drug action.[5-6]

Materials and Methods

Plan of Study:

The study was conducted on 40 clinical and pathological diagnosed patients of Dantveshta (Pyorrhoea). The patients were selected from OPD and IPD of P.G. department of Shalakya Tantra NIA and OPD of S.S. Bombaywala Hospital, a Unit of NIA, Jaipur (Rajasthan).

In the present study 40 clinically diagnosed patients of Dantveshta (Pyorrhoea) were selected and randomly divided into two groups.

1. Group A- 20 Patient were advised Lodhradi Churna Pratisarana. only

2. Group B- 20 Patient were advised combindly with Lodhradi Churna Pratisarana and Ksheera Valkal Kwath Gandusha.[7]

Drug & Dose Schedule:[8]

Lodhradi Churna :

- Dose: - 3 gram twice a day for 1 month.
- Mode - Pratisarana.
- Follow up - 2 months

Ksheera Valkala Kwath :

- Dose: - 20 ml two times a dayfor 1 month.
- Mode: - Gandusha
- Follow up - 2 months..

Demographic profile-

- It was found that maximum number of patients were of age group of 46 – 50yrs (26.19%), Females (59.52%), Hindu (76.19%), Primary (26.19%), Married (73.81%), House wives (42.85%), Middle class (59.52%), Urban habitat (76.19%), Vegetarian (66.66%).
- Majority of the patients had disturbed Pitta-kaphaprakriti (52.38%), Madhyama Sara (88.09%), Madhyama Samhanana (85.71%), Sarva rasa Satmya (100%), Madhyama Satva (83.33%), Madhyama Pramana (90.47%), Madhyama Vyayamashakti (92.85%), Madhyama Abhyavaharana Shakti (90.47%), followed by Madhyama Jaranashakti (83.33%).
- The chief complaints reported from the patients were Akasmat Raktasrava, Daurgandhya and Shotha (100%), Vedana was present in 90.47% patients. Puyasrawawas observed in 88.09% patient. Chaladanta was seen in 64.28% patients. Krishnata was observed in 80.95% patients.
- According to Oral Hygiene Method wise distribution, majority 40.47% of patient were using brush
- According to the use of cleansing material wise distribution, maximum numbers (59.52%) of patient were using tooth paste, while 40.47% patients were using tooth powder.

Table No. I :Criteria of Assessment

Scoring / Sign & Symptoms	0	1	2	3
Puyasrawa	Nill	Slight pus discharge	Pus discharge on splitting or on sucking	Remarkable pus discharge
Raktasrawa	Nil	Slight bleeding on brushing	Moderate bleeding on brushing	Severe bleeding on brushing
Chaladanta	Nil	Noticeable movement	Movement of a tooth within a range of 1 mm	Movement greater than 1mm.
Daurghandhya	Nill	Slight bad odour	Moderate bad odour	Persistent bad odour
Dantashula	No pain	Occasionalpain with low intensity	Frequent pain with moderate intensity	Continuous pain
Krishnata	Nil	Slight discoloration of gums	Moderate discoloration of gums	Severe discoloration of gums
Sotha	No	Mild inflammation	Moderate inflammation	Severe inflammation

Table No. II :Status of 42 patients of Dantveshta (Pyorrhoea)

Patient	Group A	Group B	Total
Registered	20	22	42
LAMA	0	2	2
Complete	20	20	40

Table No: III : Effect of Lodhradi Churna Pratisaranaon various symptoms of Dantveshta (pyorrhoea) in 20 patients (Paired "t" test)

Symptoms	Mean Value			%	SD	SE	t	p	Rem-
	BT	AT	D	relief	±	±			ark
Puyasrawa (pus discharge)	2.20	0.80	1.40	63.64%	0.75	0.17	8.30	<0.0001	HS
Raktasrawa (bleeding from gums)	2.20	0.60	1.60	72.73%	0.75	0.17	9.49	<0.0001	HS
Chaladanta (Mobility)	1.85	1.40	0.45	24.32%	0.51	0.11	3.94	<0.001	S
Daurghandhya (Halitosis)	2.25	0.40	1.85	82.22%	0.67	0.15	12.33	<0.0001	HS
Dantashula (Toothache)	2.00	0.60	1.40	70.00%	0.68	0.15	9.20	<0.0001	HS
Krishnata (Discoloration)	1.75	1.35	0.40	22.86%	0.50	0.11	3.56	>0.01	S
Sotha (Inflammation)	1.45	1.40	0.05	3.45%	0.22	0.05	1	>0.10	NS

Table No:IV :Effect ofLodhradiChurnaPratisarana and KsheeraValkalKwathGandusha on various symptoms of Dantveshta(pyorrhoea) in 20 patients (Paired "t" test)

Symptoms	Mean Value			% relief	SD ±	SE ±	t	p	Rem-ark
	BT	AT	D						
Puyasrawa (pus discharge)	2.20	0.50	1.700	77.27%	0.73	0.16	10.38	<0.0001	HS
Raktasrawa (bleeding gums)	2.30	0.35	1.95	84.78%	0.60	0.14	14.42	<0.0001	HS
Chaladanta (Mobility)	1.80	1.00	0.80	44.44%	0.41	0.09	8.72	<0.0001	HS
Daurghandhya (Halitosis)	2.15	0.20	1.95	90.70%	0.76	0.17	11.49	<0.0001	HS
Dantashula (Toothache)	1.90	0.20	1.70	89.47%	0.80	0.18	9.49	<0.0001	HS
Krishnata (Discoloration)	1.75	1.10	0.65	37.14%	0.49	0.11	5.94	<0.0001	HS
Sotha (Inflammation)	1.75	0.40	1.35	77.14%	0.88	0.20	6.90	<0.0001	HS

Table No V : Intergroup Comparision of Group A & Group B

Symptoms	Groups	Mean diff.	SD±	SE±	P	S
Puyasrawa	A	1.30	0.80	0.18	0.0523	NS
	B	1.70	0.73	0.16		
Raktasrawa	A	1.60	0.75	0.17	0.0406	S
	B	1.95	0.60	0.14		
Chaladanta	A	0.45	0.51	0.11	0.0125	S
	B	0.80	0.41	0.09		
Daurghandhya	A	1.85	0.67	0.15	0.3452	NS
	B	1.95	0.76	0.17		
Dantashula	A	1.40	0.68	0.15	0.0643	NS
	B	1.70	0.80	0.18		
Krishnata	A	0.40	0.50	0.11	0.0609	NS
	B	0.65	0.49	0.11		
Sotha	A	0.95	0.60	0.14	0.0635	NS
	B	1.35	0.88	0.20		

Disscusion on the effect of therapy

The parameters were assessed by statistical evaluation byPAIRED "T" Test

Group A :-

While assessing the clinical improvement in the patients of Group A treated with LodhradiChurnaPratisarana,In this group the present study shows 63.64% relief in Puyasrawa which was highly significant statistically (p <0.0001), while 82.22% & 70.00% relief in Daurghandhya and Dantashula respectively which were also highly significant statistically (p <0.0001), the study also shows 72.73% relief in Raktasrawa which was also highly significant statistically (p <0.0001), only 3.45% improvement in Sotha but statically, it was not significant (p>0.10) where as 24.32 % & 22.86% relief were seen in the symptom of

Chaladanta&Krishnata which was also significant statistically ($p<0.001$, $p>0.01$ respectively). . (Table –41)

Group B :-

While assessing the clinical improvement in the patients of Group B treated with Lodhradi Churna Pratisarana and Ksheer Valkal Kwath Gandusha the present study shows 77.27% relief in Puyasrawawhich was highly significant statistically ($p<0.0001$), while 84.78% & 44.44% relief in Raktasrawa and Chaladanta respectively which was also highly significant statistically ($p<0.0001$), the study also shows 90.70% relief in Daurghandhya which was also highly significant statistically ($p<0.0001$), 37.14 % improvement in Krishnata which was statistically highly significant ($p<0.0001$), where as 89.47 % & 77.14% relief were seen in the symptom of Dantashula&Sotha which was also highly significant statistically ($p<0.0001$). . (Table –42)

The above results state that combined therapy used in Dantveshta acts in synergetic form and enhances the effect of therapy as evidenced by the results seen in group B.

Intergroup Comparison:

To access the efficacy of two therapies intergroup comparison was done. As the variables are nonparametric we used Mann-Whitney Test for stastically analysis.

1 Puyasrawa :

The p value is 0.0523 which is statically non significant which shows that there is no statistical difference in efficacy of both treatments on Puyasrawa

2 Raktasrawa:

The p value is 0.0406 which is statically significant which shows that there is no statistical difference in efficacy of both treatments on Raktasrawa

3 Chaladanta :

The p value is 0.0125 which is statically non significant which shows that there is no statistical difference in efficacy of both treatments on Chaladanta

4 Daurghandhya:

The p value is 0.3452 which is statically non significant which shows that there is no statistical difference in efficacy of both treatments on Daurghandhya

5 Dantashula:

The p value is 0.0643 which is statically non significant which shows that there is no statistical difference in efficacy of both treatments on Dantashula

6 Krishnata:

The p value is 0.0609 which is statically non significant which shows that there is no statistical difference in efficacy of both treatments on Krishnata

7 Sotha:

The p value is 0.0635 which is statically non significant which shows that there is no statistical difference in efficacy of both treatments on Sotha

Conclusion:

- ⇨ The present study essentially aims to evaluate the effectiveness of two ayurvedic formulations viz. Lodhradi Churna Pratisarana and Ksheera Valkal Kwath Gandusha in the management of Dantveshta w.s.r. to Pyorrhoea. 40 patients were randomly selected in this trial and divided into 2 groups. Both the formulations were found to be effective in reducing signs and symptoms and found to be highly significant statistically on various criteria's of assessments.
- ⇨ Combination of both these Ayurvedic formulation was found to be more effective in 2 trial groups.
- ⇨ The efficacy of Lodhradi Churna Pratisarana (Group A) in symptom of Dantveshta (puyasrawa) administrated for 1 month, showed 63.64% improvement with p-value <0.0001, which is statistically highly significant. and in Lodhradi Churna Pratisarana and Ksheera Valkal Kwath Gandusha (Group B), 77.27% improvement with p-value <0.0001 which is statistically highly significant.
- ⇨ No adverse and toxic effects were observed during the trial and after the treatment.

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Clinical Study

Therapeutic Evaluation Of '*Ayush Harijiwan*' Oil For Musculoskeletal Pain Relief

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Abstract:

Chronic pain is a very common symptom and has significant impact on the physical, mental and economic aspect of the person. In this clinical trial, polyherbal oil preparation was used as a local applicant for the treatment of pain related to musculoskeletal origin. The sole objective of this study was, to assess the efficacy and safety of Ayush Harijiwan oil in chronic pain management. Fifty patients (aged between 30-65 years) with mild to moderate chronic pain of musculoskeletal origin, and willing to participate were included in the study. During the trail the mean baseline parameters versus last visit (i.e.45days) parameters of pain (2.90±0.73 vs. 1.40±0.75), tenderness (1.62±0.75 vs. 0.42±0.64) and swelling (0.70±0.93 vs. 0.52±0.78) were compared and shown significant decreased in all parameters after application and also found pretty safe as no adverse drug reaction seen during the study. The overall use of the oil in chronic pain management as local applicant was found safe and effective.

Keywords: Chronic Pain, Polyherbal Oil, Mastard oil, Eucalyptus oil, Camphor, Urtica Dioica Extract (Nettel Plant Extract), Garlic, Nutmeg, Pepper.

सारांश–

मांसपेशी में पुरतन शूल होना एक बहुत प्रचलित होने वाला लक्षण है, इसका रोगियों पर शारीरिक, मानसिक और आर्थिक पहलू पर बड़ा प्रभाव है। आयुर्वेदिक चिकित्सा एवं पाश्चात्य चिकित्सा विज्ञान में विभिन्न उपचार रूपरेखा अच्छी तरह से उपलब्ध हैं, परंतु इनम से कोई भी पुराने दर्द हालत में प्रभावी नही है। आयुर्वेदिक जड़ीबूटि वहुत प्रचलित चिकित्सा धारा हैं, पर इन आयुर्वेदिक दवाओं का वैज्ञानिक अध्ययन पूरी तरह से अभी भी उपलब्ध नहीं है। एक आयुर्वेदिक तैल, जिसका नाम आयुष हरिजीवन तैल है। यह बहुत सारे जड़ी बूटियों से बना है, इसका मिलित रुप से मांसपेसी का शूल में असर और पार्शयप्रतिक्रिया देखने के लिए पुराने शूल में ग्रस्त होने वाले 50 रोगियों उम्र जैसे 30 से 65 तक शामिल और बिना शामिल के कसौटी के आधार पर इंस्टियुट ऑफ मेडिक ल साइंस, सम अस्पताल के बहिरङ्ग विभाग में आयुष हरिजीवन तैल का पुरातन शूल में असर देखा गया। आयुष हरिजीवन तैल 45 दिन तक दिन में 2 वार मालिस करनें के लिए दिया गया। अध्ययन पूर्व और अध्ययन के पश्चात सारे लक्षणों को लिपिबध्य किया गया, संपुर्ण अवधि के बाद यह देखा गया कि रोगियों का सार्वोदैहिक विकृतियों के अंतर्गत शूल में (2.90±0.73) से घटकर (1.40±0.75), स्पर्श असहिष्णुता में (1.62±0.75) से घठक र (0.42±0.64) एवं सूजन में (0.70±0.93) घठकर (0.52±0.78) प्रगति हुआ है। परीसंक्ष्यान के अनुसार यह अध्ययन महत्वपुर्ण माना जा सक ता है। यह निष्कर्ष किया जा सक ता है कि अवधि 45 दिन से लेकर अधिक माह तक साथ में अधिक संख्यक रोगियों में अगर अध्ययन किया जाए तो अधिक यह और असरदार होने कि संभावना है, इस अध्ययन के दौरान रोगियों में कोई भी भैषज्य बिषमयता प्राप्त नही हुआ।

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Clinical Study

Therapeutic Evaluation Of '*Ayush Harijiwan*' Oil For Musculoskeletal Pain Relief

Sidharth Samal, Kunal Sharma, Dipsundar Sahu, Abichal Chattopadhyay
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Introduction:

Pain is the most common and universal symptoms that brings any person to a hospital. Chronic pain has a major effect over the physical and mental functional, quality of daily life, and has become one of the major public health problems. Pain persisting for more than three months is usually considered as chronic pain.[1, 2] Chronic pain can be controlled by opioids[3] but also associated with the risk of overdose and addiction.[4]

The pain my originate from superficial or deep tissues by activation of receptors.[5] The superficial pain is generated by activation of receptors in the superficial tissues of skin and the deep pain is initiated by provocation of receptors in ligaments, tendons and bones blood vessels, muscles, fascia. Deep somatic pain is usually poorly-localized and dull-aching in nature. pain originating by several visceral organs, when inflammation or damage due to any factor.[6] Neuropathic pain is divided into peripheral and central according to its origin.[7] The C type of nerve fibers that carry the chronic pain stimulus produce painful sensation for a long time.[8] After initiation of the process, it is very difficult to reverse or eradicate in case of chronic pain.[9] In some genetic variant, permanent reduction in the pain threshold as a result of interference with neuronal differentiation leads to pain of prolonged duration.[10]

The management of chronic pain is differs a lot from that of acute musculoskeletal pain. Chronic pain is a complex reciprocation of psychological, mechanical biochemical and social components.[11] Drugs (systemic and local) and non-pharmacological therapies such as psychotherapy and life style modification can be used to deal chronic pain. Selected TCAs (Tricyclic antidepressants), Extended-release tramadol, SSRIs (selective serotonin reuptake inhibitors), and; and topical preparations such as Lignocaine, Diclofenac and Capsaicin are considered among the conventional medical treatment. Though some improvement in quality of life can be done but in many cases Complete and relief of many types of chronic pain is difficult.[12] Hence we need to find an alternate mode of safe and effective treatment method for chronic painful conditions. World Health Organization (WHO) has recognized Ayurvedic medicine as a complete system of natural medicine. WHO also promotes countries to integrate the traditional medicine systems into their own health care systems.[13] This clinical trial will provide some information regarding the safety and efficacy of an Harijiwan oil preparation in chronic musculoskeletal pain patients.

Materials and methods:

This clinical trial has done at the outdoor of Department of Orthopeadics, Institute of Medical Sciences & SUM Hospital, Bhubaneswar, Odisha, India. The fifty patients with chronic pain of musculoskeletal origin (eg. Low backache, knee, shoulder, elbow, wrist, ankle & neck pain) were selected for this present clinical trial. Patients fulfilling the criteria and willingly gave consent and ready to attend scheduled OPD visit were included for this study. Total of Fifty patients were selected randomly irrespective of sex, race, cast, religion, income, literacy, etc. However, some other data like, Socio-demographic profile and relevant clinical data of participants were also recorded. The trial was sponsored by Ayush Arihant Industries Pvt. Ltd.

Inclusion Criteria:

1. Patients of either sex aged between 30 and 65 years.
2. Patient with primary backache, knee and any muscular pain.
3. Willing and able to participate in the study for 02 months.

Exclusion Criteria:

1. History of any trauma/ fractured joint / surgical/ diagnostic intervention with reference to the affected joint(s).
2. Gross disability in performing daily normal routine i.e. bed ridden patients or confined to a wheelchair.
3. Patients with co-morbidities such as gouty arthritis, rheumatoid arthritis and psoriatic arthritis.
4. Patients having any deformity of knee hip or back altering the gait and posture of the patient.
5. Patients with uncontrolled hypertension (>160/ 100 mm of Hg).
6. Patients with uncontrolled diabetes mellitus{HbA1c>9%}
7. Patients with evidence of malignancy.
8. Patients on prolonged (> 6 weeks) medication with corticosteroids, antidepressants, anticholinergics, etc. or any other drugs that may have an influence on the outcome of the study.
9. Patients who have a past history of atrial fibrillation, acute coronary syndrome, myocardial infarction, stroke or severe arrhythmia in the last 6 months.
10. Patients with any severe renal or hepatic or any other disorder which may interfere in the study.
11. Pregnant / lactating woman.
12. Patients who are currently participating in any other clinical trial.
13. Any other condition which the Principal Investigator thinks may jeopardize the study.

Withdrawal Criteria: - The participant may be withdrawn from the trial if –

1. He / She develops any hypersensitivity reaction or any adverse effect
2. There is non-compliance of the treatment regimen (minimum 80% Compliance is essential to continue in the study).
3. The patients himself/ herself want to withdraw from the study for any other reason.
4. Patient develops any other health ailments mentioned in exclusion criteria during trial.

If the decision to withdraw a participant from the trial will be taken by the Principal Investigator, it will be justified in terms of the actual reason and further management will be suggested if needed.

Table 1: Study Design

Study Type	Open Clinical Trial
Purpose	Treatment
Masking	Open label
Control	Not controlled
Sample Size	50 patients
No. of Groups	One
End Point	Efficacy and Safety
Timing	Prospective
Total Study Period	3 months
Treatment Period	45 days

Drug intervention: Name of the Product: Ayush Harijivan Oil: 2-3 ml applies topically twice daily for 6 weeks. The formulation and percent composition of each ingredients of this oil has been decided and prepared by the sponsor.

Table 2: Contents of Ayush Harijivan Oil (Polyherbal Ayurvedic Formulation)

Appellative	Botanical Name	Parts
Mastard oil	Brassicaceae campestris	10
Eucalyptus oil	Eucalyptus globulus	1
Camphor	Cinnamomum camphora	2
Urtica dioica extract (nettel plant extract)	Acidum carbonicum	2
Garlic	Allium savitum	2
Nutmeg	Myristica fragrans	1
Pepper	Piper nigrum	1

Assessment of therapy:

Criteria for assessment

The patients were examined weekly and suitable scoring pattern and objective signs were recorded to assess any changes present in the patients. After completion of 45 days of the treatment, the efficacy of the therapy was assessed subjective criteria on the basis of the modified universal pain assessment tool along with tenderness and swelling assessment tools.

Table 3: Modified Universal Pain Assessment Tool14

Score	Nature of Pain
P5	Night Pain with sleep disturbance
P4	Persistent pain not able to perform daily work
P3	Persistent pain but able to perform daily work
P2	Persistent pain increased on exertion
P1	Pain on exertion
P0	No pain

Table 4: Assessment tool for swelling

Score	Swelling
S4	Joint swelling to a maximally abnormal degree
S3	Markedly abnormal swelling
S2	Joint swelling obvious even on casual observation
S1	Join swelling which may not be apparent on casual inspection, but should be recognizable to an experienced examine
S0	No Swelling

Table 5: Assessment tool for tenderness

Score	Tenderness
T4	Withdrawal (+ "Jump Sign") to non-noxious stimuli (ie. superficial palpation, pin prick, gentle percussion)
T3	Tenderness with WITHDRAWAL (+ "Jump Sign")
T2	Tenderness WITH grimace &/or flinch to palpation
T1	Tenderness to palpation WITHOUT grimace or flinch
T0	No tenderness

Assessment of compliance

Among the various available methods to assess the compliance, we used integration method. On each visit, information regarding use of oil was given to the every studied participant and all participants were advised to bring their remaining oil container and empty bottles on the next visit. The participants were also interviewed regarding use of the oil and residual volume of oil measurement done on every visit. The consumption of =80% of prescribed oil was considered as compliance.

Results and statistical analysis:

The information gathered on the basis of above observations was subjected to statistical analysis. The data collected were analyzed using SPSS

version 20 and Microsoft Excel 7. Continuous data were presented as mean values ± standard deviation while categorical data were presented as percentages. Descriptive statistics were used to analyze the data and results were represented in tabular form or graphically. The one way ANOVA was used to evaluate the efficacy of the oil taking consideration of each visit. The level of significance (p-value) was set at 0.05.

The subjective effect was decided on the basis of percentage improvement in symptoms and the assessment tools parameters. Thus, the total effect of the therapy was marked as following:

Complete remission	100%
Marked improvement	75- 99%
Moderate improvement	50- 74%
Improvement	25-49%
Mild improvement	10-25%
No improvement	<10%

Ethical consideration and trial registration:

Clinical trial permission was taken from institutional ethical committee (no- 147-3/16/01/ 2015) and also registered to clinical trial registry of India (CTRI/ 2015/02/005559) prior to conduct this trial.

Observations and Results:

During the study period, a total of 50 patients selected to participate in this study. All of these were willingly gave consent and participated. Male patients (n= 36, 72.00%) participated more as compared to female patients (n= 14, 28.00%)(Table-6). The mean age of the study population was found to be 43.36 ±11.07 years. . The socio-demographic parameters of the study participants are shown in Table- 7.

The mean duration of pain was 8.42 ± 5.90 months and 62 % of participants were suffering from upper or lower backache. The clinical variables of all participants are shown in Table-8. The commonest pain was backache followed by knee pain. 62 patients were having co morbidities like hypertension diabetes etc. During the study period no patient had any adverse reaction associated with this polyherbal oil preparation.

The effect of Harijiwan oil during the trail the mean baseline parameters versus last visit (i.e.45days) parameters of pain (2.90±0.73 vs. 1.40±0.75), tenderness (1.62±0.75 vs. 0.42±0.64) and swelling (0.70±0.93 vs. 0.52±0.78) was shown in Table 8.

The graphic representation of the effect of this oil on pain and tenderness showed steep downward pattern (Figure- 3&4), however the plateau like effect on swelling (Figure- 5). Figure-6 showed the effect on joint mobility, 24 participants out of 20 were shown excellent result over mild joint movement limitation (figure- 7). The significance of this study has shown in (table- 9 & 10).

Table 6: Age Distribution of chronic pain patients taken for study

AGE	TOTAL	MALE	FEMALE
30-35	11	8	3
36-40	6	4	2
41-45	10	7	3
46-50	8	6	2
51-55	8	6	2
56-60	4	3	1
61-65	3	2	1

Table 7: Socio- demographic parameters of study participants

Parameters		Value (n)	Percentage (%)
Age (years) ⇨ Mean ± SD[Range]		43.36 ± 11.07 [30-65]	
Sex	⇨ Male	36	72.00
	⇨ Female	14	28.00
Religion	⇨ Hindu	46	92.00
	⇨ Muslim	3	06.00
	⇨ Christian	1	02.00
	⇨ Others	0	00.00
Marital status	⇨ Married	40	80.00
	⇨ Single	10	20.00
	⇨ Seperated	0	00.00
Weight	⇨ Normal/underweight	34	68.00
	⇨ Overweight	09	18.00
	⇨ Obese	07	14.00
Educational status	⇨ Illiterate	05	10.00
	⇨ Up to School level	18	36.00
	⇨ Graduate	21	42.00
	⇨ Postgraduate	6	12.00
Occupational type	⇨ Sedentary jobs	21	42.00
	⇨ Non- sedentary jobs	05	10.00
	⇨ Others -housewives, student, retired etc.	24	48.00

SD-Standard Deviation

Table 9: Mean Effect of Harijiwn oil on subsequent visits

Parameters	Baseline parameter	Parameter on 1st visit	Parameter on 2st visit	Parameter on 3rd visit	Parameter on 4th visit	Parameter on last visit
Pain	2.90±0.73	2.30±0.73	2.08±0.72	2.00±0.63	1.64±0.72	1.40±0.75
Tenderness	1.62±0.75	1.32±0.86	1.04±0.69	0.78±0.64	0.45±0.70	0.42±0.64
Swelling	0.70±0.93	0.66±0.91	0.58±0.85	0.48±0.73	0.48±0.73	0.52±0.78

SD-Standard Deviation

Table 8: Clinical Variables Of The Study Population

Clinical variables		Frequency (n)	Percentage (%)
Mean duration of chronic pain (months) (Mean ± SD) [Range]		8.42 ± 6.90	[3 – 30 months]
Duration of chronic pain (months)	⇨ ≤ 5	20	40
	⇨ 6 - 10	18	36
	⇨ 11-15	06	12
	⇨ 16-20	03	6
	⇨ 21-25	02	4
	⇨ 26-30	01	2
Sites of the pain	⇨ Wrist	3	6
	⇨ Elbow	2	4
	⇨ Shoulder	4	8
	⇨ Nape of the neck\ upper backache	6	12
	⇨ Low backache	17	34
	⇨ Knee	14	28
	⇨ Ankle	4	8
Pattern of joints involvement			
	⇨ Single joint	40	80
	⇨ Multiple joint	10	20
Joint mobility limitation	⇨ No Limitation	25	50
	⇨ Mild Limitation	13	26
	⇨ Moderate Limitation	11	20
	⇨ Severe Limitation	1	2
Associated co- morbidities	⇨ Diabetes	10	20
	⇨ Hypertension	09	18
	⇨ Cardiac illness	1	2
	⇨ Dyslipidemia	2	4
	⇨ BPH	1	2
	⇨ Gastritis	8	16

SD-Standard Deviation

Table 11: Tukey's Multiple Comparison Test of Harijiwn

Comparison test	Parameter	Mean diff.	Std error	P <0.05	95% CI to difference
Baseline vs 45 days	Pain	2.00	0.357	Yes*** (0.001)	1.04 to 2.95
Baseline vs 45 days	Tenderness	1.66	0.346	Yes*** (0.000)	0.74 to 2.59
Baseline vs 45 days	Swelling	0.57	0.172	Yes*** (0.001)	0.25 to 1.40

CI= confidence Interval P = Significance

Table 10: Harijiwn Anova Table For Different Parameters Anova Table For Pain Baseline Vs Last Visit

		Sum of Squares	df	Mean Square	F	Sig.
	Between Groups	13.370	3	4.457	14.012	.000
Pain	Within Groups	14.630	46	0.318		
	Total	28.000	49			
Anova Table For Tenderness Baseline Vs Last Visit						
	Between Groups	11.894	3	3.965	22.011	.000
Tenderness	Within Groups	8.286	46	0.180		
	Total	20.180	49			
Anova Table For Swelling Baseline Vs Last Visit						
Swelling	Between Groups	21.099	3	7.033	34.487	.000
	Within Groups	9.381	46	0.204		
	Total	30.480	49			

p value = for effectiveness should be less than 0.05 df = Degrees of freedom

F = variance of the group means/ mean of the within group variance

Discussion:

Chronic pain has a very paralyzing effect on our day to day life. Chronic pain condition has negative impacts over different aspects of patient health like, sleep, mental health, cardiovascular wellness, sexual function, and overall quality of life. Overweight and obese patient constituted 32% of patients. Single joint pain patients were more than multiple joint involved patients. Chronic pain also causes economic loss of the patient. [15]

The mean ± SD age of patients in this study was 43.36 ± 11.07 years with ranges between 30- 65 years; this may be due to small number of study participants for this clinical trial. Male patients were more as compared to females. Large portion of the study population was under the age of 50.

The Ayurvedic polyherbal preparation contains Mastard oil (Brassica campestris), Eucalyptus oil (Eucalyptus globules), Camphor (Cinnamomum camphora), Urtica Dioica Extract-Nettel Plant Extract (Acidum carbonicom), Garlic (Allium sativa), Nutmeg (Myristica fragrans), Pepper (Piper nigrum). All of these ingredients have already proved its efficacy in the management of pain in ayurvedic science.

Mustard oil contains about 60% monounsaturated fatty acids (42% erucic acid and 12% oleic acid), 21% polyunsaturated fatty acids (6% the omega-3 alpha-linolenic acid and 15% the omega-6 linoleic acid), and about 12% of saturated fats.[16] Omega-3 fatty acids have potency to improve rheumatoid arthritis due to its metabolites have inhibitory role in the production of inflammatory cytokines responsible for arthritic pain and also effective against arthritic pain as well as other symptoms, including joint stiffness.[17,18] Therefore, Mustard and its oil have been used as a topical treatment for rheumatism and arthritis, as a foot bath for aching feet.[19] Mustard oil has stimulant, rubefacient and counter irritant properties, it is mentioned in Ayurved samgraha.[20] Due to these properties, it is included in the National formulary in few countries.[21] Various animal experimental studies have also proven its analgesic properties.[22,23]

Eucalyptus oil also has anti-inflammatory and analgesic qualities as a topically applied liniment ingredient.[24,25] Australian Aboriginals use eucalyptus leaf infusions (which contain eucalyptus oil) as a traditional medicine for treating body pains, sinus congestion, fever, and colds.[26,27]

Camphor, a natural product derived from the wood of the tree. The wood and leaves have many medicinal properties and used as antiseptic, analgesic, antispasmodic, antipruritic, stimulant, counterirritant and rubefacient.[28,29] It also provides warm sensation locally.[30] Camphor block the production of Interleukin-1, Interleukin-6 and Tumor Necrosis Factor-a from RAW 264.7 cells and Nitous Oxide, Prostaglandin E2 production in lipopolysaccharaide or interferon-γ activated macrophages by its anti-inflammatory mechanisms.[31]

Urtica Dioica Extract (Nettel Plant Extract) contains active compounds that reduces Tumor necrosis factor-a and other inflammatory cytokines.[32,33] It has been demonstrated that nettle leaf reduces Tumor necrosis factor-a levels by potently inhibiting the genetic transcription factor that activates Tumor necrosis factor-a and IL-1B in the synovial tissue that lines the joint.[34] Urtica dioica herb has been used in the traditional Austrian medicine internally (as tea or fresh leaves) for treatment of disorders of the kidneys and urinary tract, gastrointestinal tract, locomotor system, skin, cardio-vascular system, hemorrhage, flu, rheumatism and gout.[35]

Garlic (Allium sativum) has gained a reputation in various traditions as a prophylactic as well as therapeutic medicinal plant. It has played important dietary and medicinal roles throughout the history. Garlic has anti inflammatory activity[36] and anti bacterial properties.[37-39]

The plant derived alkaloids of Nutmeg (Myristica fragrans) has elicited many biological effects, including analgesia. Nutmeg oil contains myristic acid, trymiristin, and glycerides of lauric, tridecanoic, stearic, and palmitic acids.[40,41] Many studies have demonstrated that an acetone-soluble substance within the N-hexane extract of Nutmeg exerts analgesic activity.[44] However, the identification of the active constituents of M. fragrans, which are responsible for the analgesic activity are still remains unknown.

Pepper (Piper nigarm), Piperine found in the fruits and roots of Piper species of Piperaceae family. The pungency of piperine is caused by the activation of the heat and acidity sensing Transient receptor potential vanilloid (TRPV) ion channel TRPV1 on nociceptors (pain sensing nerve cells).[45] Pepper (importants flavourant and its different parts are used as internal medicine for curing bronchitis, gastric ulcer, rheumatism and viral diseases.[46]

In view of anti- inflammatory, antiseptic and analgesic properties of each ingredient, hypothesis was made, that this novel ayurvedic combination can have synergistic effect over chronic pain. So, clinical trial was conducted to see the efficacy and safety of this polyherbal preparation.

In this study, mean baseline parameters versus last visit (i.e.45 days) parameters of pain (2.90±0.73 vs. 1.40±0.75), tenderness (1.62±0.75 vs. 0.42±0.64) and swelling (0.70±0.93 vs. 0.52±0.78) was significantly decreased in statistically and, also clinical improvement were seen in study participants. The decreasing trend of graphical representations of these parameters showed gradual improvements in subsequent follow up. Though, swelling trend was shown some plateau pattern but patients were clinically improved. The effect of Ayush Harijiwan polyherbal topical preparation has shown high significance ($p < 0.0001$) in detailed statistical analysis. After application of this oil significant number of patients with decreased joint mobility were also improved.

We had taken only 50 patients (aged between 30-65 years) of chronic pain for unknown origin, those were in mild to moderate pain condition. So, further study will required with larger sample size and in heterogeneous population. Regarding the efficacy of Ayush Harijiwan oil was effective for chronic pain of musculoskeletal origin and showed continuous reduction of pain, tenderness, swelling and improvement joint mobility with clinically significant results within 45 days. In view of zero evidence of major or minor adverse drug reaction, it is considered being safe as topical application.

Conclusion:

Concisely, this clinical study, which investigated the effects of Ayush Harijiwan Oil on patients who were suffering from chronic pain of musculoskeletal origin, showed that this polyherbal topical preparation was effective in reducing patient's subjective pain, tenderness and swelling along with improvement in joint mobility. These results suggest that the local application of Ayush Harijiwan oil might

be a valuable polyherbal preparation for chronic pain relief of musculoskeletal origin.

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Clinical Study

Karshya Mein Santarpana Chikitsa Ka Prabhavatmaka Adhyayana

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Abstract

Karshya is a Rasapradoshaj Vikara that is a manifestation of irregular lifestyle in young generation of developing countries. As per modern science it is a condition of under- nutrition. Other cause is poverty and lack of health education. It can be measured by Weight, Basal Metabolic Rate (B.M.I.), and Waist/hip ratio. According to Acharaya Charak treatment principle is santarpana chikitsa. By following treatment principle "Dhatupustikara Yoga (granules)" named kalpit yoga taken for research work. A total number of 60 samples were selected from OPD/IPD of National Institute of Ayurveda, Jaipur for study, who are administered *Dhatupusthikar Yoga* - (granules) 20 gm before food with warm milk at morning time. The patients were advised to visit at an interval of 15 days during the study period of two months. By different Subjective & Objective parameters, observed result was satisfactory.

Key words: *Karshya, Dhatupustikara, Santarpana Chikitsa*, under- nutrition, PEM, Nutritional therapy.

सारांश–

कार्श्य एक रसप्रदोषज विकार है, जो कि विकासशील देशों मे युवा पीढी की अनियमित दिनचर्या का परिणाम है। आधुनिक विज्ञान की दृष्टि से यह एक अल्पपोषण की अवस्था है। गरीबी एवं स्वास्थ्य शिक्षा का अभाव इसके अन्य कारण हैं। इसकी निर्णय भार, बी.एम.आई., एवं उर:/स्फिक अनुपात द्वारा की जाती हैं। आचार्य चरक के अनुसार सन्तर्पण चिकित्सा ही इसका चिकित्सा सिद्धान्त है। इस सिद्धान्त के अनुसार एक कल्पित धातु पुष्टिकर योग का प्रयोग इस अनुसंधान कार्य में किया गया हैं। कुल 60 रोगी राष्ट्रीय आयुर्वेद संस्थान के बहिरङ्ग एवं अंतरङ्ग से लिये गये जिनको 20 ग्राम धातु पुष्टिकर योग (कण) भोजन से पहले सुबह दुग्ध के साथ दिया गया। रोगियों को प्रत्येक 15 दिन के अन्तराल पर 2 माह के लिए बुलाया गया। विभिन्न सब्जेक्टिव एवं ऑब्जेक्टिव मानको पर आये परिणाम संतोषजनक पाये गये।

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Clinical Study

Karshya Mein Santarpana Chikitsa Ka Prabhavatmaka Adhyayana

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Introduction

There are two main objectives of *Ayurveda* i.e., maintenance of the health of healthy person and restoration of health in the ailing mankind. The treatment methods in *Ayurvedic* system is holistic and individualized having two components i.e., preventive and curative.[1] The preventive aspect of *Ayurveda* is called "*Swasthavritta*" and includes personnel hygiene, regular daily & seasonal regime and appropriate social behavior. The curative treatment consists of the three major constituents, *Ahara* (diet), *Vihara* (lifesyle) and *Aushadha* (medication).

A majority of the population in the developing countries suffer from malnutrition and under nutrition. It forms one of the leading causes of mortality and morbidity in children as well as in adult population. Studies in India have shown that nutritional deficiencies are widely persistent among adolescent population due to which they become *Krisha*. *Karshya* is present in pure form or it may be associated symptom with other illness. In this present study a preparation viz, *Dhatu-Pushtikar Yoga* has been used for the treatment of *Krisha* people. *Dhatu-Pushtikar Yoga* is prepared with drugs *Ashwagandha, Shatawari, Bala, Kaunch, Vidarikanda, Gokshura, Swetamushli,Shunthi, Maricha* and *Pippali* in the form of granules. All the drugs are having *Rasayana* or *Brimhana* properties & are *Balya* in nature. Some of these are capable of *Agnideepana, Srotoshodhana & Vata-Shamana*. So all these properties of these ingredients work as *Dhatu-Poshana*, or nourishment of body in malnourish or *Krisha* people.

Aims & Objectives of The Study:

- To prepare an attractive and palatable formulation for *Karashya* patient.
- To evaluate the effect of *Dhatu-pushtikar Yoga* in improving the nutritional status in *Karshya*.

Materials And Methods:

Research Design:

Present study is a single group clinical study with pre-test and post-test design. Patients were selected from the outpatient department of National Institute of Ayurveda, Jaipur. *Karshya* patients from all over The India, who attended the Hospital, were also included in the study. The samples were selected from the population consisting of adult patients of either sex, irrespective of religions, race, socio-economic status and education, satisfying the inclusion criteria. A total number of 60 samples were selected for study, who will be administered *Dhatupusthikar Yoga* - (granules) 20 gm before food with warm milk at morning time. The patients were advised to visit at an interval of 15 days during the stud y period of two months.

The following materials were used for the clinical study:

- *Dhatu-Pusthikar Yoga* (granules)
- Weighing machine
- Measuring tape

Inclusion Criteria:

- Patients of *Karshya* have been selected irrespective of the sex; caste and religion between the age groups of 19 years to 60 years, exhibiting less body weight to the extent of 70% or 80% are included in the study.
- Patient whose Body Mass Index is below 18.5 kg/m2, irrespective of sex.

Exclusion Criteria:

Karshya patients, secondary to any illness such as, Diabeties Mellitus, Cardiac diseases, HIV infection etc are excluded.

Diagnostic Criteria:

Patients with BMI below 18.5 kg/m2 were diagnosed as *Karshya*.

Assessment Criteria:

Improvement is assessed once in 15 days for two months with following assessment Criteria. Decrease in signs and symptoms of *Karshya*, changes in weight, BMI, and waist hip ratio. The subjective and objective criteria used for the study are as follows.

Subjective Parameters:

Various features of *Karshya* had been considered and grading was given to analyze the result. *Abyhvaharan Shakti, Jarana Shakti, Nidra, Utsaha, Ayase Shrama, Alasya, Dhamani Jaal Darshana*.

Objective Parameters:

- Weight
- Basal Metabolic Rate (BMI)
- Circumference of neck, mid-arm, Abdomen, mid -thigh & waist: hip ratio
- Hand Grip Exercise For 5 Minute count, Foot Pressure Exercise For 5 Minute count, walking time for 200 meters distance.

Observation And Discussion

This single group clinical trial deals with 60 patients of *Karshya*. The demographic data recorded during the clinical trial on *Karshya* was as follow:

Age: In present clinical trial it was noted that 63.33% patients of *Karshya* were from age group of 18-28 years and 36.66% patients were of age group of 29-36years. The reason may be the food habits & stressful lifestyle during this age group.

Sex: 30% of females & 70% of males were there in sex wise distribution.Lack of nutrition knowledge can also act as a causative factor.

Religion: In this study 90% patients were Hindus. This may be the representation of the total community distribution visiting the hospital.

Socio-economic Status: The observation of this study showed that maximum number of patients i.e. 35% belonged to middle class. Reason may be the maximum number of patients who visits our hospital belongs to the Socio economical status of middle class persons.

Marital Status: In this clinical study the maximum (73.33%) patients were unmarried and remaining 26.66 % were married.

Profession: In this study, maximum of 63.33% patients were students followed by house wife 13.33% & govt. servants 7% & 16.66 % were others in each by profession.

Prakriti: About 63% patients were of *Vata-pittaja Prakriti* that indicates the *Pradhana Dosha* involved in the pathology of the disease.*Vata Prakriti* persons are prone for *Karshya*.

Samhanana and Saara: Maximum numbers of patients were reported to have *Avara Samhanana* (60%) and *Avara Sara* (40%). Due to *Mamsa-medadi dhatu kshaya*, it is obvious that *Avara Samhanana* is present in *Karshya* and it is natural phenomena that *Avara Saara is* present in *Karshya*. Even though the weight % and BMI of *karshya* person is proper they belong to *karshya* category, so they are also having good strength.

Satva : In this study, most of the patients were observed to have *Madhyama Satva (*70%).Due to the presence of *Alpa Shareera Bala, Karshya* person is having *Alpa Satva Bala*

Sathmya: Maximum numbers of patients were reported to have *Madhayama sathmya* (73.33%). This may be taken as poor nourishment ie, *Apatarpana* (rooksha gunayukta ahara) which probably may be the cause of the disease.

Vyayam Shakti: In this study 43% patients were noted *Madhyam Vyayam Shakti* whereas 56.66% were observed *Avara Vyayam Shakti*. It explains the role of etiological factors i.e.*Ativyayam* in the prevalence of *Karshya*. Excess of physical exercise is the major cause of Karshya.

Agni: *Agni Vishamata* was observed in 18.30 % patients & *Mandata* in 63 % patients which indicates the adoption of improper food habits ie, *Pramithashana & Alpashana* in this age.

Abhyavaharana Shakti: In this clinical study, 60% patients had *Madhyama Abhyavaharana Shakti*, 23.33 % patients had *Pravara Abhyavaharana Shakti* & 16.66 % patient had *Avara Abhyavaharana Shakti*.

Jarana Shakti: In this clinical study, it was observed that 63.33 % of patients had *Madhyama Jarana Shakti*, 33.33 % patients had *Avara*

Jarana Shakti & 3.33 % patients had *Pravara Jarana Shakti*.

Jata Desha: *Jata Desha* -wise distribution shows that maximum of 60% patients were constituted with *Jangala Desha*, 6.66% were *Anupa Desha* and followed by the 33.33 % were from *Sadharana Desha*.

Samvriddha Desha: *Samvriddha Desha* -wise distribution shows that maximum of 60% patients were constituted with *Jangala Desha*, 6.66% were *Anupa Desha* and followed by 33.33 % were from *Sadharana Desha*.

Vyadita Desha: *Vyadhita Desha* -wise distribution shows that maximum of 60 % patients were constituted with *Jangala Desha*, 6.66% were *Anupa Desha* and followed by the 33.33% were from *Saadharana Desha*.

Diet: Maximum numbers of patients (71%) were vegetarians & 29% had non-vegeterians indicating the dominance of *Karshya i*n vegetarians.

Nidra: Nidra-wise distribution shows that maximum of 70% patients were constituted with sound sleep followed by 30% had disturbed sleep.

Vihara : In this series maximum of the patients are having the habit of doing ratrijagarana (56.66%), ati vyayama (26.66%) & followed by ati adhyayana (16.66%) of the patients.

Mala Pravrutti: Majority of (65%) patients were having regular bowel habit daily, where as 35% patients were constipative type of bowel habit.

Duration of decreased Body Weight: Maximum patients (50%) had history of decreased body weight with duration of 2 yr, followed by 30%, 20% complained of decreased body weight since 1yr-1yr. 6mths, and 6 mths- 9 mths duration respectively.

B.M.I: In this series maximum (63.33%) of the patients are having BMI between 17 – 18,followed by 36.66% between 16 – 17.Satva wise distribution: In this series max imum (70%) of the patients are having *Madhyama Satva*, followed by 30% were *Avara Satva*.

Distribution of Anubandhi Vedana: In this series, maximum of the patients (46.66%) are having loss of weight, 30% patients are having *Samanya Daurbalya* followed by 23.33 % are having loss of appetite. *Satmya* wise distribution: In this study, the majority (73.33%) patients were having Madhyama Sathmya, 20% were Avara Sathmya & remaining 6.66% were Pravara Satmya.

Pradhana Vedana: In this series maximum (23%) of the patients are having *Vyayama Na Sahate Lakshana*, 20% are having *Dhamani Jala Darshana*, 13% patients are having *Kshudha-Pipasa Na Sahate* followed by 10% patients are having *Ati Sheetoshna Na Sahate*, 10% patients are having *Aushadham Na Sahate*, 10% patients are having Sphik-udara-g reeva shushkta & 7% patients are having sthoola parva lakshana.

In present study on observing *Dosha Dushti*, majority of the patients had *Vata Dusti*. In pathogenesis of *Karshya*, vitiation of *Vata Dosha* is mentioned by *Acharyas*. In pathogenesis of *Karshya, Vyana Vayu, Pachaka Pitta, And Kledaka Kapha* play important role that have been reflected in present study.

Nidana wise distribution: Among the 60 patients registered for treatment.

1. *Ativyayama* was the etiological factor for 24 (40 %) patients.
2. Maximum number of patients 46 patients (76.66) gave the history *of Atisevana* of *Rukshannapana*.
3. This was followed by *Alpashana* 30(50%).
4. *Pramitashana* caused *Karshya* in 42 (70%) patients.
5. 30 (50%) patients suffered from *Karshya* due to *Atilanghana*.
6. *Shoka* & C*hinta* were the cause for *Karshya* in 24 (40%) patients.
7. *Bhaya* caused *Karshya* in 20 (33.33%) patients.
8. *Nidra Nigraha* by the patient resulted in *Karshya* in 18 (30%) patients.
9. Due to *Mala-Mootra Nigraha* 26 (43.33 %) patients suffered from *Karshya*.
10. As there was no occurrence of *Rogas*, the point of *Kriyatiyoga* is not applicable.

Effect Of Therapy

60 patients of Karshaya were treated with Dhatu-pusthikar yoga. The effects of this therapy on the subjective and objective p arameters of karshya were as follow:

1. Objective Parameters

Table-I

Weight and BMI

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Weight	46.06	49.11	6.60	1.18	0.15	19.93	<0.0001
BMI	17.16	18.37	7.05	0.57	0.074	16.21	<0.0001

Effect on weight:

Before treatment the mean score of weight was 46.06, which was increased to 49.11 after 60 days. The 6.66% of improvement provided by the therapy was statistically extremely significance at the level of P<0.0001 . The highly significant increase in weight by the *Dhatu-pushtikar yoga* might be due to the acceleration of the body growth because of *brimhana* process. The weight increase may be also due to the *Dugdha Anupana*.

Effect on B.M.I –

Before treatment the mean score of BMI was 17.16, which was increased to 18.37 after 60 days. The 7.05% of improvement provided by the therapy was statistically extremely significance at the level of P<0.0001. As increase of the BMI depends on the increased weight

Table-II

Neck circumference

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Neck cir.	31.90	33.56	5.20	0.70	0.09	18.30	<0.0001

Before treatment the mean score of neck circumference was 31.90, which was increased to 33.56 after 60 days. The 5.20% of improvement provided by the therapy was statistically significance at the level of P< 0.0001.

Table –III

Mid-arm circumference

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Mid-arm circumference	24.63	26.13	6.09%	0.62	0.08	18.60	<0.0001

Before treatment the mean score of mid-arm circumference was 24.63, which was increased to 26.13 after 60 days. The 6.09% of improvement provided by the therapy was statistically significance at the level of P<0.0001.

Table-IV

Abdominal circumference

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Abd. Circum.	66.00	67.80	2.70	0.81	0.10	17.01	<0.0001

Before treatment the mean score of abdominal circumference was 66, which was increased to 67.80 after 60 days. The 2.70% of improvement provided by the therapy was statistically significance at the level of P<0.0001

Table-V

Waist-hip ratio

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Waist-hip ratio	0.77	0.79	3.11	0.10	0.0013	18.37	<0.0001

Before treatment the mean score of waist-hip ratio was 0.77, which was increased to 0.79 after 60 days. The 3.11 % of improvement provided by the therapy was statistically significance at the level of P<0.001

Table-VI

Mid-thigh circumference

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Mid-thigh cir.	35.13	36.76	4.63%	0.66	0.08	19.08	<0.0001

Before treatment the mean score of mid-thigh circumference was 35.13, which was increased to 36.76 after 60 days. The 4.63% of improvement provided by the therapy was statistically significance at the level ofP< 0.001

In brief, these measurements reflect the variation in the increased fat. So the abdominal circumference, hip circumference and measurements of such other parts where fat is depleted, is helpful in assessing the *Karshya*.

Table-VII

Walking time for 200 mtr distance

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Walking time for 200 mtr distance	1.71	0.40	76%	0.56	0.07	17.98	<0.0001

Before treatment the mean score of walking time for 200 mtr distance was1.71, which was decreased to .40after 60 days. The 76% of improvement provided by the therapy was statistically significance at the level of P<0.0001.

Table-VIII

Hand grip exercise for 5 min

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Hand grip ex. for 5 min	0.96	1.85	91	0.82	0.10	8.20	<0.0001

Before treatment the mean score of hand grip exercise for 5 min was 0.96, which was increased to 1.85 after 60 days. The 91% of improvement provided by the therapy was statistically significance at the level of P<0.0001.

Table-IX

Foot pressure exercise for 5 min

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Foot pressure ex. for 5 min	1.01	1.83	81%	0.83	0.10	7.5	<0.0001

Before treatment the mean score of foot pressure exercise for 5 min was 1.01, which was increased to 1.83 after 60 days. The 81% of improvement provided by the therapy was statistically significance at the level of P<0.0001.

Table-X

Sleep

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Sleep	1.01	1.88	85	0.74	0.09	8.98	<0.0001

Before treatment the mean score of sleep was 1.01 which was increased to 1.88 after 60 days. The 85 % of improvement provided by the therapy was statistically significance at the level of P<0.001 . Some ingredients of *Dhatu-pustikar yoga* acted on *Srotasses* ie, increasing the *Sroto Avarodha*, which may be the cause of accumulation of *Prakrutha Kapha* inside the *Srotasses* thereby providing moderately significant relief on *Nidra*.

In case of *Karshya*; the peripheral resistance in the body channels is decreased due to the derangement of *Vata Dosha*. The *Dhatu-pustikar yoga* drugs probable mode of action might have been brought about by the virtue of the *Vata Shamaka* properties present in the combination, some ingrediants like *Kauch*, *Ashwagandha* etc. brings the normotensive action by a stimulant action on the sympathetic nervous system at two levels ie, at central vasomotor center & at postganglionic sympathetic nerve fibers. Some drugs of the combination are *Kaphavardhaka & Vatanulomaka* properties.

2. Subjective Parameters

Table-XI

Dhamanijaala Darshana

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Dhamani jaala Darshana	2.13	1.11	46%	0.48	0.06	15.90	<0.0001

Before treatment the mean score of *dhamani jaala darshana* was 2.13, which was decreased to 1.11 after 60 days. The 46% of improvement provided by the therapy was statistically significance at the level of P<0.001. *Dhamani Jaal* Darshana symptom is due to Mamsa-Meda Dhatu Ksheenata. So if the nourishment is proper it is going to reduce the symptom gradually.

Table-XII

Abhyavarana Shakti

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Abhyavarana shakti	1.96	1.25	92%	0.74	0.09	9.86	<0.0001

Before treatment the mean score of *abhyavarana shakti* was **1.03**, which was increased to **1.98** after 60 days. The 92% of improvement provided by the therapy was statistically significance at the level of P<0.001. The reduced Abhyavarana Shakti manifests due to Agni Vaishamya. The Agni is stimulated by the ingredients that are present in the Dhatu-pustikar yoga.Hence there may be increase in Abhyavarana Shakti.

Table-XIII

Jarana Shakti

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Jarana shakti	1.06	2.35	120%	0.84	0.10	11.75	<0.0001

Before treatment the mean score of *jarana shakti* was 1.06, which was decreased to 2.88 after 60 days. The 120% of improvement provided by the therapy was statistically significance at the level of P<0.0001 . The drugs in this combination have deepana & pachana properties. This stimulates the Jatharagni. Due to this probably the Jarana Shakti of the individual improves.

Table-XIV

Utsaha

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Utsaha	1.15	2.01	74%	0.67	0.08	9.93	<0.0001

Before treatment the mean score of *utsaha* was 1.15, which was increased to 2.01 after 60 days. The 74% of improvement provided by the therapy was statistically significance at the level of P<0.001. Due to *Madhura Rasa, Sheeta Veerya, Snigdha Guna of Dhatu-pustikar yoga* counteracts the *Vata Dushti & thus Rasa dhatu* gets corrected & so increase in *utsaha* is seen.

Table-XV

Alashya

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Alasyata	1.98	1.20	39.90%	0.83	0.10	10.99	<0.0001

Before treatment the mean score of *alasyata* was 1.98, which was decreased to 1.20 after 60 days. The 39.90% of improvement provided by the therapy was statistically significance at the level of P<0.0001. As the *Dhatu-pustikar yoga* acts on rectifying the Agni & enhancing the Dhatu Poshana.

Table-XVI

Ayase Shrama

Parameter	Mean BT.	Mean AT.	% of imp.	SD (±)	SE (±)	t-value	p-value
Ayase Shrama	2.71	1.55	42	0.58	0.07	15.39	<0.0001

Before treatment the mean score *of ayase shrama* was 2.71, which was increased to 1.55 after 60 days. The 42% of improvement provided by the therapy was statistically significance at the level of P<0.0001. Due to *Rasa-Raktadi dhatu Kshaya, Ayase Shrama* is seen in *Karshya* persons. Due to *Bhrimhanopaya*, *Bala Vriddhi* is seen in the body & *Ayase Shrama* is gets pacified.

Table Showing Distribution Of Results

Anthropometric Values

Statistical test	Wt	BMI	N.C	MA.C	ABD.C	W-H.R	MT.C
B.T	46.06	17.16	31.90	24.63	66.00	0.77	35.13
A.T	49.11	18.37	33.56	26.13	67.80	0.79	36.76
M.D	3.05	1.21	1.66	1.50	1.80	0.02	1.63
% of imp	6.60	7.05	5.20	6.09	2.70	3.11	4.63
S.D	1.18	0.57	0.70	0.62	0.81	0.01	0.66
S.E	0.15	0.07	0.09	0.08	0.10	0.0013	0.08
"t" value	19.93	16.21	18.30	18.60	17.01	18.37	19.08
"p" value	<.0001	< .0001	< .0001	< .0001	< .0001	< .001	< .0001

It also highly significantly increased anthropometric measurements like weight (6.66%),neck circumference (5.20%),abdomen circumference (2.70%), waist-hip ratio (3.11%), mid-arm circumference (6.09%), mid-thigh circumference (4.63%) and B.M.I (7.05%). Increase in body weight, B.M.I, neck, mid-arm, abdominal, waist-hip circumference, depends upon the proportion of fat. Fat is very minimum than lean body mass and occupies less area in the body. So when the proportion of fat increases simultaneously body weight, B.M.I and body circumference also increases. When it increases all these parameters also increases.

Subjective & Objective Symptoms

Statistical test	DJD	AB.S.	JARA.S	WT 200m dist	HGE for 5 min	FPE for 5 min	Nidra	Alasya	Utsaha	Ayase shrama
B.T	2.13	1.03	1.06	1.71	0.96	1.01	1.01	1.98	1.15	2.71
A.T	1.11	1.98	2.88	0.40	1.85	1.83	1.88	1.20	2.01	1.55
M.D	1.00	0.95	1.81	1.31	0.88	0.81	0.86	1.32	0.86	1.16
% of imp	46.90	92	70	76	91	80	85	39	74	42
S.D	0.48	0.74	0.99	0.56	0.82	0.83	0.74	0.69	0.67	0.58
S.E	0.06	0.09	0.12	0.07	0.10	0.10	0.09	0.08	0.08	0.07
"t" value	15.90	9.86	14.07	17.98	10.87	7.5	8.98	8.77	9.93	15.39
"p" value	<.001	<.0001	<.0001	<.001	<.001	<.001	<.001	<.001	<.0001	<.001

Dhatu-pushtikar yoga provided significant relief in *Nidra* (85%), *Utsaha* (74%), *Ayase Shrama* (42%), *Alasya* (39 %), *Dhamani Jaal Darshana* (46%), *Abhyavarana Shakti* (92%), *Jarana Shakti* (70%), V*yayama Shakti* in terms of walking time for 200mtr distance (76%), hand grip exercise for 5 minute (91%) and foot pressure exercise for 5 minutes (80%).

DISCUSSION

Karshya is a *Rasapradoshaja Vikara* seen in majority of adult population in developing countries.[2] This results due to inadequate intake of nutritious food and lack of awareness regarding its importance. Poverty & lack of personal hygiene are the other causative factors which contribute in the manifestation of the *Karshya*. Under nutrition may be seen in an adult population due to deficiency of essential nutrients such as proteins, carbohydrates, vitamins, minerals & other micro-nutrients. Since India is a poor & developing country where socio-economic status of the majority of population is low, the quality of life determines under nutrition. On global scale, kwashiorkar, marasmus & nutritional anaemias are three principle nutritional deficiency diseases that are being recorded the highest priority action.

Karshya patients are prone for infections; hence treatment should be aimed to fulfill their nutritional requirements. The formulation *Dhatu-pushtikar* yogis such a nutritious medicament which possesses *Guru, Snigdha Guna, Sheeta Veerya, Kaphavardhaka & Vata Shamaka* properties, economical, easy to administer, palatable and can be practiced for a longer duration.

Mode of action of Dhatu-pushtikar yoga:

Karshya is considered as one of the *Apatarpana Janya Vikara.*[3] *Karshya* needs to be corrected by *Santarpana* measures.[4] *Dhatu-pustikar yoga* might be producing the *Brmhana* effect on the different tissues of the body. As the formulation possesses *Madhura Rasa, Snigdha Guna, Sheeta Veerya & Madhura Vipaka* having *Vata Pitta Shamana* and *Kapha Vardhaka* effect.

Dravya like *Shunthi, Maricha*, which have *Ushna Veerya* cause *Kapha-Vata Shamana* & *Pitta Vardhana*. These act at the level of *Dhatwagni*. *Shunthi & Pippali* acts as *Pitta Shamaka* & *Vata Kapha Vardhaka* due to their *madhura vipaka*. *Gokhshura* have *sroto sodhak* property. These in turn helps in relieving the *sanga*, which has occurred in *rasavaha srotas* & further dilates the *srotas*. Maximum contain have the property of *balya & poshan guna*. It thus nourishes the body.

Thus it can be inferred that *Dhatu-pustikar yoga* acts both on *Agni & Poshaka Rasa*. Being rich in proteins, it has the ability to nourish all the tissues of the body by increasing the *Adhya Dhatu* ie, *Rasadhatu*. The anabolic steroids found to be present in the *Aushadha dravya* might influence protein metabolism. Such anabolic agents if given in conjunction with an adequate diet for conditions characterized by wasting of bones & muscles prove to be beneficial to the patient suffering from *Karshya*.

Summary And Conclusion

- In this study *Dhatu-pushtikara yoga* showed good result in relieving the subjective criteria's viz. *Samanya Daurbalya*, loss of appetite, loss of weight, *Aayase Shrama* & *Abhyavarana Shakti* as well as *Jarana Shakti* and objective criteria's viz. weight, B.M.I, neck circumference, mid-arm circumference, abdomen circumference, waist-hip ratio and mid-thigh circumference.
- The formulation Dhatu Pushtikar yoga has been found palatable and attractive for the patients.
- The effect of Dhatu Pushtikar yoga is due to its Agnivardhak, Srotosodhan and Balya property.
- Any side effect or any other complain by the patient was not found during the study.
- The drug is useful on the parameter of safety and efficacy.
- The most difficult part of the study was convincing the patient of underweight those did not have significant problem with their underweight even though they had the risk of nutritional deficiency diseases.

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Clinical Study

Evaluation of efficacy of classical management of *Amavata*

Dr. Madhu singh

Absract

Amavata contributes too much morbidity in the patients , so classical therapeutic regimen adopted for this.In this study 30 patients of *Amavata* were selected from OPD and IPD of National Institute of Ayurveda, Jaipur. Patients of *Amavata* were taken for the study following the criteria of diagnosis of Rheumatiod arthritis (according ARA) in modern medicine and clinical features of *Amavata* described in *Madhav nidan*. Patients were devided in two groups A and B.

- Group A - 15 patients were receiving *Rasnadwadash kwatha* in the dose of 20 ml twice a day with *snehan and swedana* (30 days).
- Group B- 15 patients were taking classical management.

It was observed that group B showed highly significant ($p<0.001$) results in morning stiffness, joint swelling joint pain etc. and significant ($p<0.01$) results in group A.

सारांश –

वर्तमान समय में आमवात एक व्यापक रूप से पायी जाने वाली व्याधि है अतः इस व्याधि के चिकित्सा सूत्र पर अध्ययन करने का निश्चय किया गया, इस हेतु 30 आमवात रोगियों का चयन राष्ट्रीय आयुर्वेद संस्थान से किया। रोगियों के चयन का आधार माधवनिदान में बताये गए आमवात रोग के लक्षण तथा आधुनिक मत से ए. आर. ए. के मापदण्ड को माना गया। दो वर्ग बना कर रोगियों पर अध्ययन किया गया । वर्ग 'अ' के 15 रोगियों को 20 मिली. रास्नाद्वाद्वश क्वाथ दिन में दो बार स्नेहन –स्वेदन के साथ 30 दिन तक दिया गया। वर्ग 'ब' के शेष 15 रोगियों की आमवात के चिकित्सा सूत्र के अनुसार चिकित्सा की गयी। परिणाम का आकलन करने पर वर्ग 'ब' के रोगियों में अपेक्षाकृत अधिक लाभ प्राप्त हुआ।

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Clinical Study

Evaluation of efficacy of classical management of *Amavata*

Dr. Madhu Singh

Introduction

Amavata as a specific disease entity came into existence first time by M*adhavkar*(900 AD), who described the distinct etiopathogenesis and symptomatology for it and devoted a full chapter on this disease in *Madhav nidana*[2] Ayurvedic philosophy describes *Amavata* with symptom complex similar to many of Rheumatic diseases described in modern classics. *Amavata* (Rheumatic disorders) does not cause much mortality but they significantly contributes to the morbidity and affects the quality of life.

Rheumatic diseases cover a large part of medicine and affect a very large number of people in different countries worldwide[4]. Few Rheumatic diseases recognised as the most devastating, Rheumatiod arthritis is highly ranked in this group. *Amavata* has great resemblance with Rheumatiod arthritis This is the reason for considering the *Amavata* (RA) in the cllasical management part. Although many drugs are available for the treatment of Rheumatiod arthritis in modern era, but the drug therapy is not satisfactory. Drugs which are being used for the treatment are only palliative, thus many patients seek Ayurvedic therapy in the hope of complete cure.

Ayuveda links this disease with the diathesis of *Agni* which in turn leads to accumulation of a variety of byproducts of faulty digestion and metabolism in the system. Such morbid mentioned pathophysiology of *Amavata* around *Agni* and *Ama*.

Materials and Methods-

Aims and Objectives—

Amavata can not be treated by only one or two pharmacological drugs rather it involves a comprehensive therapeutic regimen design to influence the total disease diathesis and to break the chain of events involving promotion of *agni*, exhaustion of *ama*, palliation of aggravated *vata dosha*, rendering in turn the target joints free from immunological inflammation and secondary manifestations like pain. Keeping this in view we adopted the classical management of *Amavata* that is described by *chakrdutta*.

Plan of study -

30 patients of *Amavata* were selected from OPD and IPD of National Institute of Ayurveda, Jaipur. Patients of *Amavata* were taken for the study following the criteria of diagnosis of Rheumatiod arthritis(according ARA)[5] in modern medicine and clinical features of *Amavata* described in *Madhav nidan*.

Inclusion criteria- patients of mild and moderate degree of presentation were included in the present study.

Exclusion criteria- patients of severe degree of presentation were excluded in the study

Trial drug

1. *Rasnadwadash kwatha (Yog ratnakar)*
2. *Dashmula taila (*
3. *Saindhwadi taila (charaka samhita)*[1]
4. *Kshar basti (vaitarna basti-Chakradutta)*

Groups of the patients- Patients were devided in two groups A and B. Group A - 15 patients were receiving *Rasnadwadash kwatha* in the dose of 20 ml twice a day with *snehan* and *swedana* (30 days).

Group B- 15 patients were taking classical management

* *Rasnadwadash kwatha* in the dose of 20 ml twice a day from 1st day onwards till the completion of follow up (30 days)
* *Snehan karma* as *Abhyanga* with *Dashmula taila* and *Swedana karma* from day 1st.
* *Basti* was given from 15th day

1. *Saindhwadi anuvasana basti*
2. *Kshar basti*

Assessment of clinical profile

Subjective parameters

***1. Sandhi shula*(joint pain)**

0. No pain
1. Slight pain(no need of an analgesic)
2. Moderate pain(sometimes needed an analgesic)
3. Severe pain(only relieved by analgesics)
4. Extremely severe or agonising pain(not completely relieved by analgesics.

***2. Sandhi shotha*(joint swelling)**

0. No swelling
1. Feeling of swelling + Heaviness
2. Apparent swelling
3. Huge swelling

***3.Stabdhata* (stiffness)**

0 No stiffness
1. < 1 hour
2. 1-2 hour
3. 2-3 hour
4. > 3 hour

***4. Klaivya*(fatigue)**

0. After > 6 hours
1. 4-6 hours
2. 2-4 hours
3. 1-2 hours
4. < 1hours

***5 Agnimandya*(poor digestion)**

0. Absent
1 . Transiently present, no associated symptoms
2. Present for long period, less associated symptoms
3.Regular resence with much associated symptoms

***6. Praseka*(Excessive salivation)**

0. Absent
1 Present but not complained
2. Present and complained
3. Distressing in social life

***7. Aruchi*(loss of appetite)**

0. Absent
1. Complained but not present with associated features
2. Complained for loss of appetite and some associate features
3. Complained and present with associated clinical features

***8. Gaurava*(heaviness of body and joint)**

0. Absent
1. Mild(present for less than half hour)
2. Moderate(present for less than one hour)
3. Severe(more than one hour)

9. *Utsahahani* (lack of vigour)

0 . Absent
1. Lack of interest in social interaction
2. Lack of interest in profession
3. Lack of interest in daily routine

10. *Mukh vairasya* (perverted taste)

0. Absent
1. Complained, no associated features
2. Complained with some associated features
3. Present with associated features

11. *Bahumutrata* (poly urea)

0. Absent
1. Urine > 3/night time
2. Urine > 5/night time
3. Urine > 7/night time

12. *Kukshikathinya* (heaviness in abdomen)

0. Absent
1. Transient
2. Frequent
3. Regular

13. *Nidraviparyaya* (sleep disturbance)

0. Absent
1. Sleep < 6 hours/night
2. Sleep < 4 hours/night
3. Sleep < 2 hours/night

14. *Trishna* (thirst)

0. Absent
1. Only feeling
2. Marginally excess water intake
3. Much increased water intake

15. *Chardi* (vomiting)

0. Absent
1. Only feeling of nausea
2. Water brash
3. Real vomiting

16. *Bhrama* (giddiness)

0. Absent
1. Transient
2. Frequent
3. Regular, affecting routine activity

17. *Daha* (burning sensation all over the body)

0. Absent
1. Transient
2. Frequent
3. Regular and always

18. *Hridgrah* (chest tightness or pain)

0. Absent
1. Heaviness in chest
2. Pain during physical activity
3. Pain during respiratory movement

19. *Murccha* (faintness)

0. Absent
1. Rare
2. Often
3. Very often

20. *Koshthabaddhta* (constipation)

0. Absent
1. Motion once a day but not at regular interval
2. Alternate day
3. Interval for more than one day

21. *Jwar* (fever)

0. Absent
1 Only feeling
2. Temperature above normal but < 100 F
3 . Temperature > 100 F

Objective parameters[6]

1 . Walking time

0. Time taken by the patients upto 20 seconds for fixed distance
1. 31-45 seconds
2. 46-60 seconds
3. 61- 120 seconds
4. > 120 seconds

2. Grip power and pressing power.(By gripping inflated cuff of a sphygmomanometer.)

0. > 120 mm of Hg
1. 100-120 mm of Hg
2. 80- 100 mm of Hg
3. 60- 80 mm of Hg
4.< 60 mm of Hg

3. Functional index

0. Fit for all activities- no handicap

1. Mild restrictions and can do therir routine work

2. Moderate restrictions and can do light work- unemployable

3. Marked restrictions- limited self care

4. Completely bed ridden

Laboratorical investigations

1. Haemoglobin
2. Total leucocyte count
3. Differential leucocyte count
4. Erythrocyte sedimentation rate
5. C reactive protein
6. Rheumatiod factor
7. Radiological changes
8. Anti cyclic citrullinated peptides test (A ccp test)

Observations and results-

Table showing the number of joint involved in 30 patients of Amavata.

S. N.	Joint	No.of patients	percentage
1	Temporomandibular	02	6.66%
2	Cricoarytenoid	02	6.66%
3	Sternocostal	03	10%
4	Acromioclavicular	02	6.66%
5	Shoulder	22	73.33%
6	Elbow	20	66.66%
7	Wrist	28	93.33%
8	Carpals	29	96.66%
9	Spine	04	13.33%
10	Cervical spine	05	16.66%
11	Lumber spine	023	76.66%
12	Sacroiliac	04	13.33%
13	Hip	05	16.66%
14	Knee	25	83.33%
15	Ankle	20	66.66%
16	Tarsals	25	83.33%

Above table is showing that 96.66%cases had carpals joint involvement and wrist joint involved in 93.33% of cases while least number of patients (2) were having temporomendibular and Cricoarytenoid joint involvement.

Table showing results in group A

S. No.	Symptoms	*n*	Mean BT	Mean AT	Mean %	*t*	*p*	Remark
1	Sandhi stabdhata	15	2.27	I.80	20.59	1.97	<0.05	S
2	Sandhishula	15	2.87	2.33	18.60	2.48	<0.025	S
3	Sandhishotha	15	2.60	2.07	20.51	2.78	<0.01	S
4	Shunata	13	2.00	1.38	30.77	4.38	<0.001	HS
5	Agnimandhya	9	1.89	1.22	35.29	2.83	<0.01	S
6	Utsahahani	8	1.88	1.13	40.00	3.00	<0.01	S
7	Gaura	7	1.86	1.00	46.15	2.52	<0.025	S
8	Aruchi	7	1.57	1.00	36.36	1.92	<0.05	S
9	Kukshikathinaya	6	1.50	0.67	55.56	2.08	<0.05	S
10	Nidraviparyay	6	1.83	1.00	45.45	2.71	<0.025	S
11	Daha	4	1.75	1.25	28.57	1.73	<0.1	IS
12	Koshthabadhata	12	1.92	1.25	34.78	2.97	<0.01	S
13	Walking time	15	2.07	1.40	32.26	2.65	<0.01	S
14	Pressing time	15	2.00	1.53	23.33	2.82	<0.01	S
15	Grip power	15	2.00	1.53	23.33	2.83	<0.01	S
16	Functional index	15	2.00	1.60	20.00	2.45	<0.025	S

Table showing results in group B

S. No.	Symptoms	*n*	Mean BT	Mean AT	Mean %	*t*	*p*	Remark
1	Sandhi stabdhata	15	2.07	0.73	64.52	6.32	<0.001	HS
2	Sandhi shula	15	3.20	1.07	66.67	8.32	<0.001	HS
3	Sandhishotha	15	2.93	1.00	65.91	8.47	<0.001	HS
4	Shunata	14	1.93	1.07	44.44	2.92	<0.01	S
5	Agnimandhya	10	1.70	0.80	52.94	9.00	<0.001	HS
6	Utsahahani	13	1.62	0.69	57.14	12.00	<0.001	HS
7	Gaurav	13	1.62	0.77	52.38	5.50	<0.001	HS
8	Aruchi	13	1.77	0.85	52.17	12.00	<0.001	HS
9	Kukshi kathinaya	10	1.7	0.50	70.59	9.00	<0.001	HS
10	Nidraviparyay	9	1.89	0.78	58.82	10.00	<0.001	HS
11	Daha	10	1.70	0.50	70.59	9.00	<0.001	HS
12	Koshthabadhata	11	2.00	0.64	68.18	8.96	<0.001	HS
13	Walking time	15	2.40	1.07	55.56	10.58	<0.001	HS
14	Pressing time	15	2.33	1.07	54.29	8.26	<0.001	HS
15	Grip power	15	2.34	1.07	54.29	8.26	<0.001	HS
16	Functional index	15	2.20	1.07	51.52	6.86	<0.001	HS

Overall improvement

Improvement	Group A	Groop B
Clinical improvement	33.77%	60.02%
Functional improvement	24.73%	53.79%

Group B is showing more improvement in comparison of Group A

Discussion

Schematic approach of the management of Amavata at various levels of Ama-(Samprapti vighatana)

Amavata nidana → **Nidana parivarjana**

Mandagni → **Measures to improve agni**
1.Langhan 2, Deepan

Koshthagata Ama → **Measures to digest Ama**
1. Pachan

Measures to eliminate Ama
1. Virechan
2. Basti

Dhatugata Ama → **Measures to dissociate and digest Ama**

1. Pachan

Srotorodha → **local measures to control symptoms**

(sthan sanshraya in sandhi)

1. Snehana

2. Swedana

Amavata

Discussion on probable mode of action of these drugs:

Dashmula taila and Baluka Swedana-

In *Amavat* joint symptoms are mainly produced by the *Srotorodha* at local sites and thus here the intervention is intended to clear the obstructed *srotas* and hence to relieve *Ama* from local sites. This is mainly done by *Snehana* and *Swedana* in *Amavata*, in *sama* state of *Amavata* where the *kapha* is predominant, *Swedana* is usually applied in dry form, so we took *Baluka Swedana* for above purpose. In *charak samhita Swedana* is

indicated in various neuromuscular disease and connective tissue disorders mainly in pain, stiffness, swelling and deformity. The main symptoms of *Amavata* are stiffness, pain, swelling etc. So it is very useful in subsiding these symptoms. *Dashmula taila* has *Vatashamaka, Balya, Anulomaka, Deepana* and *Pachana* properties, so it is expected that it may produce local as well as systemic effects throughout the body.

Rasnadwadasha kwatha –

Very important measures in the management of *Amavata* is to stop the further formation of *Ama* by improving *Agni* and to digest the existing *Ama* in the body,. *Deepana* and *Pachana* are very specific measures for these purpose.

In *Rasnadwadasha kwatha* most of the drugs like *Ativisha*, *Abhaya, Shunthi* etc. have *Deepana Pachana* properties and *Rasna.Shatavari Duralabha Devdaru, Vacha* etc. have *Vatakapha shamaka* action. *Shatavari, Guduchi, Abhaya* etc. worked as *Balya* and *Rasayana* along with *sthapaka* property of *Guduchi, Shunthi , Eranda, Devdaru, Vacha* leading to relieving of various symptoms of *Amavata*.

Probable mode of action of *basti chikitsa*-

Mainly three things are to be considered -

1. Probable extent of *basti dravyas* reaching the gut.
2. Mechanism of excretion of *basti dravya*.
3. Mechanism of absorption of *basti dravya*.

In this research *Anuvasna basti* with *saindhwadi taila* and *kshara basti* has been introduced. *Saindhwadi taila* is processed from *erand tail* and drugs which are having *ushna, katu, tikta* substances, *erand taila* was the main ingredients of *basti tail* so it may cause *virechna* effect even when given in the form of *basti*.

Kshara basti is prepared from alkaline substances which are having *pachaka* properties. These if taken orally should have been more effective but as the initial phase of digestion is carried out in acidic media, any oral in take of alkaline substance may hamper the digestion process specially in the stomach. The later phase of digestion is carried out in the alkaline medium and thus any alkaline infusion given per rectally may be helpful in improving digestion. It improves the metabolic status, absorption from intestinal mucosa and clinical status of *Amavata*.

Discussion on clinical findings –

A comprehensive management schedule of *Amavata* has been mentioned in *chakrdutta*(25th chapter).*Swedana* has been one of those measures, which is specifically indicated in *Ama* condition. *Swedana* is supposed to be interfering the disease process as a whole, in addition to amelioration of symptom. Other measures includes *Langhana, Pachana, Virechana and Basti*.

It was observed that group B showed highly significant ($p < 0.001$) results in morning stiffness, joint swelling and joint pain and significant ($p < 0.01$) results in group A. In *agnimandya, aruchi* group B showed better results in comparison of group A.1n *nidraviparya, koshthabadhata* and *kukshikathinya* group B showed highly significant ($p<.001$) results but group A showed significant results only because group B was administered *Rasnadwadashkwatha* along with *basti*. Group A showed significant ($p <.010$) improvement in walking time, pressing power and grip power but Group B showed highly significant result.

Group B showed significant results in haematological changes over group A.

Discussion on demographic findings-

- Majority of the cases were of age group(31-40),as it is mainly found in adults.
- Observed that female patients 77.77% are more suffering from disaster.
- In this study most of the patients 55.55% were belonging to urban area.
- Majority of the patients 80% had Rasa sara as it is the disease of *Rasvaha srotasa*.
- The present criteria of diagnosis of this disease

has been given importance of hand joints, in this study carpal 97% wrist 91% knee 71% ankle 53.33% were found to be involved in majority of cases.

Conclusion -

Rasanadwadasha kwath along in the dose of 20ml, 1 with *Dashmula taila, baluka Sweda and basti (Saindhwadi anuvasana, Kshar basti*) gives excellent results in *samprapti vighatana of Amavata*.

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Clinical Study

Clinical Evaluation of Efficacy of *KutajghanVati* & *Yonikanduhar Malhar* in the management of *Acharana Yonivyapad* W.S.R. to Pruritus Vulvae

*Dr. Pushpa Rai, **Dr. B. Pushpalatha, ***Dr. Sushila Sharma

Abstract:

In classical Ayurvedic texts twenty types of yonivyapad have been described and almost all the gynecological disorder comes under the term *yonivyapad* among these *Acharanayonivyapad* is also prevalent. *Acharanayonivyapad* present main symptom as *yonikandu* so it is correlated with pruritus vulvae. Pruritusvulvae are a symptom which is experienced by 10% of womenattending gynecological clinics. It presents a clinical problem of unusual difficulty because it has many possible causes and unless the cause is found, the treatment is unsatisfactory. The sufferer from intractable pruritus is in worse plight than one who experiences pain because itching is not relieved by the simple expedient of giving analgesics. There is no complaint which deserves more conscientious and sympathetic study. So to deal with such an intractable problem the present study has been planned.

In this present research work 30 patients of *Acharana Yonivyapad* (Pruritus vulvae) were studied by randomly dividing them into three groups. Patients of first group were given *Kutajghanvati* only, the next group was given *Yonikanduharmalhar* and third group of patients were given both the formulations simultaneously. The duration of the treatment was 21 days in all the groups with weekly evaluation of the patients. The analysis based on subjective and objective indices reveled that all the three regimens are found to be effective while the group treated with combination of therapy reflected best improvement in *Yonisrava* & *Yonidaurgandhya*.

Key words:- *Acharana Yonivyapad*, Pruritus vulvae, *Kutajghanvati*, *Yonikanduharmalhar*

सारांश

प्रस्तुत शोधपत्र में कुटज घनवटी एवं योनि कण्डूहर मलहर का योनिकण्डू में चिकित्सीय अवलोकन का प्रयास किया गया है। अध्ययन में 30 रोगियों को तीन वर्गो में विभाजित कर अनुसंधान की प्रचलित सांख्यकी के सहयोग से व्याधि पर प्रभाव का विस्तृत अध्ययन किया गया है। इस शोध कार्य में योनि कण्डू चिकित्सा में कुटज धनवटी एवं योनि कण्डू हरमल हर दोनों ही सार्थक सिद्ध हुए परन्तु दोनों का एक साथ प्रयोग श्वेतप्रदर एवं योनि दौर्गन्ध्य में सर्वाधिक लाभकारी सिद्ध हुआ।

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Clinical Study

Clinical Evaluation of Efficacy of *KutajghanVati* & *Yonikanduhar Malhar* in the management of *Acharana Yonivyapad* W.S.R. to Pruritus Vulvae

Dr. Pushpa Rai, Dr. B. Pushpalatha, Dr. Sushila Sharma

Introduction

In today's era, horizons of the Ayurvedic treatment in regard to *striroga* have increased tremendously. For almost all Gynecological problems, patients are turning to the Ayurvedic treatment modality. Irregularities of menstrual cycles, infertility & white discharge such other complaints can be tried to solve efficiently by this medical science.

In Ayurvedic classics most of the gynecological disorders are described under the heading of *"Yonivyapad"*. The word *"Yoni"* denotes female genital tract as a whole vaginal canal and uterus etc.[1] The word *"Vyapad"* means disorders. Thus, the diseaseof the genital tract as a whole, vagina and uterus ought to be taken from the word *"Yonivyapad"*. The diseases interfering with normal marital life, pregnancy, defectivedevelopment of female genitalia, different types of abnormal vaginal infections, hormonal abnormalities, displacement etc. are included under *Yonivyapad*. Total 20 types of *Yonivyapad* have been described in all the Ayurvedic textswhich are caused by *Mithyachara* (*mithyaahara* and *mithya Vihara*), *Artavadosha*, *Beeja Dosha* and *Daiva Prakopa.*[2]

The symptoms of *Acharana Yonivyapad*[3] and pruritus vulvae are quite similar. In modern medicine, antibiotics, antifungal & steroids are treatment for pruritus vulvae,[4] but excessive & inadequate use of these drugs may lead to produce micro-organisms resistant . Due to this problem, we should think about some alternative methods to treat this disease. Since antimicrobials may destroy normal vaginal flora[5] & hence disturb the normal physiology of vagina, they (systemic antibiotics) also cause GIT disturbances like nausea, vomiting, diarrhoea (i.e. pseudo diarrhoea because they destroy the normal intestinal flora).[6] But while using Ayurvedic drugs, these are free from these side effects. These drugs mainly restore the normal physiology of vagina so that pathogenic organisms do not grow further. So, it is an effort to search effective Ayurvedic treatment for this disease.

Aims & Objectives –

- Conceptual & clinical studies on *Acharanayonivyapada* w.s.r. to Pruritus vulvae.
- Clinical evaluation of the efficacy of *Kutajghanvati* & *Yoni kanduharmalhar* in the management of Pruritus vulvae (*Yonikandu*).

Materials & Methods-

- **Drug & Grouping of Patients:**
  - **Group A:** 10 patients were treated with *Kutaj Ghan Vati* 2-2 vati thrice a day (for 21 days).
  - **Group B:** 10 patients were treated with *Yoni Kandu Harmalhar* 3-3 gm twice a day (for 21 days)
  - **Group C:** 10 patients were treated with bothvati & malhar will be used 2-2 vati thrice a day 3-3 gm malhar twice a day. (For 21 days).
- **Criteria for selection of Drugs:-**

In the present study *Kutaj Ghan Vati* was selected for the oral administration as referred from the *Sidhayogasangraha* & *Yoni Kandu Harmalhar* (kalpitayoga).

Most of ingredients in *Kutaj ghanavati* & *Yonikandu harmalhar* are *Kashaya Rasa, Ruksha Guna* and *Kapha Dosha Nashaka, Kandughna, Krimighna Vranashodhana, Vranaropana, Shothahara* properties. They have been reported to exertastringent, analgesic, anti-inflammatory, antimicrobial, antiprotozoal andantifungal properties etc.

Contents of *Yoni Kandu Har* Malhar (Kalpita yoga)

- *Guduchi, Haritki, vibhitaki, Amlaki, Danti,*

Haridra, Chakramard, Karanj (all in equal quantity- 2kg- 2kg each) Mulethi -1kg

Menthol crystal -100gm, *Shubhra bhasm* 250gm, *Nimb tail* ½ lit.

Yawanisatva 100gm, Vaseline 3kg, Beewax 500gm & preservatives (methyl paraben & propyl paraben 15gm each)

Method of preparation of *Yoni Kanduhar Malhar*:

- First of all ghan was prepared from above mentioned raw drugs up to Mulethi
- Fine powder was made from dried ghan,with the help of grinder & mixer
- Powder of ghan (1.25kg) was mixed in liquid Vaseline (3kg), Bee wax (1/2kg) & Nimbtail (500ml), with the help of mixer.
- *Yawanisatva* (100gm), *Shubhrabhasm* (250gm) & preservatives each (15mg) was added and mixed.
- pH of malhar was teasted with pH test kit (Whatman pH papers). pH of malhar was4.5 compatible to normal vaginal pH (Normal pH of reproductive age is 4.5 to 5. Malhar was filled in sterilized tubes, taking aseptic precautions.

Contents of *Kutajaghanvati* (*Sidhayogsangraha*)

Kutaj & *Ativisha*

- **Criteria of selection of patients**

Patients were selected from O.P.D. /I.P.D. of NIA Hospital, Jaipur, irrespective of caste and religion using randomized of trial.

- **Inclusion criteria:**

1. Adult female who were in age group 18-40 years.
2. Patients having pruritus vulvae as a cardinal symptom with or without vaginal discharge.
3. Pathogens present in wet slide study and vaginal swab culture.

- **Exclusion criteria:**

1. Patients age <18year and >40 year.
2. Patients after menopause.
3. Patients of uterine prolapse & Ca cervix.
4. VDRL, HBs Ag, HIV positive patients.
5. Patients having other systemic illness like– Anemia, Diabetes mellitus, tuberculosis, severe HT, Jaundice etc.

Laboratory Investigations

- **Before Treatment -**

1. General investigations:

- Routine hematological examination- Hb%, ESR, RBS, VDRL, Paps smear.
- Routine and microscopic examination of urine.

2. Specific investigations:

- Vaginal pH
- Wet slide study of vaginal smear.
- Vaginal swab culture (if needed).
- **After Treatment**
  - Vaginal pH
  - Wet slide study of vaginal smear.
  - Vaginal swab culture (if needed).

Subjective diagnostic parameters-

- *Yoni kandu* (Itching vulva):
- *Yoni Srava* (White discharge per vagina
- *Yoni Daurgandhya* (Mal-odours)
- *Yoni Vedana* (Pain)
- *Atinarakankshini* (Increase libido)
- *Maithunakrichhta* (Dyspareunia)
- *Mutra Daha* (Burning micturition)
- Vulvitis (Inflammation of vulvae)

Objective diagnostic parameters-

Hb% (Hemoglobin), ESR (Erythrocyte sedimentation rate), VDRL (Venereal disease & research laboratory), RBS (Random blood sugar), Routine & microscopic urine examination. Wet mount study, vaginal swab culture, Pap smear, vaginal pH etc.

Grading of the Symptoms-

The efficacies of the drugs were judged on the basis of the scoring pattern described as below. A special Scoring Pattern were applied in symptoms

Scoring pattern

0 – Nil, 1- Mild,

2- Moderate, 3- Severe

Statistical Analysis

Data were analyzed by using appropriate statistical test. Wilcoxon matched pairs test was used for non- parametric data and paired't' test used for parametric data. Comparison between groups was analyzed by using One-way Analysis of Variance (ANOVA- Kruskal Wallis test with post-test was used for non- parametric data and Tukey-Kramer Multiple Comparison test for parametric data). In addition age, personel history & other points were also assessed.

Observations &Discussion-:

- Maximum incidence of Acharanayonivyapad in age lies between 20-30 yrs age comprising 53.33% among 30 registered patients showing that this disease is a common problem of active reproductive life.
- Chronicity of their chief complaints shows that the majority of the patients i.e. 43.33% had been suffering for more than 2 month.
- Among the chief complaints, maximum70% of the patients had been suffering from Pruritus vulvae with sever white discharge.
- Severe itching was present in maximum number i.e. 53.33% of patients and moderate itching was present in 30% of patients.
- Etiology given in our classics is very much justified with present etiology, *Mithyachara* i.e. *Yoniadhvan* (unhygienic mode of living) is important factor, in vulvovaginal infections which leads to pruritus vulvae, as also mentioned in modern sciences.
- 70% patients were having pruritus vulvae with severe white discharge, 26.67% patients were having pruritus vulvae with mild white discharge. Only 3% patients were having pruritus vulvae without white discharge.
- Relation of Coital frequency to Pruritus vulvae (Kandavataya Atinarakankshidi) was found in only 23.33% of patients and 43.33% of patients were complained of decreased coital frequency due to local soreness.
- Relation of Orgasm (hyper excitement) to Pruritus vulvae (Poorvampurushadittirichyate) was not found in any patient; rather 70% Patients were indifferent about orgasm.
- On wet vaginal smear study fungal hyphae were present in 46.66% cases & T. vaginalis in only 13.33% patients. Pus cells in 60% followed by 40% with normal vaginal smear.
- Considering local Pathology during P /S examination 80% patient's shows vulvitis & 60% were with vaginitis.
- In the present study 46.66%% patients were having pH of 4.5 to 5 (pH of reproductive age group) 40% patients were having pH <4.

Results

Table no I -Effect of Kutajghanvati on Chief complaints of group A

Symptoms	N	Mean		Dif.	% of Change	SD (±)	SE (±)	P Value	Signif-icance
		BT	AT						
Yoni Kandu	10	2.60	0.40	2.20	84.62	0.79	0.25	0.0020	VS
White discharge	10	2.00	0.60	1.40	70.00	0.51	0.16	0.0020	VS
Dyspareunia	10	0.90	0.50	0.40	45.78	0.51	0.16	0.1250	NS
Increased libido	10	0.30	0.40	0.10	-33.00	0.32	0.10	0.9999	NS
Malodorous	10	1.00	0.70	0.30	30.00	0.48	0.15	0.2500	NS
Vulvitis	10	1.70	0.80	0.90	52.94	0.32	0.10	0.0039	VS
Mutradaha	10	1.50	0.70	0.80	53.33	0.42	0.13	0.0078	VS
Yoni vedna	10	1.70	0.60	1.10	65.82	0.87	0.27	0.0137	S

VS = Very Significant NS = Not Significant S = Significant

Table no II Effect of *Kutajghanvati* on Wet vaginal smear of group A

Symptoms	N	Mean		Dif.	% of Change	SD (±)	SE (±)	P Value	Signif-icance
		BT	AT						
Vaginal pH	10	5.10	4.75	0.35	06.86	0.67	0.21	0.1323	NS
Vaginal Pus cells	10	1.70	0.50	1.20	70.59	0.79	0.25	0.0039	VS
Fungal hyphae	10	0.30	0.20	0.10	33.67	0.32	0.10	0.9999	NS
Trichomonasvaginalis	10	0.70	0.40	0.30	42.86	0.48	0.15	0.2500	NS

VS = Very Significant NS = Not Significant S = Significant

Table no III Effect of Yoni kanduhar Malhar on Chief complaints of group B

Symptoms	N	Mean		Dif.	% of Change	SD (±)	SE (±)	P Value	Signif-icance
		BT	AT						
Yoni Kandu	10	2.30	1.10	1.20	52.17	0.78	0.24	0.0078	VS
White discharge	10	1.80	0.60	1.20	66.44	0.63	0.20	0.0039	VS
Dyspareunia	10	1.80	0.90	0.90	50.00	0.99	0.31	0.0313	S
Increased libido	10	0.80	1.50	0.70	-87.50	0.48	0.15	0.0156	S
Malodorous	10	2.30	0.30	2.00	86.96	0.82	0.26	0.0020	VS
Vulvitis	10	1.90	0.70	1.20	63.16	0.63	0.20	0.0039	VS
Mutradaha	10	1.90	0.80	1.10	57.80	0.56	0.17	0.0039	VS
Yoni vedna	10	1.90	0.30	1.60	84.20	0.84	0.26	0.0020	VS

VS = Very Significant NS = Not Significant S = Significant

Table no IV Effect of Yoni kanduharMalhar onof group B on Wet vaginal smear

Symptoms	N	Mean		Dif.	% of Change	SD (±)	SE (±)	P Value	Signif-icance
		BT	AT						
Vaginal pH	10	5.15	4.75	0.40	7.76	0.46	0.14	0.0224	S
Vaginal Pus cells	10	2.00	0.90	1.10	55.00	0.57	0.18	0.0039	VS
Fungal hyphae	10	0.60	0.30	0.30	50.00	0.67	0.21	0.0500	NS
Trichomonasvaginalis	10	0.50	0.50	0.00	00.00	0.00	0.00	-	No change

VS = Very Significant NS = Not Significant S = Significant

Table no VI Effect of Kutajghanvati & Yoni kanduhar Malharon Wet vaginal smear of group C

Symptoms	N	Mean		Dif.	% of Change	SD (±)	SE (±)	P Value	Signif-icance
		BT	AT						
Vaginal pH	10	5.15	4.75	0.40	07.76	0.46	0.14	0.0224	S
Vaginal Pus cells	10	2.10	0.60	1.50	71.43	0.71	0.22	0.0020	VS
Fungal hyphae	10	1.60	0.50	1.10	68.75	1.19	0.37	0.0174	S
Trichomonasvaginalis	10	0.60	0.20	0.40	66.67	0.70	0.22	0.5000	NS

VS = Very Significant NS = Not Significant S = Significant

Table no V Effect of Kutajghan vati & Yoni kanduhar Malharon Chief complaints of group C

Symptoms	N	Mean		Dif.	% of Change	SD	SE	P	Sig.
		BT	AT						
Yoni Kandu	10	2.00	.90	1.10	55.00	0.73	0.23	0.0078	VS
White discharge	10	2.10	0.20	1.90	90.00	0.87	0.27	0.0039	VS
Dyspareunia	10	1.60	0.60	1.00	62.50	0.82	0.26	0.0078	VS
Increased libido	10	0.80	1.40	0.60	-75.00	0.70	0.22	0.0313	S
Malodorous	10	1.70	0.10	1.60	94.11	1.07	0.33	0.0078	VS
Vulvitis	10	1.80	0.30	1.50	83.33	0.97	0.30	0.0039	VS
Mutradaha	10	1.60	0.40	1.20	75.00	0.91	0.29	0.0078	VS
Yoni vedna	10	1.90	0.40	1.50	78.89	0.84	0.26	0.0039	VS

Effect of therapy

There was great relief found in all the symptoms in all the patients after the trial.

- Effect of Kutajghan vati on Chief complaints of group A shows maximum effect i.e. (84.62%) in yonikandu, (70%) in white discharge, & (70.59%) in decreasing the no. of vaginal pus cells.
- Effect of Yoni kanduhar Malharon Chief complaints of group B shows maximum effect in yonidaurgandhya i.e. (86.96%), (84.2%) in yonivedna,(66%) in white discharge,(55%) in decreasing the no. of vaginal Pus cells.
- The overall result of Group C was more effective than group A and group B in Malodorous (94%), in white discharge it is (90%) effective, it shows (84.20%) relief in vulvitis, (75%) in mutradaha (78%) in yonivedna, (71%) in decreasing the no. of vaginal pus cells.

Conclusion-

The result of the trial have proved that this medicine–*Kutajghan vati* & *Yonikandu harmalhar* both together are quite effective in treating *Yonikandu*, as compared when used singly.

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Clinical Study

A Comparative Study For The Assessment Of Escalation Of *Pitta Dosha* Due To Excessive Day Time Napping Through Glossometer

*Mithilesh Kumar Sah, **Prof. Mahesh Vyas, ***Dr. Shubhangi Kamble, ****Sujata P.Dhoke

Abstract-

Sleep is proved as a divine gift to human beings which refreshes and recharges an individual for the further struggle for survival. Night is the natural time for the proper sleep. If sleep is not practiced in this time period or if practiced in excessive durations leads to *Dosha Prakopa*. Day time napping produces unctuousness i.e. *Kapha/Pitta Vriddhi* in which the *Snigdha Guna* is common. *Pitta* is slightly unctuous in comparison to *Kapha Dosha*. Among many fundamental functions of aggravated *Pitta Dosha*, *Prabha* or *Kanti* i.e. Gloss is one among them. Present study is carried out to compare the increase in Unctuous by analysing Gloss level due to excessive day time napping. A total of 32 volunteers were registered irrespective of sex, caste, religion, etc. The survey study was done in three groups. In Group A, Persons with proper night sleep but not sleeping during day time, in Group B, Persons awaking at night and sleeping during day time to compensate it, and in Group C, Persons having natural night sleep and also having sleep during day time were categorized. Average in Gloss level on Forehead, Cheek and Volar Forearm was found highest in Group C as compared to other two Groups. On the basis of statistical analysis, it can be concluded that excessive day time napping escalates *Pitta Dosha*.

Key Words- Glossometer, Sleep, *Snigdhata, Divaswapna, Pitta Dosha*.

सारांश–

निद्रा को मनुष्य के लिये दैवी उपहार माना जाता है क्योंकि निद्रा मनुष्य को पश्चात कर्मो के लिये उत्साही और धीरता प्रदान करती है, परन्तु निद्रा का अल्प या अतिसेवन करने से दोषों का प्रकोप होता है। उसी प्रकार दिवास्वाप से स्निग्धता की वृद्धि होती है अर्थात कफ और पित्त दोषों की वृद्धि होती है जिसमें से स्निग्ध गुण पित्त दोष में होता है। परंतु सर्वाधिक स्निग्धता कफ दोष में होती है। प्रभा, कांती इ.लक्षण शरीर में पित्त के स्निग्ध, द्रव आदि गुणों के द्वारा दिखाई पडते है। इस शोधप्रबंध के द्वारा दिवास्वाप कि वजह से होने वाली विकृत स्निग्धता को जानने कि कोशिश करेंगे। इस शोधप्रबंध के लिये कुल 32 स्वयंसेवीयों को वय, लिंग, जाती, धर्म इ.का विचार किये बिना चुना गया। 3 वर्ग मे सर्वेक्षण को विभाजित किया गया। प्रथम वर्ग (ए) में जो स्वयंसेवी रात्रि मे निद्रा करते है और जो दिवास्वाप नही करते उनको लिया गया और दुसरे वर्ग (बी) में जो दिवास्वाप करते और रात्रि जागरण भीं करते है उनको लिया गया। तृतीय वर्ग (सी) जो स्वयंसेवी रात्रि मे निद्रा करते है और जो दिवास्वाप भी करते है उनको लिया गया । इस शोध में ग्लोस मीटर के द्वारा प्रभा का मापण किया गया जिसमें प्रभा का स्तर माथें पर, गालों पर और बाहु पर वर्ग (सी) में अन्य वर्गो से अधिक देखने को मिला । साथ में सांख्यिकीय परिक्षण के द्वारा भी मापण करने पर वर्ग (सी) में अन्य वर्गो से प्रभा का स्तर अधिक देखने को मिला इसलिये यह कह सकते है की दिवास्वाप से पित्त दोष के स्निग्ध गुण की अप्राकृत वृध्दि होती है ।

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Clinical Study

A Comparative Study For The Assessment Of Escalation Of *Pitta Dosha* Due To Excessive Day Time Napping Through Glossometer

Mithilesh Kumar Sah, Prof. Mahesh Vyas, Dr. Shubhangi Kamble, Sujata P.Dhoke

Introduction

Sleep is proved as a divine gift to human beings which refreshes and recharges an individual for the further struggle for survival. Its importance is well accepted by each and every person of different fields because of its restorative and resting actions to the living beings. Quality food consumption and proper sleep are the two basic needs for making an essential aspect of personal health care. Literates are conscious about their food habits to some extent but have altered rest duration i.e. not giving due importance to *Nidra* (Sleep).

Night is the natural time for the proper sleep. If sleep is not practiced in this time period or if practiced in excessive durations leads to *Dosha Prakopaka*[1]. *Acharya Charaka* has mentioned that vigil during night causes roughness in the body, while the day time napping produces unctuousness i.e. *Kapha/Pitta Vriddhi* in which the *Snigdha Guna* is common but taking sleep lightly in sitting position does not induce either of these conditions.[2,3] The person with proper sleep at night and also sleep during day time is said to be indulged in day time napping[4]. It includes sleeping in any part of the day i.e. in between after sunrise and before sunset. It is also called as Vaikarika Nidra[5] as it causes vitiation of *Kapha* and *Pitta Doshas* other than summer season.[6] Pitta is slightly unctuous in comparison to *Kapha Dosha*. Among many fundamental functions of aggravated Pitta Dosha, Prabha or Kanti i.e. Gloss is one among them.[7] Hence to rule out the increase in Gloss level due to excessive sleep, this work has been planned.

Aims and Objectives:

Present study is carried out to compare the increase in *Pitta Dosha* due to excessive day time napping.

Materials and Methods:

Selection of Healthy Volunteers - Healthy Volunteers of Jamnagar were enrolled in the present survey study. A total of 32 volunteers were registered irrespective of sex, caste, religion, etc.

Aims And Objectives:

Present study is carried out to compare the increase in Unctuous by analysing Gloss level due to excessive day time napping.

Materials And Methods:

Selections of Healthy Volunteers of Jamnagar city were enrolled in the present survey study. A total of 32 volunteers registered irrespective of sex, caste, religion, etc.

Exclusion criteria :

- Age group below 20 years and above 50 years.
- Persons with any psychological or systemic disorders.
- Pregnant women.

Grouping:

The survey study was done in three groups. They are as follows:

1. **Group A:** Persons with proper night sleep but not sleeping during day time.
2. **Group B:** Persons awaking at night and sleeping during day time to compensate it.
3. **Group C:** Persons having natural night sleep and also having sleep during day time.

Criteria of Assessment

Gloss is defined as the specular reflection of light from a surface. The Skin Glossmeter is a portable instrument for measuring the specularly reflecting light from skin and other non-planar surfaces. In this present survey study it was used in Forehead (FH), Cheeks (CK) and Volar Forearm (VL) region for the assessment of *Snigdhata* on the healthy volunteers.

Pharmacognostical Study

Pharmacognostical Evaluation of *Palashbijadi Curna*-A Polyherbal Compound Formulation

*Dr. Ashok Kumar Tiwari, **Dr. Manoj Tripathi, ***Dr. Neelesh Dwivedi, ****Sharda Prasad Tripathi

Abstract-

The ayurvedic term *"Bhesaja Pariksha* is an identical term for drug evaluation. The term *Pariksha, Jignasa, Esana* and *Nyaya* etc. are the synonyms of the term "Evaluation" which has been defined as "critical analytical study of the problems related to any observed or referred facts with the idea of clearing the doubts or to prove the facts by all available means leading to correct knowledge". Quality assurance is an integral part of all systems of medicine to ensure the quality of the medicine. Thus, there is an urgent need to evaluate such parameters which can be adopted by the pharmaceutical industries. Present communication attempts to evaluate the *Palasbijadi Curna*-a polyherbal compound formulation. Three samples procured procured from different manufactures were subjected to microscopic characterization, physic-chemical analysis, and HPTLC finger printing and compared using authentic ingredients as reference. It was observed that the chromatographic analysis and microscopic characterization compliment each other in their findings, and can be used authentication of raw materials in the compound formulation.

Keywords: *Palasbijadi Curna*, Ayurvedic formulation, Standardisation, Pharrmacognosy

सारांश –

औषधि मुल्यांकन हेतु भेषज परीक्षा ही आयुर्वेदिक शब्द है। परीक्षा, जिज्ञासा, ऐषणा एवं न्याय आदि शब्द मूल्यांकन शब्द का पर्याय है जो कि समस्याओं के कठिन विश्लेषणात्मक अध्ययन से संबंधित निजी अवलोकन तथा संदर्भित तथ्य के साथ–साथ शंका समाधान, उपलब्ध संसाधनों एवं सही ज्ञान नेतृत्व से सत्यता को सिद्ध करना होता है।

गुणवत्ता आश्वासन औषधि की गुणवत्ता सुनिश्चित करने के लिए चिकित्सा की सभी प्रणालियों का अभिन्न हिस्सा है। इस प्रकार वहाँ ऐसे मानकों जो दवा उद्योगों द्वारा अपनाया जा सकता है, इनके तत्काल मूल्यांकन की आवश्यकता है। इस शोध पत्र में पलासबीजादि चूर्ण के औद्योगिक योगिक के मूल्यांकन करने का प्रयास किया गया है। तीन नमूने मूल्यांकन के लिए बनाये गये हैं, जिनका भौतिक, रासायनिक विश्लेषण, टी.एल.सी. फिन्गर प्रिन्टिंग और वनस्पतिक लक्षणों का अध्ययन और संदर्भ के रूप में प्रमाणित सामग्री का उपयोग किया गया है। यह देखा गया है कि सूक्ष्म और क्रोमैटोग्राफिक विश्लेषण एक दूसरे में अपने निष्कर्षो के पूरक हैं और प्रभावी ढंग से यौगिक सूत्रीकरण में कच्चे माल की पहचान के लिए इस्तेमाल किया जा सकता है।

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Pharmacognostical Study

Pharmacognostical Evaluation of *Palashbijadi Curna*-A Polyherbal Compound Formulation

Dr. Ashok Kumar Tiwari, Dr. Manoj Tripathi, Dr. Neelesh Dwivedi, Sharda Prasad Tripathi

Introduction

The Ayurvedic system of medicines is prevalent in India since the Vedic period and as early as the dawn of human civilization. Though Ayurveda has undergone many changes in the course of its long history, it still remains the mainstay of medical relief to a large section of population of the nation. Due to urbanization and dwindling of forests, the Vaidya by and large is no longer a self contained unit collecting and preparing his own medicines as before. He has now to depend on the newly developed agencies like one collecting and supplying the crude drugs and the other undertaking mass production of medicines in the Ayurvedic Pharmaceutical units run on the commercial scale[1].

Basic feature of Ayurveda is its holistic approach to treat human beings as a whole and it restore harmony among the human beings, plants and environment. By knowing the standards of a medicine following qualitative and quantitative parameters and method followed in single and formulated drug can improve the efficacy and efficiency of drug as well as confidence of doctor and patient[2].

Goal of standardization is to assess the authenticity of the drug based on the above principal. To keep this view in mind, a polyherbal *Palasbijadi Curna* is formulated in house, which is very effective in *Krmiroga* (worm infestation) Its formulated using five single drugs viz. *Buteam onosperma* (Lam.) Kuntze (seed), *Holarrhena antidyssentrica* (Roth) A. DC. (seed), *Embelia tsjeriam*-cottam A.D.C. (fruit), *Azadirachta* indica A. Juss. (seed), *Swertia chirata* Buch. Ham. (whole plant). Present study described the standardization of *Palasbijadi Curna*-a polyherbal compound formulation and its single ingredients. Its single ingredients are widely used to cure several diseases and preparation of Ayurveda drugs. Hence the purpose of standardization of raw drugs and formulation is obviously to ensure the therapeutic efficacy of the drug[3-8].

Material and Methods

Method of preparation of the Curna

Palasbijadi curna all ingredients were used of pharmacopoeial quality[9]. These were cleaned, washed, dried and ground individually passed through 355 µm IS Sieve (old sieve number 44). Weighed each ingredient separately and mixed together in specified ratio to obtain a homogenous blend. It was stored in an air-tight container to protect from light and moisture. Three different batches of *Palasbijadi Curna* (one sample was prepared at research laboratory Ayurveda Sadan, and two samples were taken from Chitrakoot Rasshala Pharmacy, Chitrakoot) were studied. Each sample of *Palasbijadi Curna* was formulated using five ingredients[9] i.e. *Butea monosperma* (Lam.) Kuntze (seed), *Holarrhena antidyssentrica* (Roth) A. DC. (seed), *Embelia tsjeriam-cottam* A.D.C. (fruit), Azadirachta indica A. Juss. (seed), *Swertia chirata* Buch. Ham. (whole plant). prepared as per AFI. The formulation composition of Palasbijadi Curna is given in table no.1.

Microscopic Examination

For microscopic analysis about 2 gm of formulated Curna washed thoroughly with water, pour out the water without loss of material; it was mounted a small portion in glycerin; warmed a few mg with chloral hydrate solution, washed and mounted in glycerin; treated a few mg with iodine in potassium iodide solution and mounted in glycerin. Heated a few mg in 2 % aqueous potassium hydroxide, washed in water and mounted in glycerin. about 0.5 g of sample and added 50 % conc. nitric acid in a test tube and warmed over water bath till brown fumes appeared; washed with water thoroughly and mounted a small portion in glycerin; was subjected to microscopic examination[10].

Physicochemical analysis

Organoleptic characters, particle size and physic-chemical analysis of all the samples were carried out. Quantitative analysis for loss on drying at 1050C, alcohol soluble extractive, water soluble extractive, total ash, acid insoluble ash, and pH of filtrate of 10% w/v aqueous solution were checked in triplicate.[11-13]

High Performance Thin Layer Chromatography (HPTLC) Profile

For HPTLC, 2gm of each sample was extracted with 25 ml of methanol on boiling water bath for 25 minute consecutively of 3 times using fresh portion of 25 ml methanol, filtrate and concentrated. TLC of extracts of all the samples was carried out on Silica Gel 60 F254 precoated plates (0.2 mm thickness; from Merck India Limited Mumbali). An applicator from Camag Linomat-5 (Camag Switzerland 140443) was used for band application and photo documentation unit (Camag Reprostar-3: 140604) was used for documentation of chromatographic fingerprints. The mobile phase used Toluene: Ethyl acetate (6:4). The plate was developed over a distance of 9 cm in a saturated development chamber (Twin trough chamber (10 x 10 cm with SS lid, and visualized under visible light, 254nm and 366nm. After spraying with 5% methanolic sulphuric acid followed by heating at 1100C for 5-10.[1,14]

Result & Discussion

Palasbijadi Curna was a brownish black fine powder with smooth texture; odour pungent and taste astringent. The powder completely passes through 355 µm IS Sieve (old sieve number 44) and not less than 50 percent passes through 180 µm IS Sieve (old sieve number 85).

Microscopic examination was carried out for individual ingredients present in the formulation. The following diagnostic characters are observed in the various mounts. Presence of Outer epidermis of testa in surface view overlapping with underlined cells, malpighian cells attached with epidermis and hour glass cells, endosperm cells showing rod or cylindrical starch grains, spiral broken bodies as revealed in fresh, upper epidermis of cotyledon in surface view (*Palasabija*);. Similarly, seed coat of testa in surface view, thin walled parenchymatous cells containing aleurone grains, comose trichomes with annular rings, endosperm along with oil globules, pappilose epidermal cells, oval to rectangular parenchymatous cells containing prismatic crystals of calcium oxalate (*Indrayava*);. Likewise, groups of sclereids with broad lumen, dark brown coloured large palisade like cells of endocarp, dark brown coloured polygonal cells of the seed coat, (Vidanga); loosely packed parenchymatous cells containing oil globules and prismatic crystals of calcium-oxalate, pitted parenchyma filled with rosette crystals of calcium-oxalate, very thick walled sclereids (*Nimbabija*); Similarly the presence of *Cirayata* can be detected by the presence of pitted fibres from stem, cork cells in surface view from stem, spongy parenchyma with acicular crystals, resin mass and mucilage cells from leaf, cortical parenchyma with acicular crystals from root, trichomes from leaf, lower epidermis in surface view showing anisocytic stomata, epidermis with striated cuticle and embedded a places with mucilage cells (Figure 1,2).

Physico-chemical data of three different batches of compound formulation along with ingredients was subjected to various analytical parameters. Results are given in Table no. 2.

High Performance Thin Layer Chromatography (HPTLC)

The HPTLC plate were examine under at 254nm; at 366nm; and visible light before and after derivatization (Figure 3, 4, 5). The Rf values and colours of the bands obtained were recorded. Its shows major spots at 366nm before derivatization Rf 0.08(red), 0.13 (blue), 0.15, 0.41, 0.52(all red), 0.57 (fluorescent), 0.63, 0.70, 0.75 (all red) and after derivatization at 366nm Rf 0.18 (brown), 0.26 (grey), 0.40, 0.43(both red), 0.52 (brick red), 0.57 (sky blue), 0.68(pink), 0.74(red), 0.79 (grey) and at visible light Rf 0.52, 0.69, 0.80, 0.92(all brown).

Conclusion

From the presents studies, it can be concluded that the characteristics microscopical characteristics and the distinguishing bands in HPTLC profile are very important for monitoring the quality of curna formulations as well as for establishing whether all the required ingredients are present in

them. Also, standardization and development of reliable quality protocols for Ayurvedic formulation are important for keeping a check on the batch to batch variations. Hence, the physicochemical parameters, quantitative analysis, HPTLC fingerprint profile and the microscopic characteristics together may be used for quality evaluation and the standardization of the compound formulation, and maintaining there quality, purity and efficacy.

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Table No. 1: Ingredients of Palasbijadi Curna

Sr.No.	Single raw drugs	Botanical Name	Part used
1.	*Palasabija*	Butea monosperma (Lam.) Kuntze	Seed
2.	*Indrayava* (*Kutaja*)	Holarrhena antidyssentrica (Roth) A. DC.	Seed
3.	*Vidanga*	Embelia tsjeriam-cottam A. DC. (official substitute)	Fruit.
4.	*Nimbabija*	Azadirachta indica A. Juss. Syn. Melia	Seed
5.	*Cirayata*	Swertia chirata Buch.Ham	Plant whole.

Table No. 2: Physico - chemical parameters of *Palasbijadi Curna* and its ingredients

Parameters	*Palasbijadi Curna*				Single ingredients				
	Batch A	Batch B	Batch C	Average values	Palasabija	Indrayava (Kutaja)	Vidanga	Nimbabija	Cirayata
Loss on drying at 1050C (%w/w)	6.71	6.40	6.34	6.48	12.11	5.8	9.21	7.18	5.50
Total ash value (%w/w)	7.11	7.03	6.53	6.89	4.98	5.15	4.07	4.91	4.40
Acid-insoluble ash value (%w/w)	1.14	1.24	1.13	1.17	0.34	2.27	0.46	1.07	0.60
Water soluble extractive value (%w/w)	17.50	17.59	17.16	17.41	26.60	22.70	14.26	36.79	20.30
Alcohol soluble extractive value (%w/w)	23.99	22.18	22.10	22.75	27.66	18.19	12.78	36.56	15.80
pH (Filter of 10% w/v aqueous solution)	5.10	5.50	5.60	5.40	-	-	-	-	-

Pharmaceutical Study

A comparative Pharmaceutico-analytical study of *Loha Rasayana* prepared by *Ayaskriti* and a modified method W.S.R. Disintegration of Iron

*Dr. Anjali Baijnath Prasad, **Dr. K.Shankar Rao**, ***Dr. Mohar Pal Meena

Abstract:

Ayurveda, the first health science known has provided the treatment by the drugs from both the organic as well as inorganic origin. The very first well documented *Ayurvedic* classic *Charaka Samhita* itself has referred the usage of many inorganic matters profoundly and scientifically. This approach to the formulations was so rational and perfect that it fulfils the expectation of the scientific masses even also in terms of today's *Nano-particle theory*. One of such examples is *Lohadi Rasayana*. Later this branch *Rasashastra* developed which focused precisely on tempering these inorganic matters to easily assimilable organic form. But its concept was embedded in the *Samhita* itself which got even improvised with time and experience.

Purpose of present study was to scrutinize the validation of the process referred in *Charaka Samhita* to render the metal therapeutically suitable to the body and procedure by which the *Bhasma* are prepared and to analyse them on ancient and modern parameters.

Key-words: *Ayaskriti, Bhasma, Lohadi Rasayana.*

सारांशः-

काष्ठौषधियों एवं धातुओं द्वारा चिकित्सा बतलाने वाला आयुर्वेद विश्व का प्रथम स्वास्थ्य विज्ञान पद्धति है। आयुर्वेद वाङ्मय साहित्य में प्रथमतः सुव्यवस्थितरूप से रचित चरक संहिता में भी बहुत से धात्विक योगों का उल्लेख किया गया है। कालान्तर में रसशास्त्रीय विद्वानों ने धात्विक योगों के प्रसंस्करण का भस्मीकरण के अन्तर्गत समावेश किया है। शास्त्रीय धात्विक योगों का आधुनिक वैज्ञानिक परिपेक्ष्य में नैनो-पार्टिकल अध्ययन विधा के अन्तर्गत शोध की आवश्कता है। इसी क्रम में प्रस्तुत शोध में चरक संहिता रसायनाधिकार के अन्तर्गत वर्णित लौहादि रसायन के प्रसंस्करण की विशेषताओं को बतलाते हुए अयस्कृति का परिवर्तित पद्धति से तुलनात्मक एवं विश्लेशणात्मक अध्ययन किया गया है।

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Pharmaceutical Study

A comparative Pharmaceutico-analytical study of *Loha Rasayana* prepared by *Ayaskriti* and a modified method W.S.R. Disintegration of Iron

Dr. Anjali Baijnath Prasad, Dr. K.Shankar Rao, Dr. Mohar Pal Meena

Introduction:

Herbo-metallic preparation of the medicines for therapeutic usage dates back to the *Samhita* period. Leading in the succession is *Loha Rasayana*[1] described in the *Charaka Samhita* for its *Rasayana* action. With the advancement in the technologies in the pharmaceutics, this method of preparation of metallic formulations, though complete in itself are not being used due to qualm in its preparation.

'*Loha Rasayana*' selected for the present study is preparation expected to turn into *Avaleha* form.

Tikshna Loha Patra of Dimension 4×4 *angul* and sesame seed thickness is made red hot and quenched in *Triphala Kwatha, Gomutra, Jyotishmati Ksharodaka, Ingudi Ksharodaka* and *Palasha Ksharodaka*. When these Iron leaves get reduced to fine black powder like *Anjana*, then it is mixed with *Madhu* and *Amalki Swarasa* and put in pre-coated earthen pot with *Ghrita*. This vessel is kept in heap of barley for one year.

After one year, this is prescribed to the patient after examining his/her digestive power, every morning with *Ghrita* and *Madhu* in unequal quantity. Accordingly dietary regimen should be followed with do's and don'ts.

After consuming this for one year, one cannot be defeated by wound, old age and death. He becomes *Mahaprana* and *Atibalendriya* like *Gajaraj*. He becomes *Budhiman, Yashasvi, Vaksiddha, Shrutadhara* and *Atidhanwan*. The same way leaves of *Swarna* and *Rajata* if made into fine powder as said above, increases the life span and removes the diseases.

Kaviraj Gangadhar in his commentary on the *Lohadi Rasayana*[2] in *Jalpa Kalpa Taru* has said to make the *Tikshnayasa patra* red hot and then it is subjected to quench in *Triphala Kwatha, Gomutra, Yava Kshara, Lavanodaka, Ingudi Kshara* and *Kinshuka Kshara*. For the *Kshara* and *Lavana* in the text he has interpreted as *Yava kshara* and *Saindhava Lavana*, Though *Acharya Chakrapani* has taken *Jyotishmati* for *Lavana*. *Acharya Gangadhar* said this as *shodhana vidhi*, the same procedure is made to use till it get converted to *Anjana sadrisha*. With *Yava rashi, Acharya gangadhar* has taken *Yava pallava* and advocated to use *Loha Rasayana*[3] as per *Kuti Praveshik Rasayana vidhi*.

In treatment of *Kaphodara, Acharya Charaka* has advised *Ayaskriti*. Though *vamana* is contraindicated in *Udara*, *Gangadhara* has advised *Vaman*, *Virechan*a with *Sansarjana Karma* with *Katu-kshara yukta anna, Gomutra, Arishta, Ayaskriti*[4] and *Kshara siddha Taila*.

In the present Study two samples of *Loha Rasayana* have been prepared by adopting method described in *Charaka Samhita* and a modified method using the *Loha Bhasma*[5] procured from IMPCL. Govt of India.

Selection of Raw Material:

All the ingredients used in the processing are procured from N.I.A. pharmacy and raw drug local market Jaipur.

Preparation Of *Loha Rasayana*:-

Table No.1. Showing Ingredients and their proportion

S.No.	Drugs	Latin name / English	Amount
1.	*Haritaki*	*Terminalia chebula* Retz.	4 kg.
2.	*Bibhitak*	*Terminalia bellirica* (Gaertn.) Roxb	4 kg.
3.	*Amalki*	*Phyllanthus emblica* Linn	4 kg.
4.	*Gomutra*	Cow Urine	25 lt.
5.	*Jyotishmati*	*Celastrus paniculatus* Willd.	100 kg.
6.	*Ingudi*	*Balanites aegyptica* (Linn.)	50 kg.
7.	*Palasha*	*Butea monosperma* (Lamk.) Taub	50 kg.
8.	*Loha Churna*	Iron Powder	1 kg.
9.	*Loha Bhasma*	Ash of Iron ore	80 gm.
10.	*Goghrita*	Clarified Butter	100 ml.
11.	*Madhu*	Honey	100 ml.
12.	*Yava*	*Hordeum Vulgare* Linn	10 kg.

Equipments

Stainless steel vessels, Gas stove, clean cotton cloth, measuring jar etc. Iron pan (kadhai), Ladle, Fire gun, Iron container, Pithar-yantra, Spoon, pH paper, Rubber-Tube, Spatula etc.

S.O.P. (Standard Operating procedure)-

A. Preparation of *Triphala Kwatha*

B. Preparation of *Jyotishmati Ksharodaka*

C. Preparation of *Ingudi Ksharodaka*

D. Preparation of *Palasha Ksharodaka*

E. Nirvapa of *Loha* in *Triphala Kwatha*, *Gomutra*, *Jyotishmati Ksharodaka*, *Ingudi Ksharodaka* & *Palasha ksharodaka*

F. Preparation of *Amalki Swarasa*

A) Preparation of *Triphala Kwatha*

Procedure

Dry *Triphala* coarse powder 12 kg. was taken in a stainless steel vessel. 96 lt. of water was added and left overnight for soaking. Next day the container was kept for boiling. The mixture was stirred at regular interval to avoid the sticking and was cooked until reduced to ¼ th of initial weight. The mixture (*kwatha*) was filtered through clean and dried cloth.

Observations

After overnight soaking *Triphala* coarse powder became soft. A typical odour of *Triphala* was produced after 2-3 hr. Little frothing was observed in the liquid during the preparation of *kwatha*. The colour of prepared *kwatha* was *brownish green*. It took 16 hrs. to get reduce to ¼ quantity.

Precaution

Coarse powder of *Triphala* was used for *kwatha* preparation. Distilled water was used. Boiling was done on *mandagni* (low flame) to avoid the sticking of the material on base of the vessel and its carbonization. stainless steel vessels were used to avoid reaction with the drugs. *Kwatha* was boiled without covering the mouth of the container. Utensils, vessels and filtering cloth were used clean. Stirring was carried out from time to time.

Result - 24 lt. of kwatha was obtained.

B) Preparation of *Jyotishmati ksharodaka*

Procedure

100 kg .of dried *Jyotishmati Beeja was* taken and kept on furnace. The Muffle furnace was started. (Day 1) The temperature was kept at 800 °C throughout the procedure. When the fumes were seen to come out of the furnace, then 50 gm. of ghee was added to ignite the *Jyotishmati Beeja*. *Jyotishmati Beeja* started burning with flames. After 7 hrs. *Jyotishmati Beeja* turned in to black ash. The black ash was again heated at 800 °C for the whole day. (Day 2) The ash turned in to carbon black colour and reduced in mass. The ash was again heated to make it to complete white ash. (Day 3) The white ash was left on the furnace for self-cooling. (Day 4). White ash of *Jyotishmati Beeja* was weighed.(Day 5) White ash was taken in a large vessel; six times water was added to the this ash. Ash was rubbed with the hand in water to dissolve the *kshara* content thoroughly and left overnight to get it settle down. The supernatant water was filtered for 21 times through a dried clean cotton cloth (Day 6). The filtered liquid was again kept overnight and clear water in the vessel was taken out by siphoning method with the help of a rubber tube to get clear *Jyotishmati ksharodaka* (day 7). The pH of the liquid was found.[10]

Observations

Dried *Jyotishmati Beeja* burned freely. Initially the burnt material turned into black coloured ash. After burning for long duration the colour of ash turned completely white in colour. The colour of filtered liquid was completely transparent. On keeping for some days the *Kshara* was seen settling at the bottom of the steel vessel.

Precaution

The *Jyotishmati* Beeja *was* completely dried and free from moisture. After the combustion the ash was white in colour. Safety measures were taken while performing the burning of the *Beeja* so as to avoid any accident.

Result

22.62 litre. of *Ksharodaka* (clear transparent liquid) was obtained.

C) Preparation of *Ingudi ksharodaka*

Procedure

50 kg. of dried *Ingudi Panchanga* was taken in a big vessel and kept on furnace. The furnace was started. (Day 1)The temp was kept at 800 °C throughout the procedure. Rest of the procedure was same as that was used for the preparation of Jyotishmati Ksharodaka.

Observations

Dried *Ingudi Panchanga* burned freely. Initially the burned material turned into black coloured ash. After burning for long duration the colour of ash was complete white. The colour of filtered liquid was completely transparent. On keeping for some days the *Kshara* was seen settling at the bottom of the steel vessel.

Precaution

The *Panchanga* was completely dried to make it free from moisture. After complete combustion the ash was white in colour. Safety measures were taken while performing the burning of the *Panchanga* so as to avoid any accident during process.

Result

22.32 litre. of *Ingudi Ksharodaka* (clear transparent liquid) was obtained.

D) Preparation of *Palasha ksharodaka*

Procedure

50 kg. of dried *Palasha Panchanga* was kept in a big vessel on furnace. The furnace was started. (Day 1)The temp was kept at 800 °C throughout the procedure. Rest of the procedure was same as that was used for the preparation of *Jyotishmati Ksharodaka*.

Observations

Dried *Palasha Panchanga* were burned. Initially the burnt material turned into black coloured ash. After burning for long duration the colour of ash was complete turned to white. The colour of filtered liquid was slightly reddish in colour. On keeping for 4 days the *Kshara* was seen settling at the bottom of the steel vessel.

Precaution

The *Palasha Panchanga* was completely dried and made free from moisture. After the complete combustion the ash was white in colour. Safety measures were taken while performing the burning of the *Palasha Panchanga* so as to avoid any accident.

Result

34.836 litre of *Ingudi Ksharodaka* (clear transparent liquid) was obtained.

Table No.2 showing details of preparation of *Ksharodaka*.

Drugs	*Weight of the Container and Ash(A)*	*Weight of the Container(B)*	*Weight of the Ash. (A-B=C)*	*Amount of water added(D)*
Jyotishmati	6.838 kg.	3.068 kg.	3.770 kg.	22.62 lt.
Ingudi	6.788 kg.	3.068 kg.	3.720 kg.	22.32 lt.
Palasha	8.874 kg.	3.068 kg.	5.806 kg.	34.836 lt.

E) *Nirvapa* of *Loha* in *Triphala kwatha*, *Gomutra, Jyotishmati ksharodaka, Ingudi Ksharodaka* & *Palasha ksharodaka*

Procedure

1 lt. of *Ksharodaka* was taken in an iron container. Iron was taken in a ladle and heated till red hot condition using fire gun. When complete red hot condition was achieved Iron was quenched in *Ksharaodaka* through *Pithar Yantra*. pH of the *Ksharodaka* was measured before and after the quenching of the Iron. The liquid was poured from the container and iron was removed and kept in iron pan (*kadhai*).This procedure was repeated for rest of the iron. The procedure of heating and quenching of iron was repeated by taking fresh liquid every time. Procedure was repeated for 21 times quenching in *Jyotishmati Ksharodaka, Ingudi Ksharodaka and Palasha Ksharodaka.*

Observation

pH of all the liquids are observed before starting the process of quenching and found invariably 10 for all the liquids. Every time after quenching pH of the liquid was observed and there was remarkable change in the colour of the pH paper. The temp. of the Iron in red hot condition was recorded to be 900°C. Crystal size was even reduced and more floating of the particles was seen on the surface of the liquid. Weight of *Loha* after *Nirvapa* in different *Ksharodaka* was observed.

Precaution

Precautionary care was taken while using fire gun throughout the process. *Pithar yantra* was used to avoid any accident and spillage of the *Ksharaodaka*. Mask was used to cover the nose to avoid inhalation of fine Iron particles.

Results - Details of the *Nirvapa* in different liquid are tabulated in the Table No.3.

Table No. 3 Showing details of *Nirvapa* in different liquids.

Liquid	Weight of Iron before quenching	Weight of Iron after quenching	Total loss of Iron	Loss in %
Triphala kwatha	1000 gm.	885 gm.	115 gm.	11.5 %
Gomutra	885 gm.	775 gm.	110 gm.	11.0 %
Jyotishmati ksharodaka	775 gm.	715 gm.	60 gm.	7.74 %
Ingudi ksharodaka	715 gm.	678 gm.	37 gm.	4.9 %
Palasha Ksharodaka	678 gm.	633 gm.	45 gm.	6.6 %

F. Preparation of *Amalki Swarasa*

Procedure

Fresh fruit of *Amalki* were washed with fresh water. *Amalaki* fruits were kept in juicer to extract *Swarasa*. Extracted Juice was collected in a vessel. The Juice was filtered in a beaker using dried & clean cotton cloth.

Observation

During preparation of *Swarasa*, small amount of froth was seen on the surface.

Some amount of sediments was seen at the bottom.

Colour	-	Light green.
Taste	-	Sour, Astringent
Smell	-	Typical smell of *Amalaki*.
pH	-	5.5.

Table No.4 Showing preparation of *Amalaki Swarasa*.

Amount of *Amalaki*	Amount of *Swarasa*	Swarasa *Procured*	Total loss	pH
3 kg.	2.276 lt.	75.86%	24.14%	5.5

Precaution

Amalki Fruit was washed properly before processing. The Amalki was subjected to juicer to obtain *swarasa* in maximum quantity. All aseptic precautions were taken.

Result

2.276 lt. of *Amalki Swarasa* of pH 5.5 was obtained.

Discussion

In the pharmaceutical study while following the *Charaka Samhita* the *Loha Rasayana* was prepared. For quenching Triphala kwatha and the *Palasha ksharodaka* was prepared. *Triphala kwatha* was acidic whereas the *ksharodaka* provided the alkali media for the quenching. PH of all the Kshara was invariably found 10. The iron was heated to red hot using the gas burned pressure gun. Out of the drug used for the preparation of the *Loha Rasayana, Haritaki, Bibhitak* and *Amalaki* and *palasha* are the drugs mentioned in the *maraca gana* of *Loha*. *Amalki* is found to have good reducing property as 1.688 +-0.031 and 1.410+-0.100 of the alcoholic extract. *Gomutra* is very good antioxidant. After quenching in all most all liquids the iron becomes more black, light in weight as is evident by spreading as fine dust while heating, fineness and smooth feeling on touch was observed. Significant loss was observed after the complete procedure of 105 Quenching. The texts have advised the usage of *ghrita* to coat the inner layer of the *mrita patra* may be to block the pores present in the earthen vessel and to stop the seepage of the liquid through capillary action. *Madhu* was added in the *Amalaki Swarasa*, both of which are potent reducing agent. *Yava rashi* is advised for keeping the Vessel. This heap of the barley helps to maintain the temperature of the vessel when there is change in the environmental temperature. The colour of both the sample LRA0 & LRB0 were reddish brown in colour which turned red with time to black colour as observed after six months. The odour of the samples LRA0 & LRB0, which was typical astringent smell of *Amalki Swarasa* which get converted to alcoholic odour after three months.Taste of the sample at Zero time i.e. in LRA0 & LRB0 was metallic which at subsequent observation was alcoholic metallic in both the series of samples LRA1 & LRB1, LRA2 & LRB2 and LRA3 & LRB3. Test for the Sparsha (Texture) was also found similar for both the series of samples as rough, fine, very fine and very fine for LRA0 & LRB0, LRA1 & LRB1, LRA2 & LRB2 and LRA3 & LRB3 respectively. Test for Shabda (sound) was done with the help of the parameter as mentioned in classics for the presence of *Dantaagrekachkachabhava* i.e. whether sound is produced while chewing in between the teeth. On observation it was found that *Bhasma* has lesser degree of sound present in the first sample LRB0 but slightly more in LRA0. Sound below the teeth was found reduced on observation for following samples and was almost negligible in the last sample LRA3 & LRB3. For *varitraratwa* Scoring was done between 0 to ++++ for nil *varitraratwa* to remarkable

varitraratwa. Sample LRA0 showed + sign of *varitraratwa* while LRB0 was ++ more positive for *Varitaratwa*. Later after 6 months both the samples LRA2 & LRB2 were +++ and after 9 months both the samples were ++++.

For the *Rekhapurnata* test both the sample series LRA0 & LRB0, LRA1 & LRB1, LRA2 & LRB2 and LRA3 & LRB3 were found similar at each interval of time i.e. ++, ++, +++ and ++++for 0, 3, 6 and 9 months respectively. Scoring for the *unnam* test was scored between – for negative test to +++ for complete positive test. Though samples LRA0 & LRB1 did not show *unnam* property which later present after 6 and 9 months was in samples LRA2 & LRA3. Though Bhasma was already having *unnam* character in LRB0 which even got clear to ++, ++ and +++ in samples LRB1, LRB2 & LRB3 respectively. pH of both the samples LRA0 & LRB0 was 5.5 at time zero. Later also pH of the samples were same throughout i.e. 3.8, 4, and 4.5 for LRA1 & LRB1, LRA2 & LRB2 and LRA3 & LRB3. The reduction in pH was mainly due to production of alcohol in the samples. Loss on drying in the samples LRA0 & LRB0 was 1.13% and 0.69% which increased with time to26.57% and 30.83% in LRA1 & LRB1, 28.24% and 32.67% in LRA2 & LRB2 and 27.58% and 33.05% in LRA3 & LRB3.Loss on drying increased with time because of the presence of moisture in the samples also even higher loss in LRB series may be because of presence of herbal content in the samples. Ash value was quite higher 97.03% & 93.32 in LRA0 & LRB0, may be due to absence of moisture in the samples. Ash value reduced to 72.89% & 66.75% in LRA1 & LRB1, 69.47% & 66.75 % in LRA2 & LRB2 and 69.55% & 63.65% in LRA3 & LRB3. The presence of the moisture can be the cause of the reduction in ash value. Acid insoluble ash represents the inorganic matter present in the sample which was 87.98% & 86.85% in LRA0 & LRB0, 64.13% & 58.39% in LRA1 & LRB1, 61.87% & 55.79% in LRA2 & LRB2 and 61.94% & 54.78% in LRA3 & LRB3.lesser percentage of Acid insoluble ash in LRB series may be due to presence of organic matter in *Bhasma*. Water soluble and alcohol soluble extractive values indicate the presence of organic natured material probably the ash of organic matter. Water Soluble Ash was 6.87% & 7.37% in LRA0 & LRB0, 5.95% & 5.89% in LRA1 & LRB1, 6.04% & 6.74% in LRA2 & LRB2, 6.27% & 6.84% in LRA3 & LRB3 respectively. To determine the size of the crystals of the dried samples, it was subjected to pass through the sieves of various mess sizes. Viz. 120, 170, 200 and 325 and amount of the sample pass was weighed, thus the percentage passed was calculated. 77.4%,40.2%,25.0% and 0% of LRA0 passed through 120, 170, 200 and 325 mess size.78.4%, 66.8%, 60.0%, 2% of LRA1 passed through 120, 170, 200 and 325 mess size.90.6%, 72.4%, 65.4% and2% of LRA2 passed through 120, 170, 200 and 325 mess size.95.8%, 76.4%, 68.0% and 4% of LRA3 passed through 120, 170, 200 and 325 mess size. From the result it was quite apparent that with the time more amount of the samples passed through the same sieves in both the samples.

TLC report reveals the two Rf value 0.50 and 0.024 against stationary phase silica gel and mobile phase Toluene-: Glacial acetic acid (97:3). The alcohol content of the samples was found as 2.12% & 4.28% in LRA3 & LRB3 by (A.O.AC) method. Though the reason for the difference in the values cannot be explained. ICPAES was done for 10 elements. The value for Fe was 69.41%, 69.75%, 54.53%, 66.45%, 77.19%, 72.44%, 78.45% and 51.325% in LRA0, LRA1, LRA2, LRA3, LRB0, LRB1, LRB2 and LRB3. The reason for sudden decrease in LRA2 and LRB3 cannot be established. The heavy metals were either absent or present in

negligible amount in all the samples. One major difference found was the presence of silica in the LRB series. XRD report indicates the conversion of some of the magnetite to hematite form. However the core substance was magnetite in the LRA series and Hematite in LRB series. Assay for the Iron content indicates there is substantial increase in thepercentage of the Ferrous content of the sample due course of time, being the maximum in the LRB2 & LRA3. It may be due to acidic reaction with the alcohol present in the liquid of the sample.

Conclusion

Among the samples LRA_0, LRA_3, LRB_0 and LRB_3, the sample LRB_3 was found best on the analytical parameters. Next in the series was LRA_3 i.e. *Loha Rasayana* was proved even superior to LRB_0 i.e. *Loha Bhasma*. Thus within the limit of this study, *Loha Rasayana* can be concluded as superior to the *Loha Bhasma* as far as the Analytical parameters are concerned.

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Pharmaceutical Study

A Critical Study of *Ramchandrayati's Vaidya Vinod* w.s.r. to *Rasashastra* and *Bhaishajya Kalpana*

**Dr. Ramakant Vyas, **Dr. Sanjay Kumar, ***Dr. Parimi Suresh*

Abstract

Ayurvedic literature is a vast domain where most of the writings are in the form of manuscripts. '*Vaidyavinod*' is one such manuscript in Marwari language written in 17th century by Ramchandrayati based on *Sharangadhara Samhita*. However, at present the original manuscript of '*Vaidyavinod*' is not available rather its two handwritten copies. This study comprises two steps – first, a comparison of the two available copies of the '*Vaidya vinod*' to establish its authentic text; second, comparing '*Vaidyavinod*' with *Sharangadhara Samhita* using the two commentaries i.e. Dipika and Gudharth Dipika. In this study regional pharmaceutics specialties have been reported from '*Vaidyavinod*' and 42 new formulations, 63 less formulations and 88 S.O.Ps. changes have been found in this text in comparison to *Sharangadhara Samhita*.

Keywords: Manuscript, 'Vaidyavinod', Sharangadhara Samhita, S.O.Ps(Standard operative procedures)

सारांश–

सभी अनुसंधानों का मुख्य आधार वाङ्मय है। आयुर्वेदीय वाङ्मय की पुष्टि पाण्डुलिपियों के अध्ययन से होती है। यतिरामचंन्द्र द्वारा 17वीं शताब्दी में शार्ङ्गधर संहिता पर आधारित ग्रन्थ वैद्यविनोद की पाण्डुलिपि पर यह शोध सम्पादित किया गया है। इस ग्रंथ की 18वीं शताब्दी में हस्तलिखित दो प्रतिलिपियों पर शोध कार्य किया गया है।

इस शोध कार्य में वैद्यविनोद ग्रंथ का शार्ङ्गधर संहिता एवं इसकी दीपिका तथा गूढार्थ दीपिका व्याख्या के साथ समालोचनात्मक अध्ययन किया गया है। शोध में वैद्यविनोद ग्रंथ में आयी विषेषताओं एवं शार्ङ्गधर संहिता से विषय के न्यूनाधिक्य तथा प्रादेशिक एवं आंचलिक योग एवं प्रसंस्करण विशेषताओं का वर्णन किया गया है। प्रस्तुत शोध कार्य में शार्ङ्गधर संहिता की अपेक्षा वैद्यविनोद ग्रंथ में 42 योग अधिक, 63 योग न्यून तथा 88 प्रसंस्करण विभिन्नताएं प्राप्त हुई।

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Pharmaceutical Study

A Critical Study of *Ramchandrayati's Vaidya Vinod* w.s.r. to *Rasashastra* and *Bhaishajya Kalpana*

Dr. Ramakant Vyas, Dr. Sanjay Kumar, Dr. Parimi Suresh

Introduction :

All the physical achievements in this world are outcome of continuous research which having an extensive scope and different methodology. Among all methodology, literary research has its own significance. In Ayurveda, all the researches are based upon literary research. The literature of Ayurveda is vast and abundant. On the basis of availability and popularity, it has been categorised in two groups, *Brhitrayi* and *Laghutrayi*. In *Brhitrayi*, *Charak samhita, Susruta Samhita* and *Ashtang Samgraha* or *Ashtang Hridya* are included whereas in *Laghutrayi, Madhav Nidan, Shrangdhar Samhita* and *Bhavprakash* are included. *Shrangdhar Samhita(Sha. Sam)* describes the procedures of manufacturing Ayurvedic drugs along with all the related definitions. This quality establishes it as the founder of *Bhaishajya Kalpana* i.e. the science and art of preparing Ayurvedic medicines.[1]

Jain saint Ramchandrayati has written a *bhashabandha 'Vaidyavinod'* on *Shrangdhar Samhita*. A copy of the manuscript of '*Vaidyavinod*' in *Vikram Samvat* 1820 *falgun sukla 6* was found in Gyansagar Bhandar Library, Bikaner as indicated in the book *Jain Ayurved ka Itihas* written by Dr.Rajendraprakash Bhatnagar.[2] it is written in verse style which based upon *Sharangdhar Samhita*. The text forwards so simple methods of treatment that can be a child's play for a *vaidya* which justifies the meaning of its title. The author has used *chhanda* style of Hindi to write the book and has dated its completion as *Vikram Samvat* 1726 *Vaishakh purnima*.

Ramchandrayati was a Jain saint and his guru was Shri Vanarasi Padamrang Gani. No reference of his parents and family has been found in his books. There is no mention of the place he belonged to but it is confirmed to be in Rajasthan because of Rajasthani influence in language of the books and also because all the books have been found in Rajasthan. '*Ram vinod' Granth* is another book on Ayurvedic medicine by same author. Two sections of '*Ram vinod' Granth* namely 'Nadi Pariksha' and 'Maan Pariman' are also found separately. Another book titled *'Samudric Bhasha'* related to both Ayurveda and *Samudric Vidya* is also found. He wrote *'Muldev Cho'* in *Vikram Samvat* 1711 in Nohar and *'Shrimal Cho'* in *Vikram Samvat* 1725 in Bikaner.[3] '*Vaidyavinod*' was written in Marotkot. His name was Ramchandra before given title 'yati'. He received this title in Shri Rajnagar in *Vikram Samvat* 1711 *chaitra shukla 15*. His religious master was Natha Rau.[4]

Aims of the study :

- To present the main features of '*Vaidyavinod*' and mark its contribution to *Rasa Shastra* and *Bhaishjaya kalpna*.
- To present the special features of S.O.Ps. and the drug formulations described in '*Vaidyavinod*'.
- A critical analysis of the book w.s.r. to *Shrangdhar Samhita* and its available commentaries.

Method and Materials:

A search for manuscripts and other literature was carried out at possible places. Two copies of manuscripts were found. These were labelled as text 'A' and text 'B' and the authenticity of the text was confirmed on the basis of a comparative study of the both. After a critical analysis of the texts, a comparative study was carried out w.r.t. *Shrangdhar Samhita* and its two commentaries Dipika and Gudarth dipika. In this series, ingredients of each formulation have been analysed in detail and the corresponding parts of the commentaries also have been included. Topics, drug formulations and S.O.Ps which are different from *Shrangdhar Samhita* have been described with possible reasoning. Various manuscripts and editions of *Shrangdhar Samhita* were studied for a thorough study.

Description of the texts studied :

Text A Source : Abhay Jain Granthalya, Nahata Chowk, Bikaner

Manuscript No. : B 2- 853

Author : Ramchandrayati

Copy writer : Ramchandra Narsingh

Period : 1776 A.D.

No. of leaves : 92

Script : Devnagari

Language : Rajasthani

Condition : Complete, first page damaged, Page no. 25 and 89 missing.

Text B

Source : Prof. Laxmikant Dvivedi (Former HOD, Department of Rasa Shastra and Bhajshajaya Kalpana, National Institute of Ayurveda, Jaipur)

Author : Ramchandrayati

Copy writer : Shri Akhairaj

Period : 1756 A.D.

No. of leaves : 141

Script : Devnagari

Language : Rajasthani

Condition : Complete, page no.51-55 and 62-79 damaged by insects, page no. 3 missing, two pages between page no. 62 and 79 missing.

Results :

Results have been concluded in form of comparison in a number of drug formulations and S.O.Ps described in '*Vaidyavinod*' w.r.t. to *Sharangdhar Samhita*. This is presented in tabular form describing the features of all the three sections of the book:

Main features of *Poorvkhand* :

No. of Subject less than *Sharangdhar Samhita Samhita*	No. of Subject more than *Sharangdhar*
6	3

Main features of Madhyamkhand:

Name of Chapters	No. of drug formulations fless than *Sha. Sam.*	No. of drug formulations more than *Sha. Sam.*	different S.O.Ps nos.
Swaras	2	2	3
Kwatha	21	8	5
Kalka	2	2	-
Churna	8	4	4
Gutika	1	3	4
Avaleha	2	1	4
Ghrita	6	6	9
Taila	8	3	8
Sandhan	3	2	4
Dhatu Shodhan	2	-	10
Rasa Kalpana	8	5	17

Main features of Uttarkhand:

No. of drug formulations less than *Sha. Sam.*	No. of drug formulations more than *Sha. Sam.*	No. of different S.O.Ps
12	10	10

Discussion :

- Three copies of the manuscript of '*Vaidyavinod*' are available. Out of these, the copy at Gyansagar Bhandaar Library, Bikaner could not be accessed. Of the two available copies, page no. 25 and 89 of the text 'A' are missing while in the text 'B',

page no. 51 to 55 and page no. 62 to 79 have been damaged by insects and two pages are missing.

- The author of the text, Ramchandrayati is a student of Vanarasi Padamrang Gani. He has also written '*Ramvinod' Granth* as quoted in '*Vaidyavinod'*. This was completed at *Matorkot* near *Bikaner*.
- Although all the contents of '*Vaidyavinod'* are based upon *Shrangdhar Samhita*, it is full of contemporary topics, S.O.Ps and new drug formulations which make it important in evolution of *Bhaishajaya Kalpana*.
- The author was a Jain Saint, honoured with the title 'yati'. So he has not prescribed the use of meat in formulations. He has modified Shrangdhar's 'titar putpaka' of nygrodharadi gana into 'vata patra putpaka'. In same way, in Mayuradi Ghrita i.e. feathers of peacock have been prescribed in place of flesh.
- The text was written at a place with a climate of desert. So '*Aanup dravyas'* have been replaced with *'Jangal dravyas'* having the same properties. Variation in useful parts of the plants is also seen. For example, use of seeds of lotus (*kamalbeej*) in place of petals and the use of *Mishreya* in place of *Shatpushpa*.
- Regional (Rajasthani) names of diseases and drugs have been quoted instead of Sanskrit names.
- Distortion of names of some drug formulations is seen as the language of the text is regional.
- Names of some formulations have not been quoted. Instead, only treatment has been prescribed.
- In the section of *Pathya Kalpana*, the units of amount of water used for preparation of *manda, peya, vilepi* and *yush* differ from that quoted in *Shrangdhar Samhita* and popular in tradition.
- Description of *Gana Pradhanya* and *Mana Pradhanya* corresponds to *Shrangdhar Samhita* in some formulations and to *Gudarth Dipika* at the some other formulations. An independent analysis is also seen in some formulations. e.g. *triphla churna*.
- In *Madhyam Khand*, along with the formulations, other drugs and formulae used for the same disease also have been described referring to the same context.
- As the text was written in 17th century, the formulations which came into practice after 14th century i.e. the period of Shrangdhar, have also been included. e.g. Jeerkadyavleha, Panchanan Rasa.
- Some drugs quoted in regional names could not be confirmed. So these have been described in the research work as in original text. Such as *Gorakhpaan, julehkana, Murda, Hasti, Hanfa Ras* etc.

Conclusion :

After a critical analysis of '*Vaidyavinod*' and its comparative study w.r.t. *Shrangdhar Samhita* and its two commentaries *Dipika* and *Gudarth dipika,* following conclusions were drawn.

- In '*Vaidyavinod'*, 42 formulation have been described not found in *Shrangdhar Samhita*.
- 63 formulation are less than *Shrangdhar Samhita*.
- 88 variations in S.O.Ps have been found.
- Study of '*Vaidyavinod*' proves a great help in understanding the drug formulae and S.O.Ps described in *Shrangdhar Samhita*.
- The study of pharmacognosy of the drugs in regional practice and their synonyms as quoted in '*Vaidyavinod*' will add a lot of information in Ayurveda text if further research is carried out in this direction.

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4- Nahta Bhanwarlal. Maharshi Vinaysagar. Khartar-Gachha Diksha Nandi Suchi. Jaipur. Prakrit Bharati Akadami. 1990. Part II. p.n.3

Experimental Study

An Experimental Study of *Ashodhita* & *Shodhita Gunja* (Abrus precatorius Linn.) in Albino rats

*Dr Bhawana mittal, **Dr Meenakshi, ***Dr Anita Sharma, ****Prof. Vinod Kumar Gothecha

Abstract:-

Ayurveda or any other science is to find out the validity of the claim or concepts prevalent or, to throw new insight into old facts, concepts and practices. Things established as truths traditionally are first challenged and doubted as regards their validity, they are then critically reexamined in modern light and accepted or rejected only after convincing evidence is found. One way to verify such concepts is to examine them experimentally with the help of animals, as conducting experiments on human beings is not ethical and legal in today's world. Various references are available which show that even in the ancient times, mankind had learnt the use of various drugs after observing them being used by animals. The Ayurvedic classics also throw light on the experimental studies by describing various *visha vegas* in animals and several sign and symptoms produced on animals when fed contaminated food (Ca.Chi.23 and A.S.Su.8).

Such drugs which are described in *Ayurveda* Gunja (*Abrus precatorius*), Bhallatak (*Semicarpus anacardium*), etc. which are described as a highly toxic and used as a medicine after shodhan. So in present study an experimental study has been made to evaluate the medicinal potency of Ashodhita and shodhita Gunja.

सारांश–

वर्तमान परिपेक्ष्य में आयुर्वेद या अन्य चिकित्सा विज्ञान के तथ्यों को आधुनिक सिद्धान्तों एवं नियमों के आधार पर समझना अनिवार्य हो गया है। पारम्परिक नियमों तथा तथ्यों को आधुनिक सिद्धान्तों एवं नियमों के आधार पर समझना एक चुनौती है। परीक्षण के बाद ही आधुनिक परिपेक्ष्य में इन सिद्धान्तों को स्वीकार या अस्वीकार किया जाता है। आज के समय में विभिन्न जानवरों पर परीक्षण किया जाता है। प्राचीन समय से ही ऐसे कई संदर्भ मिलते है जहाँ जानवरों का प्रयोग किया जाता है।

आयुर्वेद में वर्णित गुञ्जा भल्लातक आदि कई ऐसे द्रव्यों का वर्णन किया गया है जो कि विषाक्त होते है लेकिन शोधन के बाद उनका चिकित्सीय उपयोग किया जाता है। इसी संबन्ध में एक प्रयास शोधपत्र में किया गया है तथा गुञ्जा का शोधन से पहले तथा बाद में चूहों पर परीक्षण किया गया है।

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Experimental Study

An Experimental Study of *Ashodhita* & *Shodhita Gunja* (Abrus precatorius Linn.) in Albino rats

Dr. Bhawana mittal, Dr. Meenakshi, Dr. Anita Sharma, Prof. Vinod Kumar Gothecha

Introduction

Among the many traditional health care streams of the world, *Ayurveda* is unique in its sound foundation of documented theories and operational guides. However, the present global aspirations and challenges that this tradition needs to encounter make it imperative that the complex layers of its principles and applications are validated in a manner that is understood by the global man. Moreover, there is also a need for upgrading that knowledge base in order to enhance its rationality.[1] This, obviously, has to be achieved with the able support and benign aid of modern science.

In fact various factors play a very important role in deciding the safety and efficacy of the drug.[2] Every drug inherently carries some adverse effects. It is always the expertise of a physician which converts a highly poisonous substance into an effective medicine.[3] Such drugs which are described in *Ayurveda* Gunja[4,8] (*Abrus precatorius*), Bhallatak[5] (*Semicarpus anacardium*), Dhatura[6] (*Datura metal*), Vatsnabh[7] (*Aconitum ferox*) etc.

Today people are shifting from the modern medicines to the ancient systems of medicines like *Ayurveda* is a very comprehensive medical system which has been practiced for generations in India.[9] It is time tested system of medicine but, one must be able to explain the various processes used by our ancient system in terms of modern language and methodology to be made more acceptable.[10]

Aims and Objectives of the study:

- To compare toxic study of *Gunja* seed before and after *Shodhana* (detoxification) on cellular level and histo-pathological changes in Albino Rats.
- To study the therapeutic efficacy of *Gunja* seeds after *Shodhana* process.

Materials and Methods:

A) Animals:

In all total 30 albino rats of either sex were taken for the present study. The animals were divided into 5 groups of 6 animals in each group.

B) Weight of Animals

The rats weighed between 102-250 gm were kept in group-I (Control);

106-150gm in group-II (*Ashodhita Gunja* Therapeutic);

101-200 gm in group-III (*Ashodhita Gunja* Therapeutic 5X);

101-178 gm in group-IV (*Shodhita Gunja* Therapeutic); and

102- 176 gm in group-V (*Shodhita Gunja* Therapeutic 5X).

C) Housing

They were kept in the Animal House of the 'Apollo College of Veterinary Medicine, Kanota, Jaipur.

This work has been approved by ethical committee Ref. No. **886/ac/05/CPCSEA** on Date 6 September 2012 Letter No. ACVM/2012/208 in the **Apollo College of Veterinary Medicine**, Kanota, Jaipur.

D) Feeding

They were fed with Pellets, vegetables and tap water. Both the food and water were available and libitum.

E) Climate

They were reared under prevailing ambient temperature humidity and exposed to natural day and night cycle.

apparent statistically non significant.

- In the differential leucocyte count, the data on Eosinophil's count shows that the count increased in all the test drugs treated Group except SG5X, the increase was apparent statistically significant in AGT and AG5X.
- However there was apparent but statistically non-significant increase seen in SGT. At the same time statistically non-significant decrease in eosinophil's count was also observed in SG5X Group.
- Increase in eosinophil count in indicative of inflammation of immunological origin. It may be a pointer towards the possibility of the drug or one of its constituents, may precipitate immunological reaction, probably by interacting with some of the body constituents. The data generated during the study shows that such a possibility is more in AGT and AG5X Group and less in SG5X treated group.
- In the differential leucocyte count, the data on Monocyte count shows that the count decreased in all the test drugs treated Group except AGT, the decrease was apparent statistically significant. Monocyte count remained unchanged in AGT Group.
- The reason for this difference is not clear and would require further studies to understand the exact physico-chemical mechanism underlying this effect remains to be determined.
- In histo-pathological investigation AG5X and SG5X produced mild toxicity in the liver. The observed changes were mild sinusoidal and central venous congestion in AG5X and mild steatosis in SG5X.
- In histo-pathological investigation all test drug treated Group samples did not show any toxicity in the Kidney.
- The short termed chronic toxicity study revealed that none of the sample seems to be highly toxic, but among them also SGT was least toxic in comparison to AGT, AG5X, and SG5X.
- In histo-pathological investigation AG5X and SG5X produced mild toxicity in the liver. The observed changes were mild sinusoidal and central venous congestion in AG5X and mild steatosis in SG5X.

Conclusions

- Ancient *Rasacaryas* were well aware about the untoward effects or toxic effect produced due to use of their impure form of drug.
- The short termed chronic toxicity study revealed that none of the sample seems to be highly toxic, but among them also SGT was least toxic in comparison to AGT, AG5X, SG5X.
- There are many *Ayurvedic* formulations that contain *Gunja* and according to *Ayurveda*, toxic drugs are used for therapeutic purpose only after their *Shodhan*. *Gunja* also counted as a poison so *Gunja* should be used as a drug only after it has been subjected to *Shodhana*.
- *Shodhana* process not only reduces the toxicity but enhances therapeutic properties.
- In AGT & AG5X Group a significant level decrease was observed in AST, ALT and Alkaline phosphatase level in comparison to control Group.
- In Liver weight & Kidney weight a highly significant decrease was observed in All Group AGT, AG5X, SGT, and SG5X in comparison to control Group.
- In Heart weight a highly significant decrease was observed in AGT and AG5X Groups in comparison to control Group.
- In Brain weight a highly significant increase was observed in AGT and AG5X Groups in comparison to control Group.
- In histopathological investigation AG5X and SG5X produced mild toxicity in the liver. The observed changes were mild sinusoidal and central venous congestion in AG5X and mild steatosis in SG5X.
- All test drug treated Group samples did not show any toxicity in the Kidney and Heart.
- In histopathological investigation AGT and AG5X produced moderate toxicity in the Brain. The

observed changes mild neuronal enlargement seen in AGT Group and Focal aggregates of dendrites seen in AG5X Group. No pathology observed in SGT and SG5X Group.

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Conceptual Study

Painful sensations due to *Pittadosha*

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Abstract

Painful sensation due to Pittadosha is burning in nature. It is generally termed as Daaha. Various manifestations of Daaha are explained in Ayurvedic classical texts. It may be either localized or generalized with various intensities and features. Osha, Plosha, Dava, Davadhu, Vidaha, Antardaaha etc are varieties of Daaha and are commonly seen in patients. Hypersthesia, allodynia, causalgia etc. and certain vasomotor symptoms can be understood in terms of Pitta type of painful sensations. This article compiles technical explanations of terminologies on Pitta type of pain and attempts for some physiopathological interpretations.

Key words : Daaha, Osha, Plosha, Dava, Davadhu, Vidaha, Ayurveda, Pitta Pain

सारांश–

पित्त दोष के कारण होने वाली वेदना यह स्वभावत: उष्मा प्रधान होती है। इसे 'दाह' यह संज्ञा दी गयी है। आयुर्वेदीय संहिताओं मे अनेक व्याधीयों के लक्षण में दाह के विविध प्रकारों का उल्लेख किया गया है। यह लक्षण कही स्थानिक तो कही सार्वदैहिक, कभी अल्प कभी अधीक तीव्रता के साथ एवं विभिन्न स्वरुपो मे देखे जाते है। उदाहरणार्थ ओष, चोष, दव, दवथू, विदाह, अन्तर्दाह ई. दाह के विविध प्रकार रुग्ण मे सामान्यत: परिलक्षित होते है। हायपरस्थेसिया, ऍलोडायनिया, कॉसालजिया आदि और एसे ही कुछ वाहिकाप्रेरक (वासोमोटर) लक्षण पित्त के कारण उत्पन्न वेदनाओ के रुप मे देखे जा सकते है। प्रस्तुत लेख मे ऐसी ही कुछ पित्त से उत्पन्न वेदनाओ की परिभाषाओ का वैज्ञानिक एवं शारीर क्रियात्मक दृष्टि से स्पष्टीकरण दिया गया है।

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Conceptual Study

Painful sensations due to *Pittadosha*

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Introduction

Vedana is the appreciation of sensation. Vedana is affected to the body parts connected to sense organs and mind. Body parts devoid of sensory organs like hair, nail etc does not convey Vedana[1]. A pleasurable sensation is termed as Sukham and a painful sensation is termed as Dukham. Dukham is synonymous with disease. Different types of pain are described in Ayurveda. The various painful presentations are due to vitiation of three humors Vata, Pitta and Kapha. Pricking (Toda), splitting (Bheda), colicky (Shoola) etc are examples of pain of Vata origin. Different types of burning sensation (Daha) are produced by Pitta. Itching (Kandu) is a characteristic feature of Kapha.[2] The nature of pain depends on the properties and cardinal features of Dosha involved in the pathology. Hotness (Ushnaguna) of Pitta along with its sharpness (Theekshnaguna) decides the characteristics of painful sensations caused by Pitta. Here an attempt is made to compile various painful clinical presentations solely attributed to Pittadosha and to interpret the same with few modern explanations. The painful Pitta presentations are enlisted below[3].

A. Generalised

a. *Daaha*

b. *Osha*

B. Localised

a. *Plosha*

b. *Dava*

c. *Davadhu*

d. *Vidaaha*

e. *Anthardaaha*

f. *Twakdaaha*

g. *Amsadaaha*

h. *Chosha*

Common Painful manifestations of Pitta

1. *Daaha* – This is a general term used to note burning sensation. In the context of 'Exclusive cardinal disorders of Pitta' (Paittika nanatmaja vikara), while commenting on various presentations, Indu has defined 'Daaha' as a general term in which burning sensation affecting all over the body and is of intense character (Sarvaangabhavah teevrascha daahah sa saamanya sabdavaachya – Indu. on AS Su. 20)[4]. It is further supported by Arunadatta and Vachaspati . (Daahah sarvaangeenah taapah daahah- Arun. Ah.Su.3.29 and Daahah parito dehe santaapena vyaaptaakhila deham -Vac.M.N.28.14). There are further explanations for the term Daaha in different contexts. It also means rise of temperature (warmth or heat) (Daahah santaapah - Arun.Ah.Su.11.7; Dahyata tapyata - Arun.Ah.N.12.17). It is also defined as a feeling as if mustard is pasted over the skin. (Daahah sarshapaliptasya iva ooshaa- Tod.Ah.N.5.340). It can also be explained as a sensation as if near to fire (Agninaa iva duhkham - Hem.Ah.N.6.32).

2. *Osha* – It is also generalized burning sensation but associated with sweating and restlessness (Sa eve swedena aratya cha yukta osha ityuchyate Indu. on AS Su. 20)[4]

3. *Plosha* – A severe form of burning sensation affecting any part or organ of the body as if exposed to flames and is devoid of sweating is termed as Plosha (Praadeshikah daaho yah kechideva ange avayave swedarahitah teekshno agnyarchisheva jwalanajwalayeva daaha plosha ityuchyate- Indu. on AS Su. 20)[4]

4. *Dava* – The burning sensation affecting oral cavity, lips or palate is called Dava. (Mukhe va oshthe va taluni va daho dava shabdena uchyate - Indu. on AS Su. 20)[4]

5. *Davadhu* – The burning sensation affecting the sensory organs like eyes is called as Davadhu. It may be felt at the end of sensorial perception in the sensory centre. Otherwise it may be felt in the physical organs like eyes as it is the abode of vision. (Chaksuraadeendiyeshu daaho

davadhu. Esha hi vishayagrahanavasne indriyaadhishthaanaya bhavati. Athava indriyaadhaarasya netraderaadheyena chaksuraadeendriyena vyapadeshah - Indu. on AS Su. 20)[4]

6. *Vidaaha*- Different types of burning sensation affecting the limbs are termed as Vidaaha. (Paanyadishu naana swaroopah daahah vidaahasabhda vachya - Indu. on AS Su. 20)[4]

7. *Antardaaha* – Burning sensation affecting the alimentary tract is called Antardaaha. (Koshtho antasshabdena shareerike antahkoshtho mahasrotha iti, teneva tadukta bhavati- antardaaha shabdena koshthadaaho uchyate-Indu.on AS Su. 20)[4]

8. *Twakdaaha* – Burning sensation of the skin can be called as Twakdaaha

9. *Amsadaaha* – Burning sensation in the scapular region is termed as Amsadaaha.

10. *Chosha* – Choshah is also a type of burning pain but not enlisted in exclusive cardinal disorders of Pitta (Paittika nanatmaja vikara). It is the virtual experience of burning as if contacted with fire (Saakshaat agnisambandhena iva upataapah choshah - Vac.M.N.56.32) or painful feeling of heat near to fire (Choshah paarsvastha agnisantaapavat vyathaa - Vij.MN.41.7). It also has a meaning like sucking pain (Chosham aakarshanam - Dal.S.Su.42.9, Choshah aachooshanam iva - Dal.S.N.5.10, Chooshyata iva vedanaaviseshah - Dal.S.Su.17.5)

Other painful manifestations of *Pitta*

There are few terms which are similar or associated with Daaha in Paittika nanatmaja vikara. These are also explained here since it is also clinically available. They are Dhoomaka and Amlaka. Dhoomaka is a feeling like the internal parts of head etc are filled with smoke (Antah shiraprabhritishu dhoomavritamiva dhoomakah- Indu. on AS Su. 20)[4]. It is also explained as feeling of emitting fume. (Dhoomakah dhoomodvamanam iva - Chakra. C.Su.20.14). It is felt in body orifices like nostrils etc (Dhoomaayati iti dhooma nissarana iva naasikaadideseshu anubhavati - Arun.Ah.N.5.26), or fumigating like feeling in the hrad, neck, throt and palate. (Sirogreeva kantha taalushu dhoomaayanam dhoomakah - Arun.Ah.Su.20.12).

Amlaka is the manifestation of epigastric pain, burning sensation in the alimentary tract and acid eructation together (Hridayashoola saantardaaha sakoshthadaaha saamlodgaarscha amlaka shabdavaachya – Indu AS. Su 17). Burning sensation of lesser grade is termed as Paridaha or Pariplosha etc. (Pariploshah santaapaat svalpah tvak daahah - Indu.As.Su.19.5). In certain contexts Daaha is also defined as generalized severe temperature, with persistent restlessness and (Daahah sarvaangeenah teevroshmaa sadaa aratimaan - Arun.Ah.U.17.4).

Interpretation of Painful Pitta presentations

The painful sensation due to Pittadosha can be understood as either generalized (Daaha or Osha) or localized (Plosha, Dava, Davadhu etc.). This may be manifested due to various causes. Before analyzing painful presentations of Pitta let us consider pain in general. Basically the pain sensation may be either Nociceptive or Neuropathic. Pain derived from skin, subcutaneous tissue, and mucous membrane is termed as nociceptive. It may be due to any injury or impending injury. Nociceptive pain may be either somatic or visceral. Pain derived from any problem in the nervous system is called neuropathic. It can originate from the peripheral and / or central nervous system. A mixed presentation of nociceptive as well as neuropathic pain is also possible.

Hyperesthesia (*Sprashakshamatwam*) is a characteristic feature of vitiated Pitta[5]. Hyperesthesia is increased sensitivity to stimuli. Injury to the nerve fibers that normally respond to innocuous stimuli like light touch may lower their activation threshold needed to respond. This change causes the individual to feel intense pain from the lightest of touch. In any type of acute inflammations tenderness of varying degree are possible.

Paittika type of painful sensation is more common in small fiber neuropathy. A small fiber neuropathy occurs when damage to the peripheral nerves predominantly or entirely affects the small myelinated (Ad) fibers or unmyelinated C fibers. Small fiber neuropathy manifests in a variety of different diseases and often results in symptoms of burning pain, shooting pain, allodynia, and hyperesthesia.

When the pain caused by a stimulus which does not normally provoke pain it is called as

allodynia. For example lightly touching the uninjured skin may cause severe pain. Causalgia is another term which is used for syndromic presentation of sustained burning pain, allodynia and hyperpathia after traumatic nerve lesion. It may be often combined with vasomotor dysfunction which further supports the relationship with Pitta. Dysaesthesia is defined as an unpleasant, abnormal sense of touch and sometimes described as feeling like acid under the skin. Daaha of various presentations are seen in above described conditions.

Painful Pitta presentations in diseases.

Hemiplegia dolorosa is a term used to explain thalamic stroke which is otherwise called sensory stroke. It is also known as Dejerine–Roussy syndrome or thalamic pain syndrome. It is manifested initially as numbness later replaced by burning and tingling sensations, widely varying in degree of severity across all cases. Burning and tingling can also be accompanied by hypersensitivity, usually in the form of dysaesthesia or allodynia. Less commonly, some patients develop severe ongoing pain with little or no stimuli. Unilateral persistent hyperhydrosis (Sweda) in the affected side is also seen. The condition may be understood as Hemiplegia due to Piita associated with Vata (Pittanubandha Pakshaghata). This condition has striking similiarity with Osha.

Vasomotor symptoms as if in Menopausal syndrome include hot flashes and night sweats. Hot flashes are recurrent, transient episodes of flushing, perspiration, and a sensation ranging from warmth to intense heat on the upper body and face. Night sweats are hot flashes that occur with perspiration during sleep. These may be compared with Plosha if intense sweating is not associated. In Herpes infections and post herpetic neuralgia Plosha is typically manifested. Diabetic peripheral neuropathy is manifested as tingling, numbness and burning sensation in the feet, legs or hands. This is similar with Vidaaha explained in Paittika nanatmajavikara.

Burning mouth syndrome otherwise termed glossodynia and orodynia is the complaint of a burning sensation in the mouth where no underlying dental or medical cause can be identified and without any oral signs. It is usually bilaterally located in the tounge or less commonly the palate and lips. This may be compared with Dava. Pyrosis or heartburn is a burning sensation in the epigastrium. The pain often rises in the chest and may radiate to the neck, throat, or jaw. Heartburn is usually associated with regurgitation of gastric acid which is the main symptom of gastroesophageal reflux disease (GERD). This may be compared with Antardaaha or Amlaka. A typical night worsening burning pain is common in diabetic periarthritis of the shoulder which can be compared with Amsadaaha.

Complex Regional Pain Syndrome (CRPS) is a chronic pain condition. The main feature of CRPS is continuous intense pain which may appear to be out of proportion to the severity of the injury. The pain commonly worsens with time. It is of two types. The first one is often triggered by tissue injury but has no apparent nerve damage. It is otherwise called reflex sympathetic dystrophy. The second type has the same symptoms but is also associated with a nerve injury. The symptoms of CRPS in general include burning pain, increased skin sensitivity, changes in skin temperature, color and texture with sweating or swelling in the affected part. CRPS is also has striking similarity with Pain of Pitta origin. Such conditions respond to Pitta alleviating treatment strategies like therapeutic stream sudation (Dharasweda). Certain psychogenic pain can also understood in terms of Pittadosha especially when associated with difficulty in initiating sleep at night (Alpanidrata) and well responds to cooling oil applications like Mahachandanadi taila over head.

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Conceptual Study

Applied Anatomy of *Pratara Sandhis* of *Prushthavansha*

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Abstract

Approximately 10% of the total population consults a physician each year about back pain. More than 80% of people have back complaints during their life time. The vertebral column, together with the sternum and ribs, forms the skeleton of the body. The parts of the vertebral column have the greatest movement–the cervical and lumbar region, are the most frequent sites for the pain. Since the anatomy of the joints between vertebrae is complex hence the profound and full knowledge of the structure and function is required to diagnose and treat the disease low back pain, which is most common now days. Back pain has many causes and one of the major causes is injury to vertebral column or pathology including intervertebral joints.

Although the anatomy of the back in *Ayurvedic Samhitas* is not described in detail as anatomy of *prushtavansha* (vertebral column) and *kasherukas* (vertebrae) is elaborated in modern anatomy, but while describing the *sandhi* (joints), Acharya have detailed its descriptionin the context of *Pratara sandhi*. The present article is the extract of a conceptual research study carried out to quest the applied aspects of *Ayurvediya* concept in the light of modern anatomy.

Key words: *Pratara Sandhi, Prushthavamsh, kasheruka, Greeva, Kati.*

सारांश –

सम्पूर्ण संसार की कुल जनसंख्या की लगभग 10 प्रतिशत आबादी प्रतिवर्ष पीठ दर्द के लिए चिकित्सक की सेवाएं लेती है। 80% से ज्यादा लोगों को अपने जीवन के दौरान कभी न कभी पीठ दर्द की शिकायत अवश्य होती है। कशेरूकायें स्टर्नम तथा पर्शुकाओं के साथ मिलकर शरीर का अक्षीय ढांचा बनाती हैं। पृष्ठवंश में गर्दन तथा कमर का हिस्सा अपेक्षाकृत सर्वाधिक चल होने के कारण शूलोत्पत्ति के प्रमुख स्थान हैं। वस्तुत: कशेरूकाओं के मध्य की संधि की रचना जटिल होती है अत: वर्तमान में सामान्यत: होने वाली व्याधि कटिशूल के निदान एवं चिकित्सा के लिए इसकी रचना तथा क्रिया का पूर्ण एवं गहन ज्ञान आवश्यक है। कटिशूल के अनेक कारण होते हैं जिसमें से मेरूदण्ड में आघात तथा मेरूदण्ड की सन्धियों में विकृति होना प्रमुख है।

यद्यपि आयुर्वेद संहिताओं में पृष्ठवंश एवं कशेरूकाओं की रचना का विस्तृत वर्णन उतना नही मिलता जितना आधुनिक शरीर रचना विज्ञान में मिलता है तथापि आचार्यों नें सन्धि प्रकरण के अन्तर्गत यहां पायी जाने वाली प्रतर सन्धि का वर्णन किया है। प्रस्तुत सैद्धान्तिक शोध अध्ययन में उपरोक्त आयुर्वेदीय सिद्धान्त के व्यावहारिक पक्ष को आधुनिक शरीर रचना विज्ञान के माध्यम से स्पष्ट करने का प्रयास किया गया है ।

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Conceptual Study

Applied Anatomy of *Pratara Sandhis* of *Prushthavansha*

Dr. Mahesh P. Patil, Dr. Dharmendra Mishra, Dr. Shalinee Kumari, Prof. M. D. Sarma

Introduction

Ayurveda is the science imparts all the knowledge of life. Life is combination of four factors;[1] *sharir, indriya, satwa*and *atma*. Through structural study, scientific knowledge of the subject *Sharir Rachana* was well organised by Ayurveda. Anatomy, the knowledge of the structure of human body is foremost aspiration in medical profession. This knowledge is must for further medical studies.

In *Ayurvedic Samhitas* all the *Acharyas* had described the whole body in six parts i.e. *Shadanga Sharir*.[2]

The *prushtavansha* or vertebral column is at the *prushtabhaga*of the *Madhya shareera*. The *sandhis between kasheruka of prushtavansha arepratara sandhi*.[3]

The references of *prushtavansha* are few. *Aacharya Sushruta* had mentioned it while describing numbers of bones, types of joints, *marmasthana*etc. In other *samhitas* also the *prushtavansha* is mentioned while describing number of joints, *marmas* and other structures related to *prushtavansha*.

The parts of neck and back where the vertebral column has the greatest movement – the cervical and lumbar region, are the most frequent sites of disabling pain. Approximately 10% of the total population consults a physician each year about back pain. More than 80% of people have back complaints during their life time. The anatomy of the back is complex. In *Ayurvedic Samhitas* the description of anatomy of *prushtavansha* (vertebral column) and *kasherukas* (vertebrae) in detail is not found, also the description of the *sandhi* (joints) between them i.e. *Pratara sandhi* is not found in detail.

Since the anatomy of the joints between vertebrae is complex a thorough knowledge of the structure and function is required to diagnose and treat the diseases of back like back pain which is most common now days. Back pain has many causes and one of the major causes is injury to vertebral column or pathology including intervertebral joints. In severe injuries, the examining person must be careful not to cause further damage. So to prevent this, the knowledge of anatomy, surface marking etc. should be known and studied properly. Keeping in view all these, the topic was selected.

Aims and objectives

Study the anatomy and applied aspects of vertebral column as well as intervertebral joints.

Study the clinical aspects of the anatomy of vertebral column, its anomalies and its diseases.

Need of the study

In back complains most of the time cause is related to the vertebral column. To study these diseases, to diagnose and to treat back pain the thorough knowledge of anatomy of back should me known. Also to examine the patient of the back pain the knowledge of anatomy should be known.

Material and Method

Ayurvedic Review

The human body is mainly supported by the bones, which does *Dharan* (holding) of body. These bones are interconnected with the help of various joints. Because of whish these bones are joined together and able to hold the body in proper way. Because of joint only the movement of body is possible. Any movement would be impossible if there are no joints. In the skeletal frame work of humans or any animal, it can be observed that the number of bones of various shape and size accounts for the formation of the skeleton. These bones are united together at various places to form joints. Then the whole skeletal system is built upon a joint system which supports the whole body. In this joint system the participating bones and cartilages in a particular joint are either immovably united together or they are united in such a way that spaces are left

in between them so as to allow movements between themselves leading to movement of joint.

Sandhis are taking major role in movement and locomotion of the body as well as other movements of the body such as flexion, extension, adduction, abduction, rotation etc. Without *sandhis* it is impossible to move the body. Even if a single *sandhi* is not working properly then there is difficulty in normal movement of the body in day to day life. Which can be better observed when one cannot move a joint when it is casted.

Classification of *Sandhi*

The classification of *sandh* is and its further subdivision has been done based on structures which are seen in between the two bony ends, the type of movement occurring in joint and the various functions done by the joints.

Main classification of *Sandhi*is of two types

1. Based on *Kriya*
2. Based on *Rachana*

Kriyanusara Vargeekarana (Based on Movement)

Functionally the *sandhis* are of two types[4]

1. *Chestavanta* or *chalasandhis* (joints which are movable).
2. *Sthira* or *Achala Sandhis* (the joints which are immovable).

The *chestavantasandhis* are further classified into two types based on their extent of movement. They are

1. *Bahuchala*. (Freely movable)
2. *Ishatchala*. (Slightly movable)

***Rachananusara Sandhi Vargeekarana* (Based on structure)**

Based on the structure *Aacharya Sushruta* had described eight types of *sandhis*. They are *Kora*, *Ulukhala*, *Samudga*, *Pratara*, *Tunnasevani*, *Vayasatunda*, *Mandala* and *Shankhavarta*.[5]

In the opinion of *Bhavmishra* similar classification is seen but the only difference of opinion is regarding the nomenclature. He mentioned *Tunnasevani* as *Toonasevani* and *Vayastunda* is named as *Kakatunda*.

Joints of *Prushtavansha*.

Pratara sandhi

Aacharya Sushruta has mentioned that the joints in the *prushtavansha* are *pratara* type of joint. These types of joints are also located in *Greeva*.

ग्रीवापृष्ठवंशयोः प्रतराः।[6]

According to *Aacharya Dalhana*, the articulating surfaces of this variety of joint are flat in nature and floating, supported by cushion and friction is seen in between the articulating surfaces.

प्रतरत्यनेनेतिप्रतरोभेलकः तदाकृतयःप्रतराः |[7]

While describing the *pratarasandhi-saacharya Gananath* Sen has mentioned that these type of joints are formed from articulation of *Samatala*or flat part of slightly movable bony parts. In this type of joint the part of bones that articulates with each other are oblique, so the name is given as *Pratara*.

प्रतरा नाम प्रतरणशीलैरिव ईषच्चलैः समतलांशाभ्यां परस्परसंहितैरस्थिखण्डैर्निर्मिताः सन्धयः ।८(गणनाथसेन)

According to *Acharya Gananath Senpratarasandhi* are of three types[9]

Chala Pratara

Yukta Pratara

Druda Pratara

ते त्रिविधाः सन्धानप्रकारवैशेष्यात्-चलप्रतरः, युक्त प्रतरः, दृढप्रतरश्चेति।

तत्र-श्लेष्मधरकलापुटव्यवधानेन चलत्वबाहुल्पे सति चलप्रतराख्यःसन्धिः,यथा-करःचरणःकूर्च्चास्थ्नां परस्पर-संयोगे। अन्तरालस्थया स्नायुरज्जवा दृढकलया वा संयोगे युक्तप्रतरः, यथा-प्रकोष्ठास्थ्नोर्जंघास्थ्नोश्च नलकयोः परस्पर-सन्धाने। अन्तरालस्थेन तरूणास्थिचक्रेण सजातीयानां दृढसन्धाने तु दृढप्रतरः यथा-पृष्ठवंशे परस्परं कशेरूकाणाम्। गणनाथ सेन

Because of presence of vyavadhana (obstruction) of sleshmadhara kala this chala (movable) pratara sandhi are of Chalapratara. As in

kurchasthiof palm and foot (intercarple and intertarsal joints). Because of presence of mansarajju' or druda kala' in the joint make the pratara sandhias yuktaprataraas in radio-ulnar and tibio-fibular joints)

Since there is presence of tarunasthi chakra in between joint of two similar types of bones which makes the joint -Druda (strong), it became DrudaPratara sandhi, like the joints present in between vertebrae or intervertebral joints.

In the *Samhitas* there is not more description of *Prushtavansha* (vertebral column), and also there is no description of the anatomy of vertebrae and vertebral column.

Since there is very less description of *prushtavansha* in the *samhitas*, diseases related to it are not described directly. *Vatadosha* and *asthidhatu* are inter-related with each other as *aashryashryi-sambhanda*. So the factors causing *vataprokopa* leads to *asthidhatukshaya* and vice-versa. Aggravated *vatadosha* hampers the normalcy of body and can produce *vata* specific disease known as *Vatavyadhis*.

Modern Review

Functionally, joints are classified as one of the following types:[10]

- **Synarthrosis:** An immovable joint. The plural is *synarthroses*. A synarthrosis may be one of three types: suture, gomphosis and synchondrosis.
- **Amphiarthrosis:** A slightly movable joint. The plural is *amphiarthroses*. These may be of two types: syndesmosis and symphysis
- **Diarthrosis:** A freely movable joint. The plural is *diarthroses*. All diarthroses are synovial joints. They have a variety of shapes and permit several different types of movements.

Joints are classified structurally, based on their anatomical characteristics, and functionally, based on the type of movement they permit.

The structural classification of joints is based on two criteria:

(1) The presence or absence of a space between the articulating bones, called a synovial cavity, and

(2) The type of connective tissue that binds the bones together. Structurally, joints are classified as one of the following types:

- Fibrous joints.
- Cartilaginous joints.
- Synovial joints.

The vertebral column

The vertebral column (spine), extending from the cranium (skull) to the apex of the coccyx, forms the skeleton of the neck and back and is the main part of the axial skeleton. The vertebrae and IV discs collectively make up the vertebral column.

In the adult it is 72-75 cm long, of which approximately one quarter is formed by the IV discs that separate and bind the vertebrae together. The adult vertebral column typically consists of 33 vertebrae arranged in five regions: 7 cervical, 12 thoracic, 5 lumbar, 5 sacral, and 4 coccygeal. Significant motion occurs only between the 25 superior vertebrae. Of the 9 inferior vertebrae, the 5 sacral vertebrae are fused in adults to form the sacrum, and after approximately age 30, the 4 coccygeal vertebrae fuse to form the coccyx.

The vertebrae gradually become larger as the vertebral column descends to the sacrum and then become progressively smaller toward the apex of the coccyx. These structural differences are related to the fact that the successive vertebrae bear increasing amounts of the body's weight. The vertebrae reach maximum size immediately superior to the sacrum, which transfers the weight to the pelvic girdle at the sacro-iliac joints.

The vertebral column is flexible because it consists of many vertebrae joined together by semi-rigid intervertebral (IV) discs. The 25 cervical, thoracic, lumbar, and first sacral vertebrae also articulate at synovial zygapophysial joints, which facilitate and control the vertebral column's flexibility. Although the movement between two adjacent vertebrae is small, in aggregate the vertebrae and IV discs uniting them form a remarkably flexible yet rigid column that protects the spinal cord they surround.

Main Function of the vertebral column:

- Protects the spinal cord and spinal nerves.

- Supports the weight of the body superior to the level of the pelvis.
- Provides a partly rigid and flexible axis for the body and an extended base on which the head is placed and pivots.
- Plays an important role in posture and locomotion (the movement from one place to another).

Structure of Vertebrae:

Vertebrae vary in size and other characteristics from one region of the vertebral column to another, and to a lesser degree within each region; however, their basic structure is the same. A typical vertebra consists of a vertebral body, a vertebral arch, and seven processes.

The vertebral column consists of 33 vertebrae. They are divided into five groups

1. **Cervical vertebrae**
2. **Thoracic vertebrae**
3. **Lumbar vertebrae**
4. **Sacrum**
5. **Coccyx**

Each of the 33 vertebrae is unique. However, most of the vertebrae demonstrate characteristic features identifying them as belonging to one of the five regions of the vertebral column (e.g., vertebrae having foramina in their transverse processes are cervical vertebrae). Regional variations in the size and shape of the vertebral canal accommodate the varying thickness of the spinal cord.

Joints of Vertebral Column- The joints of the vertebral column include the:

- The joints between vertebrae –
  - o symphyses between vertebral bodies
  - o synovial joints between articular processes
- Craniovertebral (atlanto-axial and atlanto-occipital) joints.
- Costovertebral joints.
- Sacroiliac joints.

A typical vertebra has a total of six joints with adjacent vertebrae:

- Four synovial joints (two above and two below) and
- Two symphyses (one above and one below). Each symphysis includes an intervertebral disc.

Movements of Vertebral Column

The range of movement of the vertebral column varies according to the region and the individual. The mobility of the column results primarily from the compressibility and elasticity of the IV discs.

The range of movement of the vertebral column is limited by the:

- Thickness, elasticity, and compressibility of the IV discs.
- Shape and orientation of the zygapophysial joints.
- Tension of the joint capsules of the above joints.
- Resistance of the back muscles and ligaments (such as the *ligamentumflava* and the posterior longitudinal ligament).
- Attachment to the thoracic (rib) cage.
- Bulk of the surrounding tissues.

The following movements of the vertebral column are possible: flexion, extension, lateral flexion and rotation.

Curvatures of Vertebral Column

The vertebral column in adults has four curvatures that occur in the cervical, thoracic, lumbar, and sacral regions.

Cervical: posterior concavity;

Thoracic: posterior convexity;

Lumber: posterior concavity; and

Sacral: posterior convexity.

The thoracic and sacral convexities are primary curvatures that develop during the foetal period in relationship to the (flexed) foetal position. The cervical and lumbar concavities are secondary curvatures that result from extension from the flexed foetal position. The curvatures of the vertebral column provide additional flexibility (shock-absorbing resilience), further augmenting that provided by the IV discs, and also extra load bearing capacity.

Abnormal Curves of the Vertebral Column

An abnormal curvature of vertebral column includes Kyphosis, Lordosis and Scoliosis. Abnormal curvatures in some people result from developmental anomalies; in others, the curvatures result from pathological processes. The most prevalent metabolic disease of bone occurring in the elderly, especially in women, is osteoporosis (atrophy of skeletal tissue).

Kyphosis is an exaggeration in the sagittal curvature present in the thoracic part of the vertebral column. It can be caused by muscular weakness or by structural changes in the vertebral bodies or by intervertebral discs. In sickly adolescents, for example, where the muscle tone is poor, long hours of study or work over a low desk can lead to a gently curved kyphosis of the upper thoracic region. Crush fractures or tuberculosis destruction of the vertebral bodies leads to acute angular kyphosis of the vertebral column. In the aged, osteoporosis (abnormal rarefaction of bone) and/or degeneration of the intervertebral discs leads to senile kyphosis, involving the cervical, thoracic, and lumbar regions of the column.

Lordosis is an exaggeration in the sagittal curvature present in the lumbar region. Lordosis may be caused by an increase in the weight of the abdominal contents, as with the gravid uterus or a large ovarian tumour, or it may be caused by disease of the vertebral column such as spondylolisthesis. The possibility that it is a postural compensation for a kyphosis in the thoracic region or a disease of the hip joint (congenital dislocation) must not be overlooked.

Scoliosis is a lateral deviation of the vertebral column. This is most commonly found in the thoracic region and may be caused by muscular or vertebral defects. Paralysis of muscles caused by poliomyelitis can cause severe scoliosis. The presence of a congenital hemi vertebra can cause scoliosis. Often scoliosis is compensatory and may be caused by a short leg or hip disease.

Vasculatures of vertebral column:

Spinal branches of the major cervical and segmental arteries supply the vertebral column. Internal and external vertebral venous plexuses collect blood from the vertebrae and drain, in turn, into the vertebral veins of the neck and the segmental veins of the trunk.

Nerves of vertebral column

Zygapophysial joints are innervated by medial branches of adjacent posterior rami; (recurrent) meningeal branches of spinal nerves supply most bone (periosteal), IV discs, and ligaments as well as the meninges (coverings) of the spinal cord. These two (groups of) nerves convey all localized pain from the vertebral column.

Back Pain

Ayurvedic review

Katisoola

It is one of the *nanatmaja vatavyadhi*.[11] It is a disease affecting the *Kati Pradesha*.

***Hetu*[12,13]**

A longstanding and sitting posture, excessive locomotion, day sleep and a long confinement to bed would aggravate the *vatadosha*.

*Vata*get aggravated from consuming foods which are bitter or astringent in taste, also by *alpa*(less quantity), *ruksha*(dry) and taking food at unusual time, suppression and premature initiation of the urges, keeping awake at nights, speaking in high pitch for a long time, effect of therapies in excess, fear, grief and worry, excess of physical activities and sexual intercourse, during summer, terminal part of the day, night and food etc.

Poorvarupa[14]

Indistinct manifestation of the signs and symptoms of these ailments constitute their *poorvarupas*.

***Rupa*[15]**

- Aggravation of *vayu*gives rise to the following signs and symptoms.
- Contraction, stiffness of joints and pain in the bones as well as joints.
- Horripulation, delirium and spasticity of hands, back and head.
- Lameness of hands and feet and hunchback and atrophy of limbs and insomnia.
- Destruction of foetus, semen and menses.
- Twitching sensation and numbness in the body.

- Shrinking of the head, nose, eyes, clavicular region and neck.
- Splitting pain, pricking pain, excruciating pain, convulsion, unconsciousness and prostrartion.

This aggravation of *vayu*produces specific diseases. When this *lakshanas*get distinctly manifested, they are called *rupa*. Diminution (*laghuta*) of the signs and symptoms indicate that diseases are going to be cured.

***Samprapti*[16]**

Aggravated *vatadosha* causes depletion of tissues. *Vatadosha* then fills up the empty channels and moves greatly inside them or by getting enveloped by the other doshas which have filled up the channels. The aggravated *vata*, by filling up the channels of circulation which are empty have become weak, produces different kinds of ailments affecting the whole body or a part thereof. Here it takes the shelter in *kati* region and produce *Katishoola*.

Modern review

The back and spine are designed to provide a great deal of strength, protecting the highly sensitive spinal cord and nerve roots, yet flexible, providing for mobility in all directions.

However, there are many different parts of the spine that can produce back pain, such as irritation to the large nerve roots that run down the legs and arms, irritation to small nerves inside the spine, strains to the large back muscles, as well as any injury to the disc, bones, joints or ligaments in the spine. Acute back pain comes on suddenly and usually lasts from a few days to a few weeks. Chronic back pain is typically described as lasting for more than three months.

Causes of Back Pain

Typically, younger individuals (30 to 60 year olds) are more likely to experience back pain from the disc space itself (e.g. lumbar disc herniation or degenerative disc disease). Older adults (e.g. over 60) are more likely to suffer from pain related to joint degeneration (e.g. osteoarthritis, spinal stenosis).

In some instances, a patient may experience more noticeable leg pain as opposed to back pain as a result of certain conditions in the lower back, including:

- Lumbar herniated disc. The inner core of the disc may lead out and irritate a nearby nerve root, causing sciatica (leg pain).
- Lumbar spinal stenosis. The spinal canal narrows due to degeneration, which can put pressure on the nerve root and cause sciatica.
- Degenerative disc disease. As the disc degenerates it can allow small amounts of motion in that segment of the spine and irritate a nerve root and cause sciatica.
- Isthmic spondylolisthesis. A small stress fracture allows one vertebra to slip forward on another, usually at the bottom of the spine. This can pinch the nerve, causing lower back pain and leg pain.
- Osteoarthritis. Degeneration of the small facet joints in the back of the spine can cause back pain and decreased flexibility. May also lead to spinal stenosis and nerve pinching.

It is important to know the underlying condition that is causing the low back pain, as treatments will often differ depending on the causes of back pain

Other causes of neck and back pain includes

Cervical spondylosis

Cervical spondylosis is a common degenerative condition of the cervical spine. It is most likely caused by age-related changes in the intervertebral disks. Clinically, several syndromes, both overlapping and distinct, are seen. These include neck and shoulder pain, suboccipital pain and headache, radicular symptoms, and cervical spondylotic myelopathy (CSM). As disk degeneration occurs, mechanical stresses result in osteophytic bars, which form along the ventral aspect of the spinal canal

Ankylosing spondylitis

Also known as Rheumatoid spondylitis; Spondylitis; Spondylarthropathy.

Ankylosing spondylitis is a long-term disease that causes inflammation of the joints between the spinal bones, and the joints between the spine and

pelvis. It eventually causes the affected spinal bones to join together.

Back Muscles and Back Pain

Extensor, Flexor and Oblique Muscles and Back Pain

Three types of back muscles that help the spine function are extensors, flexors and oblique.

- The extensor muscles are attached to the posterior (back) of the spine and enable standing and lifting objects. These muscles include the large paired muscles in the lower back (erector spinae), which help hold up the spine, and gluteal muscles.
- The flexor muscles are attached to the anterior (front) of the spine (which includes the abdominal muscles) and enable flexing, bending forward, lifting and arching the lower back.
- The oblique muscles are attached to the sides of the spine and help rotate the spine and maintain proper posture.

Lower Back Pain Exercises

Back muscles—like any other muscle in the body—require adequate exercise to maintain strength and tone. While muscles like the gluteal (in the thighs) are used any time we walk or climb a step, deep back muscles and abdominal muscles are usually left inactive and unconditioned. Unless muscles are specifically exercised, back muscles and abdominal muscles tend to weaken with age.

Physical therapy and back exercises to treat back pain in the lower spine usually focus on strengthening the flexor, extensor and oblique muscles to help reinforce support of the spine and in turn, reducing low back pain and sometimes eliminating the need for surgery.

Back Muscles and Lower Back Pain

When the facet joints or certain other structures in the spine become injured or inflamed, the large back muscles can spasm and cause low back pain and marked limitation in motion.

An episode of lower back pain that lasts for more than two weeks can lead to muscle weakness (since using the muscles hurts, the tendency is to avoid using them). This process leads to disuse atrophy (muscle wasting), and subsequent weakening, which in turn causes more back pain because the muscles of the back are less able to help hold up the spine.

Chronic stress can also lead to muscle weakness and back pain. Stress causes back muscles to tighten in a fight or flight response, depriving muscles of energy needed to support the spine.

Another key structure in low back pain is the hamstring muscles, the large muscles in the back of the thighs. Patients with tight hamstrings tend to develop low back pain, and those with lower back pain tend to develop tight hamstrings.

The theory is that tight hamstrings limit motion in the pelvis, so the motion gets transferred to the bottom lumbar motion segments and increases the stress in the low back. Rehabilitation focuses on strengthening the muscles and stretching the hamstring muscles.

Relationship among Muscles, Posture and Low Back Pain

Muscle strength and flexibility are essential to maintaining the neutral spine position. Weak abdominal muscles cause hip flexor muscles to tighten causing an increase in the curve of the low back. An unhealthy posture results when the curve is overextended called lordosis or swayback. Proper posture corrects muscle imbalances that can lead to low back pain by evenly distributing weight throughout the spine.

Discussion

The *sandhi* has been classified mainly on the basis of structure and function. The classification of *sandhi* and its further subdivision has been done based on structures which are seen in between the two bony ends, the type of movement occurring in joint and the various functions done by the joints. Functionally the *sandhi* are of two types

1. *Chestavanta*or *chala sandhi*
2. *Sthira*or *Achala Sandhi*

Chestavanta sandhi means the joints which are movable.

*Sthira*or *achalasandhi* are the joints which are immovable.

The *chestavantasandhi* are further classified

into two types based on their extent of movement as *Bahuchala*(Freely movable) and *Ishatchala* (Slightly movable).

Based on the structure AacharyaSushruta had described eight types of *sandhi*. They are *Kora, Ulukhala, Samudga, Pratara, Tunnasevani, Vayasatunda, Mandala* and *Shankhavarta*.

Similar classification of joints can be also found in modern science though there is slight difference in description. But the classification given in *samhitas*holds good in modern parameters also. According to modern science the joints are classified on basis of structure present in articulation which form the joints and also by variations in structure that make different kinds of movement possible in the joint. Like fibrous (or immovable) joints, cartilagenous joints, synovial joints and their sub types.

The similarity in description of *pratara sandhi* can be found to that of gliding type of joint as per modern science. A gliding joint is a synovial joint in which the bony surfaces that the joint holds together are flat or only slightly rounded. This type of joint allows for gliding movements between flat surfaces as the surfaces slide over one another. Such types of joints are found between the carpal bones, the joints between the tarsal bones and those between the articular processes (zygapophyses) of successive vertebrae.

In the *samhitas* there is not more description of *Prushtavansha* (vertebral column), and also there is no description of the anatomy of vertebrae and vertebral column. In *bruhatatrayi* as well as *laghutrayee* the description of *prushtavansha* and *kasherukas* and their anatomy is not found.

Since is there is very less description of *prushtavansha*(vertebral column) and *kasherukas* (vertebrae) in *samhitas*, we cannot found description of the diseases affecting *prushtavansha*. But as it is mentioned that *Vatadosha*and *asthidhatu*are inter-related with each other as *aashryashryi sambhanda*, so the factors causing *vataprokopa*leads to *asthidhatukshaya*and vice-versa. The diseases of *vatadosha*related to vertebral column region or back, neck region can be taken as diseases of *prushtavansha*. So the diseases like *sandhigatavata, katishoola, grudrasi*etc. can be considered while describing diseases of *prushtavansha*.

Conclusion

The concept of *sandhis* or joints is similar in both the *ayurvedic* literature and modern anatomy. The definition of *sandhi* given in different *ayurvedic* literature is similar to the modern anatomy which defines it as the site of the union of two or more bones of the body. The only difference which can be found is that the *ayurvedic* literature does not only define the word *sandhi* as union of two or more *asthis* (bones) but it has been considered as union of two or more structure. Which can be taken as broad meaning of *sandhi*, but for the purpose of enumerating joints the meaning is taken as *asthi sandhi*.

Aacharya Sushruta has given detailed description of joints with their types and distribution in the body. Later various commentators have given detailed description of joints along with the type of movement in them and also have given emphasis on the importance of joint.

Regarding the importance of *sandhis* or joints both the *ayurvedic* and modern literature has explained in detail about their importance for *dharan* (holding) of body, for the movement and locomotion of body etc.

After studying the *pratarasandhis* of *prushtavansha* in can be concluded that the *pratarasandhis* are similar to the gliding type of joints explained in the modern anatomy. The structures, type of movement of the *pratarasandhis* are similar to that of gliding joints.

Diseases like *kati shoola, grudrasi* etc can be considered as the diseases of *prushtavnsha* because in the basic *samprapti* of these diseases *prushatavansha* and *pratarasandhis* or the intervertebral joints are involved up to certain extent.

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Case Report

Ulcerative Colitis: A Case Report

*Dr. Om Prakash Dadhich, **Dr.Pankaj Kothari, ***Dr. Hemraj Meena,

Abstract

A bowel disease that is characterized by inflammation and ulcer formation in the lining of colon (large intestine) is known as Ulcerative Colitis (UC). Very first symptoms of UC are abdominal cramping and pain, a sensation of urgent need to have a bowel movement (defecate), blood, mucous and pus in the stools. The most common affected area is the sigmoid colon and rectum but it can affect the entire colon. It's a chronic idiopathic disease, still no satisfactory treatment available. According to *Ayurveda* on the basis of major sign & symptoms of UC, can be co-relate with *Grahani Roga* and *Raktatisara*. A diagnosed case of UC discussed here. In this case study patient was administered *Nirgundi Ghrita* orally daily, and *Madhuyashti Tailam Anuvasana Basti* and *Shalmali Patra Pichcha Basti* alternately. This Ayurvedic formulation showed highly significant result.

Keyword: *Ulcerative colitis, Raktatisara, Grahani Roga, Nirgundi Ghrita, Madhuyashti Tailam Matra Basti, Shalmali Patra Pichcha Basti.*

सारांश

वृहदन्त्र व्रण शोथ आहारनालगत रोग है जिसमे उदर में वृहदन्त्र की कला में शोथ और व्रण हो जाता है। इस व्याधि में प्रथमतया उदर में ऐंठन और शूल के साथ साथ तत्काल मल त्याग (शौच) की प्रवृत्ति होती है एवं मल में रक्त, श्लेष्मा और पूय की उपस्थिति होती है। सामान्यतया इस व्याधि में अवग्रह बृहदान्त्र और मलाशय प्रभावित होते है लेकिन यह पूरे बृहदान्त्र को भी विकृत कर सकती हैं। इस व्याधि का निदान अज्ञात है एवं अभी तक कोई संतोषजनक उपचार उपलब्ध नही है। इस व्याधि को प्रमुख लक्षणों में समानता के आधार पर आयुर्वेद मतानुसार ग्रहणी रोग एवं रक्तातिसार माना जा सकता है। यहाँ पर वृहदन्त्र व्रण शोथ की आयुर्वेदीय चिकित्सकीय व्यवस्था पर चर्चा की जा रही है। इसमें रोगी को निर्गुडी घृत की 10 एमएल मात्रा प्रातः सायंकाल के समय मुख मार्ग से भोजन के पूर्व दिलाई गई साथ ही मधुयष्टी तेल बस्ती एम. एवं शाल्मलीपत्र पिच्छाबस्ती 40 एम.एल. एकान्तररूप से प्रतिदिन भोजन के बाद दी गई। यह आयुर्वेदिक चिकित्सा व्यवस्था अत्यधिक सफल सिद्ध हुई।

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Case Report

Ulcerative Colitis : A Case Report

Dr. Om Prakash Dadhich, Dr. Pankaj Kothari, Dr. Hemraj Meena

Introduction

Ulcerative colitis is an inflammatory bowel disease (IBD), characterized by the inflammation and ulcerative aberration in the wall of the large intestine. [1] The most common affected area is the sigmoid colon and rectum but it can affect the entire colon. Ulcerative colitis can happen at any age but is usually seen in the age group of 15 to 30 years, and occurs equally in men and women. The malfunctioning and abnormal response of the immune system of the body is one of the primary causes resulting in the origination of ulcerative colitis. However the exact cause of ulcerative colitis is still unknown but it is believed that Infection, food allergies, emotional factors and also some physical activities tend to aggravate the disease remarkably.

The signs and symptoms of Ulcerative colitis may vary, depending upon the location and the severity of the inflammation. Some of the common symptoms are: [2]

- Abdominal cramping and pain,
- Urgency to defecate,
- Blood, mucous and pus in the stools.
- Fever some times,
- Occasional Rectal Pain
- Unexplained fatigue,
- Weight loss and children fails to grow.

According to Ayurveda it's a disease of *Mahasrota* in which symptoms of Ulcerative colitis i.e. urgency to solid or liquid defecate, weight loss, fever, swelling on extremities etc symptoms are quietly similar to *Grahani Roga*[3] while blood mixed with stool, foul smelling, pain in abdomen, burning sensation in the rectum and excessive thirst etc symptoms are quietly similar to *Raktatisara*[4] so we can treat UC patient on the line of *Grahani* and *Raktatisara*.

Case Report

A clinically diagnosed 10 years old Hindu unmarried male patient (Registration no 40814122014) residing in Jaipur, present in Outdoor wing of Kriya Sharir Arogyashala, National Institute of Ayurveda, Jaipur on 14 Dec 2015 with chief complaint of Bleeding per rectum after defecation, mild burning sensation during defecation and sudden onset of abdominal pain since 2 month.

Patient was clinically diagnosed since November 2014 and taking treatment from different Allopathic Hospitals but not found much relief. All above mentioned symptoms were gradually increased. On the basis of sign and symptoms patient was diagnosed as *Grahani Roga* along with *Raktatisara* according to *Ayurvedic* view.

General & Systemic Examination

On examination of patient mild pallor was present and its vitals were within normal limit. Sleeping pattern was normal, appetite was markly diminished, altered bowel habit i.e. 3-4 frequency per day with soft consistency of stool with blood and mucus at the end of defecation. No abnormality detected in CVS, RS, CNS. Mild tenderness present in P/A examination. On examination of per rectum by Proctoscopy findings were sphincter tone normal, Rectal mucosa congested, inflamed with very small areas of ulcerations of mucus membranes seen. There is no any H/o mass /rectum prolapse and constipation.

Investigation Finding

Hematological report reveals that Hb% - 10.4gm%, ESR 42mm/hr, TLC DLC and other Hematological parameters were normal. Ova/cyst/ bacteria was absent in stool examination and occult blood was positive. Colonoscopy report (till terminal ileum) shows multiple small discrete ulcers with Erythematous Intervening Mucosa and Histopathologic report shows H.Pylori associated

chronic gastritis with mild activity in Antral section; Non specific Acute Duodenitis, Right Colon, Transverse colon, Rectosigmoid section shows long standing infection or Early ulcerative colitis.

Treatment Plan

According to course of the disease and involvement of Pitta Dosha, Mahasrota Dushti and Sharira-Manas Bala of patient, we planned Nirgundi Ghritpana (10 ml)[5] twice a day with Luke warm milk before meal, and ***Madhuyashti Tailam Matra Basti* (40 ml)[6] and *Shalmali Patra Pichcha Basti* (40 ml)[7]** on alternate day after meal for 30 days. Internal medicine was given after 30 days continuously for 2 month as follow:-

1.	*Sutshekhara rasa*	125 mg
	Mukta pishti	125 mg
	Prawalpanchamrita	125 mg
	1 x 2 *Matra* with 1 tsf *Kushmanda Avaleha* After meal	
2.	*Patoladi Kashaya*	10 ml BD After meal

Results: Patient is completely symptoms free and containing oral medicines till date.

Discussion:

1. Ulcerative Colitis is primarily a disease of *Agni* with varying degrees of *Dosha* involvement. The excessive consumption of *Pitta* aggravating foods and lifestyle initially disturbed digestion of food, and leading to formation of *Ama* that gets deposited between the villi in the intestines, forming a smooth coating that impairs the normal function and immunity of the intestines. *Vata Dosha* in the lower colon is also aggravated and in the early stages blocks the *Pitta* and *Kapha* channels, causing inflammation, mucous accumulation and edema, that's why ulceration and bleeding per rectum are found.[8]

2. *Nirgundi* has *Vedanasthapana*, *Sothahara*, *Vranaropana*, *Vranashodhana* and *Kapha-vatahara* properties[9] and *Ghrita* has *Snehana*, *Sheeta*, *Nirvapana*, *Mridu*, *Ropana* and *Pitta-vatahara* properties [10]. Due to above properties of *Nirgundi Ghrita*, it helps to remove disinfectant, heal mucosal ulceration and reduces the irritation of gastric mucosa thus It relieves the symptoms of abdominal cramping and pain.

3. Main ingredient of *Madhuyashti Tailam* is *Madhuyathi;* [11] having *Madhura Rasa*, *Sheet Virya*, *Vranaropana*, and *Shonitsthapana* properties. It reduces bleeding per rectum due to *Sheet* and *Shonitasthapana* properties. It's having good ulcer healing properties.

4. In *Pichchabasti* drugs used are *Shalmali*[12] which is *Snigdha* and *Pichchila* so, it protects ulcer from irritations and giving ulcer sufficient time to heal by forming protecting layer over the colonic surface. *Stambhaka*, *Grahi*, *Shothahara* property so helpful to stop diarrhea and rectal bleeding. There is no side effects seen during whole course of treatment.

Conclusion: From above discussion it can be concluded that, Ayurvedic treatment is very successful in the management of Ulcerative Colitis. It is easily adoptable in routine practice. This is safe, cost effective and having no side effects.

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Literary Review

An Etiopathological Study of *Vyana Bala Vaishamya* w.s.r. to Hypertension

*Dr. Preeti, ***B. K. Sevatkar, ****Dr. S.K. Sharma, *****Dr. Talekar Manisha

Abstract:

High BP or hypertension is reported as the third ranked factor for disability adjusted life years. HTN is one of the primary risk factors for heart diseases and stroke, the leading cause of death worldwide. In *Ayurveda*, there is no any definite word corresponding to hypertension. However, all the manifestations of hypertension have been described in various chapters. Many scholars have tried to suggest some appropriate names to hypertension on the basis of their research and pathogenesis of the disease like *Dhamani Pratichaya, Uccharaktachapa, Siragata Vata, Raktagata Vata, Avritta Vata Roga, Rakta Sampeedana* etc. On objecting the symptomatology and etiopathogenesis of the disease to *Ayurvedic* fundamentals, it is evident that *Vata Dosha*, especially *Vyana Vata* for its hyperactivity, helped by other two *Doshas*, is responsible for the disease hypertension and hence is named as *Vyana Bala Vaishamya* with *Rasa Rakta* as *Dushya*. Present study is a humble attempt to study the disease from *Ayurvedic* point of view and to give the disease an *Ayurvedic* entity as named as *Vyana Bala Vaishamya*.

Keywords: hypertension; *rasa; rakta; vyana Bala vaishamya*

सारांश

उच्च रक्तचाप जीवन में अपङ्गता उत्पन्न करने वाला तीसरा बड़ा कारण माना गाया है। यह हृदयरोग युक्त व्यक्तियों का एक प्रमुख कारण है, जिससे विश्वभर में सबसे ज्यादा मृत्यु होती है। आयुर्वेद में उच्च रक्तचाप के लिए कोई निर्धारित नाम नहीं दिया गया, परन्तु फिर भी विभिन्न अध्यायों में इसका अप्रत्यक्ष वर्णन मिलता है। विभिन्न अध्येताओं ने अपने शोध व व्याधि की सम्प्राप्ति के आधार पर इसके धमनी परिपूर्णता, उच्च रक्तचाप, सिरागतदात, रक्तगत वात, आवृत वात रोग, रक्त सम्पीडन जैसे अनेक नाम दिये है। प्रस्तुत अध्ययन में व्याधि की आयुर्वेदिक सम्प्राप्ति को देखते हुये यह निर्धारित होता है कि उच्च रक्तचाप रस व रक्त दूष्य के साथ वात दोष, मुख्यतः व्यान वायु के कारण होने वाली व्याधि है जिसमें अन्य दोष भी सहयोगी होते है। अतः प्रस्तुत अध्ययन में उच्च रक्तचाप व्याधि को व्यान बल वैषम्य नाम देकर अध्येत्री ने उच्च रक्तचाप को एक आयुर्वेदिक नाम व पहचान देने का एक विनम्र प्रयत्न किया है।

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Literary Review

An Etiopathological Study of *Vyana Bala Vaishamya* w.s.r. to Hypertension

Dr. Preeti, Dr. B. K. Sevatkar, Dr. S.K. Sharma, Dr. Talekar Manisha

Introduction:

High BP or Hypertension, as it is called in contemporary science is the most disturbing ailment in the modern civilized world. In advanced countries, it is very common and in developing countries, it is gradually rising in incidence. People over 40 years are the usual victims and those who lead a mechanical life without physical and mental rest are more prone to fall to prey them. A new analysis shows that in 2000, more than a quarter of world's population was hypertensive – a number totally nearly one billion – and suggests that by 2025, that number will climb to 29% or about 1.56 billion people worldwide. The present day food habits and regimens in addition to mental worry and anxiety are primarily responsible for the ailment. Staying awake late at night, increase intake of tea, coffee, tobacco and alcohol, more intake of salt and suppression of natural urges are the contributing factors of the disease. In *Ayurveda*, there is no any synonym of hypertension but on studying our *Ayurvedic* literature, it seems that our *Acharyas* were aware of the varying features of hypertension. Indirect references of hypertension can be seen in different chapters of *Ayurvedic* classics as *Raktagata Vata, Siragata Vata, Pittavritta Vata, Raktagata Vata, Pranavritta Udana, Dhamani Paripurnata* and *Vyana Bala Vaishamya* etc.

Vyana is a type of *Vata* which moves all over the body. *Bala* here is indicative of the normal *Gunas (*properties) and *Karma* (functions) of *Vyana Vayu. Vaishamya* refers to *Vikriti* or disequilibrium of *Dosha* in which they are able to produce the disease. As mentioned in *Charaka Samhita*, *Vaishamya* means *Vridhi or Hrasa,*[1] i.e. either increase or decrease. Therefore, *Vyana Bala Vaishamya* may either be considered as increased or decreased function of *Vyana Vayu*. But, it is also mentioned that the decreased *Dosha* is not able to manifest its own symptoms.[2] So, the decreased *Dosha* may not be able to produce any disease. Hence, hyper function of *Vyana Vata* is considered under *Vyana Bala Vaishamya* which produces increased force in the wall of the channels (blood vessels) to produce the disease 'Hypertension'. Keeping all these in mind, present study is designed to study the etiopathological factors leading to *Vyana Bala Vaishamya* w.s.r. to Hypertension.

Aim and objective:

To study the etiopathological factors leading to *Vyana Bala Vaishamya* w.s.r. to Hypertension.

Materials and Methods:-

This article is based on a review of *Ayurvedic* texts. Materials related to *Vyana Bala* concept, and other relevant topics have been collected. The main *Ayurvedic* texts used in this study are *Charaka Samhita*, *Sushruta Samhita*, *Astanga Hridaya* and available commentaries on these. We have also referred to the modern texts and searched various websites & reports to collect information on the relevant topics.

***Vyana Bala Vaishamya* vis-à-vis Hypertension**

Acharyas have mentioned *Karma* by *Vyana Vayu* named as '*Gati*'. *'Gati'* word may be used to denote an initiation of a movement, to carry something along with to reach a particular site, through any particular pathway leads to occupy at a particular site. According to *Hemadri*, *'Gati'* also means whole body activities,[3] like walking *(Chakramana)* by commentator *Arundatta*.[4] Hence, all the activities which are said to perform by *Vyana Vayu*; they all are actually included in a single *Karma* named as *'Gati'*. The terminologies like – *Mahajava,*[5] *Sheeghragati*[6] and *Sheeghrataragati*[7] are used to denote the higher intensity of *Gati* of *Vyana Vayu* as compare to the other *Vayus*. Location of *Vyana*

Vayu is said to be in and *Sarvadeha*[8] and *Hridaya*.[9] It is indicative of its *Adhisthana* i.e seat and its pathway i.e *Pravartana*, respectively.

For the maintenance of physiological functions, *Vata* should be *Avighata* means continuous without any obstruction. It indicates that any obstruction to its movement will lead to a pathological condition. As, *Acharya Charaka*[10] said that the nutrient fluid is circulated continuously in the whole body by the *Vyana Vayu* by virtue of its physiological factor of spreading. While, being circulated if the nutrient fluid accumulates at any one place in the entire body, owing to the morbidity of the circulatory passage, it causes pathological changes there just as the rain in the sky. The same is the case with the humours which becomes the cause of the local morbid conditions. Since, *Rakta* is *Achetana*, so it circulates all over the body by *Vyana Vayu.* In the same way, circulation also has to run continuously in all the directions all over the body without any obstruction for proper maintenance of physiology of the body. Hence, the *Karma 'Gati'* of *Vyana Vayu* directly indicates the blood circulation all over the body. Since, hypertension is also a circulatory disease, so vitiation of *Vyana Vayu* may lead to the hypertension.

Acharya Sushruta has mentioned *Karma* of *Vyana Vayu* as *'Rasa Samvahanodhyat'*.[11] *Vyana Vayu* courses (acts) through the whole organism and its functions consist in sending the lymph, chyle *(Rasa)* etc. all through the body and in helping the out flow of blood and perspiration. Five kinds of muscular movements (expansion, contraction, upward, downward, sideward movements) are described to the action of *Vyana Vayu,* a deranged condition of which is generally attended with disease which are not confined to any particular region, member or organ of body but are found to affect the whole organism. Here, *'Rasa Samvahanodhyat'*[12] means 'blood circulation' which is done by *Vyana Vayu,* deranged condition of which causes disease of whole body. The same is with the condition hypertension as the pathology here takes place in the arteries, which runs all over the body and through which blood circulates in the body. *Acharya Vagbhata* has also said in that *Vyana i*s located in the heart, moves all over the body in great speed, attend to functions such as walking, bringing the body parts downwards, lifting the body parts upwards, opening and closing of eyes etc, generally allow the activities concerned with the body.[13] Hence, from all the above discussion, *Vyana Bala Vaishamya* has been correlated with hypertension.

Acharya Chakrapani also commented that, *Vyana Vata* by its function of *'Avikrant Vikshipyate`* (continuous transportation), circulates *Rasa Dhatu* all over the body.

Hence, we have seen that, *Vyana Vata* is responsible for the circulation of *Rasa Rakta Dhatu*, any derangement in the *Vyana Vata* causes alteration in the circulation of *Rasa Rakta Dhatu*. Alteration in the circulation of *Rasa Rakta Dhatu* may occur due to the following reasons:

(1) Obstruction of the channels by other *Dosha* whenever *Vata* is in the normal or decreased state. (Produces the condition of *Avritta Vata*)

(2) Aggravation of *Vyana Vata* by indulging *Vata* aggravating diet and habits.

(3) *Upachaya* (accumulation of unwanted materials like cholesterol) inside the blood vessels reduces the internal passage of channels and causes *Sankocha* of passage.

All these causes act as barriers for the movement of *Vyana Vayu,* altering the circulation of *Rasa Rakta* which is done by *Vyana Vayu* which ultimately may manifest with the symptoms of hypertension.

Rasa-Rakta Samvahana

Rasa Dhatu is the first *Dhatu* to be produced in the body from *Ahara Rasa* by *Rasadhatvagni.* It passes from intestines into blood vessels and then to the heart by the action of *Samana Vayu*. From the *Hridaya*, *Rasa* and *Rakta* are sent to the lungs for purification. Here, detoxification is done and again pure blood is sent to the heart. Then *Rasa* with *Preenana* activity and *Rakta* with *Prana* are circulates throughout the body by the stimulation of *Vyana Vayu. Rasa Dhatu* carries essential nutrients to all the cells, tissues and organs in the body for their nourishment, growth and development. Though, *Rasa Dhatu* is circulated throughout the body, its main seat is believed to be *Hridaya*.[14] It is

very micro in nature circulating in three directions all over the body i.e. Upward (*Urdhvaga*), Downward (*Adhoga*), transverse (*Tiryaga)*. To describe the direction of *Rasa Dhatu*, *Sushruta* has given examples of *Shabda, Archi* and *Jala*. Thus, circulation occurs in three directional ways as *Shabdasantana Vata-Tiryagagamitva, Archisantana Vata - Urdhvagamitvam, Jalasantana Vata - Adhogamitvam.*

This three directional circulation of *Rasa* given by *Dalhana,* seems to be very logical. From capillaries *Rasa* penetrates all the tissues and cells of the body in molecular form. The fluid from tissues is brought back to the heart by capillaries and veins. *Ayurvedic* literature pays stress on the circulation of *Rasa* whose prime function is to supply nutrients to tissues. *Rakta* floats in *Rasa* in the blood vessels and transports oxygen to tissues. Thus heart pumps *Rakta* along with *Rasa* all over the body.

Thus, *Vikshepana Karma* (contraction & relaxation) of the *Hridaya* also affects the circulation of *Rasa Dhatu*. So, when the pathology arises in the *Rasa Dhatu* or *Hridaya*, it directly affects *Rasa-Vikshepana Kriya* (circulation of *Rasa – Rakta*) at the level of entire body, resulting in change of blood pressure. Moreover, in *Ayurvedic* texts, overmuch worrying has been mentioned as direct cause of *Rasavaha Srotodushti*.[15] As *Hridaya* is the root of *Rasavaha Strotasa* that affects *Hridaya* also and hamper its *Rasa Samvahana* function. As a result, fluctuation in the blood pressure takes place.

Discussion:

In essential hypertension, mainly *Vata Prakopa* occurs, particularly *Vyana Vata* as it is responsible for *Rasa- Rakta Samvahana*. By virtue of its *Ruksha, Sheeta* and *Khara Guna, Rasa-Rakta Vahini Dhamanis* are constricted; also its *Ruksha Guna* dries the *Malarupa Kapha* at the inner side of the vessels making them more rigid (*Kathina*). Vascular lumen may be reduced further leading to obstruction in it. So, for normal circulatory function, increased force of *Vyana Vayu* is required resulting into *Vyana Bala Vaishamya* and hence leading to the development of hypertension.

Acharya Sushruta has described the *Panchabhautikatva* of *Rakta Dhatu* in which he enunciated the *Spandana Guna* of *Rakta* which is the *Karma* of *Vayu Mahabhuta*, specifically *Vyana Vayu*. This *Karma* denotes the function of *Chala Guna* and *Dalhana* has also commented that *Spandana* means *Kinchit Chalanam*.[16] If any how this *Chala Guna* of *Rakta* increases (Increased cardiac output) it becomes one of the patho physiological factors of EHT and can manifest high blood pressure along with other pathophysiological factors. Here, *Spandana* can be taken as pulsatile movement of blood through arteries. In *Rakta Dushti*, *Rakta* may get vitiated by any *Guna* of particular *Dosha*. According to *Sushruta,* if *Rakta* gets vitiated by *Vata*, it manifests the *Lakshana 'Shighra Gama'*. In the same context, *Dalhana* has given the commentary that *'Shighragama'* means *'Ashuprasruti'*. All this indicates the increased cardiac output. *Sushruta* implies that the *Karma* of *Vyana Vayu* is *Praspandana*.[17] Thus, it can be concluded that sympathetic nervous system remains under the control of *Vyana Vayu* and alteration in the physiological conditions of *Vyana Vayu* can lead EHT. In modern language, Cardiac output is directly proportional to Force (*Vyana Vayu*). Peripheral resistance is directly proportional to Velocity of blood (*Prakruta Vyana Vata*).

Sata Kriya Kala in context to _Vyana Bala Vaishamya_ w.s.r. to Hypertension

Susruta had divided the pathogenesis (*Samprapti*) of a disease into 6 different stages. These are useful to understand the disease process and for their treatment as well. They are discussed below with relation to hypertension.

(1) *Sanchaya* - After taking specific etiological factors, *Vata*, *Pitta* and *Kapha* get vitiated in their respective places. *Vata* is repeatedly elevated by *Chinta, Shoka, Ratrijagaranòa, Ativyayama* etc, *Kapha* is increased during *Visarga Kala* and excessive indulgence of *Atiguru-Sheeta Snigdha Ahara, Avyayama, Divasvapa* etc., while *Pitta* is raised during *Adana Kala* and after *Atilavanòa Rasa Sevana* etc. It is a sub clinical state, and usually all cases remains undiagnosed and untreated.

(2) *Prakopa* - When the *Vata*, *Pitta* and *Kapha* are increased in their respective places, they get easily vitiated by their favorable agents and gave

the transient symptoms of *Dosha Vriddhi*. *Vata* and *Kapha Prakopa* occur in winters after exposure to colds and in the early morning periods, while *Vata* and *Pitta Prakopa* appears in summers. In this stage usually no features can be recorded except a sphygmomanometric large fluctuation of BP within the normal range.

(3) *Prasara* - When the *Vata*, *Pitta* and *Kapha* are excessively elevated, they disperse here and there through *Srotasa* from their place of accumulation. In this stage, *Prakupita Vata* leads the increased *Kapha*, *Pitta* and *Rasa Dhatu* through *Rasavaha Srotasa* to the distant organs, where the actual and ultimate change of the disease starts. It is also a preclinical stage of hypertension.

(4) *Sthana Samsraya* - During this stage vitiated *Vata*, *Pitta* and *Kapha* travels through *Rasavaha Srotasa* and wherever '*Khavaigunya*' is obtained they unite with *Sira*, along with *Rasa Dhatu* (*Dosha-Dushya Sammurcchana*), and results into *Dhamani Pratichaya*[18] and *Sira Samkocha*. Here some ill defined clinical features of *Siragata Vata* are observed like thick walled and bounding pulse with constriction and pain in arteries.[19] The obstruction of *Rasa Dhatu* due to *Dhamani Praticaya* and *Sira Samkocha* in *Srotasa* leads to increased *Vyana Vayu Bala*.

This is the stage of remodeling and hypertrophy of the endothelial cells of the resistance vessels (atherosclerosis), leads to hardening of vessels resulting in to increased peripheral resistance and hence raises the blood pressure. Important features of this stage are the features relating to labile hypertension.

(5) *Vyaktavastha* - Further aggravation of *Dhamani Pratichaya* and *Sira Samkocha* leads to deficient supply of *Rasa* to other *Dhatu*s, and consequently develops *Kleda Vriddhi* in vascular system and impaired *Dhatu Poshana* (tissue nutrition). Both of these worked synergistically to increase the *Vyana Vayu Bala* directly in addition to vitiating *Kapha* and *Vata* respectively. Raised *Vyana Vayu Bala* gives symptoms of *Vatika* predominance. Formation of persistent peripheral resistance leading to established essential hypertension with all its features like headache, dizziness, insomnia etc.

(6) *Bhedavastha* - If the raised *Vyana Vayu Bala* is not descend by treatment till this state, it will leads to *Upadrava* (complications), of which, features will differ in accordance with the target organ involved. The hypertension is thought to be more dreadful because it directly harms the *Trimarmas* i.e. the *Sira, Hrdaya* and *Basti*.

Brain: Cerebro vascular accidents, Hypertensive encephalopathy etc.

Heart: Left ventricular hypertrophy, Ischemic heart disease etc.

Kidney: Renal failure etc.

Conclusion:

From the above discussion, it is concluded that, *Vayu* is responsible for all types of movements. *Vata* is the only *Dosha* who has the *Gati*, *Vega* i.e., impressed force which causes the movements. As circulation is a continuous process going throughout the life with the specific force and according to the areas to be nourished as motion (kinetic force) is always marked by the certain direction. The main *Dosha* involved in normal circulation and consequently in hypertension is the *Vyana Vata* and as *Rasa Rakta Samvahana* is carried out by the *Vyana Vayu*, any derangement in the *Vyana Vata* causes alteration in the circulation of *Rasa Rakta Dhatu*. Hence, we can say that the disease hypertension in modern is the diseased condition mainly caused by *Vyana Bala Vaishamya*.

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Literary Review

Validation of *Retah pareeksha* vis-à-vis Semen analysis : Merging modern tools with *Ayurveda* principles

*Dr. Sukumar Nandigoudar, **Dr. Anju

Abstract:

***Background*:** *Shukra* is considered as supreme *dhatu* and its *dushti* leads to male infertility and sexual dysfunction. *Retahpareeksha* is a tool to understand various *Shukra dushti*. Semen analysis is one of the important diagnostic tools in the management of male infertility.

Objectives: To understand and validate *retah pareeksha* as a standard ayurvedic diagnostic tools in male infertility.

***Material and methods*:** *Charaka* and *sushruta samhita* are the literary resource to assess *Shuddha shukra* (healthy) and *shukra dushti* (morbid semen). The qualities of *shuddha and dushta sukra* will be understood and assessed with the help of modern seminal parameters. To assess the parameters of Retopareeksha modern instruments like Phase contrast microscope, Rohem's sperm counting chamber, pH measuring strips, Calibrated pipette etc are used and Eosin stains to examine viability of sperms.

***Result*:** Abnormal physical characteristics of the semen can be understood by the doshic involvement. *Phenila, Tanu, Ruksa* represents *vataja shukradushti*; *Vivarna (neela/peeta/ashveta)* indicate *pittaja shukradushti*; *Atyarta picchila* denotes *Kapha dosha*; *Putipuya* indicate *pittakapha* involvement and *anyadhatu samsrishti* is due to *shonitadi dhatu.*

***Conclusion*:** *Retopareeksha* focus on *panchendriya pareeksha* to assess physical characters and morbid *dosha* of semen. *Phalavattata*, a main character may be attributed to viability, motility, count and normal morphology of sperms. The sperm endowed with normalcy of all these is able to fertilize the ovum i.e., Garbhakara. Retah pareeksha with the aid of modern tools gives exact idea about the pathology involved and thus helps in effective management.

***Key words*:** *shukra dushti, Retopareeksha, semen analysis.*

सारांश–

वर्तमान परिस्थिति में बढते नि:सन्तानता एवं यौन दुष्क्रिया को देखते हुए रेत: परीक्षा का महत्व और अधिक बढ़ गया है। चरक एवं सुश्रुत संहिता में वर्णित शुद्ध एवं अष्टविध शुक्र दुष्टि का अध्ययन एवं आंकलन यदि नए तक नीकि उपकरणों यथा माइक्रोस्कोप अनालसिस इत्यादि को सम्मिलित कर के किया जाए तो निश्चित हि शुक्र दुष्टि को समझने व उसके अनुसार चिकित्सा को और भी अधिक प्रभावकारी बनाया जा सकता है। पञ्चेन्द्रिय परीक्षा के अलावा जो भाव अनुमानगम्य थे उनका नवीन तकनीक से प्रत्यक्ष अवलोकन निश्चित हि निदान एवं चिकित्सा में अत्यन्त अपेक्षित है।

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Literary Review

Validation of *Retah pareeksha* vis-à-vis Semen analysis : Merging modern tools with *Ayurveda* principles

Dr. Sukumar Nandigoudar, Dr. Anju

Introduction:

Ayurveda ancient science of life has realized ages ago, the need of specialty of reproductive medicine and entire discipline, known as *Vajikarana which* is dedicated to enhance the functionality of the reproductive organs and vitalize reproductive tissues. *Vajikarana* mainly deals with management of infertility, sexual dysfunctions and measures to obtain healthy progeny. The main aim of this branch is *Apathya santanakara*[1], to provide fertility for infertile. *Shukra* is considered as supreme *dhatu* and its *dushti* leads to male infertility and sexual dysfunction. Semen analysis is one of the important diagnostic tools in the management of male infertility. *Retah pareeksha* is source to understand various *Shukra dushti* by assessing *dosha* involved and physical characteristics of *retas* (semen). Here is an effort made to prove *Retah pareeksha* a standard ayurvedic diagnostic tools of male infertility.

Aim:

To validate *Retah pareeksha* as a standard ayurvedic diagnostic tools of male infertility w.s.r to semen analysis.

Objectives:

- To understand *Shukradushti* in detail
- To prove *retah pareeksha* a standard ayurvedic diagnostic tools of male infertility

Material and methods:

Charaka and *sushruta samhita* are mainly considered as literary resource for the present study to assess *Shuddha shukra*[2] (normal characteristic features of semen) and *Shukra dushti*[3] (pathologic states of semen). To assess the parameters of semen analysis, modern instruments like Phase contrast microscope, Rohem's sperm counting chamber, pH measuring strips, Calibrated pipette etc are used and Eosin stains to check viability of sperms.

Methodology:

The qualities of *shudha sukra* are understood in comparison with seminal parameters. The involvement of *dosha* in *sukra dushti* will be assessed and its eight pathologic states are understood with the help of modern seminal parameters. These parameters will be compared/merged under various *sukradushti lakshanas* to validate *retah pareeksha*.

Sphatikabha is the quality of shuddha *retas* and is true that normal colour of semen is greyish white. Any deviation from this varna suggests dushti of shukra dhatu. Normally semen sample should liquefy within 30 min but semen sample in the form of coagulum that doesn't liquefy and settles at the bottom of water suggests *dushti*. The semen becomes frothy by mere shaking the sample in sterile container. If the bubbles remain without bursting for longer duration (>5min) *phenilata* is considered to be positive. The semen sample that appears thin and watery indicates tanuta. A standard smear has to be prepared on a glass slide using a standard semen drop (20 micro lit) and kept for drying. The sample which is devoid of *snigdhata* dries soon on the slide indicating *rukshata*. It is observed that increased alkalinity of semen leads to *rukshata*. Hence pH>8.5 can be considered as *ruksha retodushti*. For microscopic analysis smear is prepared and viewed under phase contrast microscope to examine count, viability, morphology, motility of sperm. Presence of gelatin bodies and non spermatozoal cells like RBC's, epithelial cells, PUS cells, amorphous matter etc are assessed.

Assessment criteria:

Semen is assessed for *shukra dushti lakshanas* using modern tools.[4] The Seminal parameters like appearance, liquefaction, color, odor, Volume, viscosity, pH, microscopic examination for count, motility, morphology, viability and presence of round cells (particulate debris) pus cells, RBC,

WBC, epithelial cells, macrophages etc. and amorphous matter, agglutination are to be assessed.[5]

Concept of *shukra:*

At this juncture various terminologies used for *shukra* in different contexts have to be understood, however they are directing for specific indication; like *shukradhatu* denotes the reproductive tissue, *retas* denotes semen; *veerya* denotes circulating androgens; while *bija* indicates spermatozoa. According to commentator *Cakrapani* the term *Rupa dravya/bija/prasadamsha* of *shukra* can be taken to mean the subtle sperm with its genetic components as it is responsible for the conception.[6]

Optimum qualities of *shukra*: The physical characteristics of *phalavati* (*garbhotpadana samartha*) *shukra* are *Bahala* (Thick), *Madhura* (sweet), *Snigdha* (unctuous), *Avisara*, (devoid of bad smell), *Guru* (heavy), *Picchila* (slimy), *Shukla* (Milky white) and *Bahu* (abundant). The qualities of optimum / pure *retas* are *Sphatikabha* (crystalline) */taila-kshoudranibha* (transluscent), *Drava*(liquid), *Madhugandhi*(smells like honey),*Ghana*(dense), *Avidahi* (non burning).[7]

Comparision of Physical characters of Retas with seminal parameters:

Sphatikabha and *taila-kshoudranibha* indicates the appearance of semen which is opalescent/translucent. Quantity of semen is indicated by *Bahu* means more in volume. *Madhugandha/Avisra* indicates odour of semen. *Madhura* taste of *Shukra* indicates presence of fructose in seminal plasma. The term *Avidahi* i.e., not causing burning sensation during ejaculation indicates alkaline nature of the semen. *Drava* (liquid) quality *shukra* indicates liquefaction of semen. The characters like *Snigdha* (unctuous) *Ghana* (dense) and *Bahala* (thick) denotes consistency of semen and the term *Picchilata* indicates viscosity. (Table 1)

Table No. 1

Characteristics of *Retas*	**Seminal parameters**
Sphatika Sannibha (Crystalline/Translucent)	
Taila Sannibha (Translucent like oil)	Apperance
Ksaudra Sannibha (Translucent like honey)	
Drava (liquid)	Liquifaction
Shukla (Greyish white)	Colour
Bahu (Abundant)	Volume
Madhugandhi	Odour
Avisra (Acrid)	
Madhura (sweet)	Presence of Fructose
Avidahi (Alkaline)	pH
Snigdha (unctuous)	
Ghana (Dense)	Consistency
Bahala (Thick)	
Guru (heavy)	Density
Picchila (viscous)	Viscosity

Shukra dushti: The defects in *Retas* (semen) are broadly of two type's viz. *Shukrakshaya* and *Shukradusti*. Here *Shukrakshaya* refers to the abnormal or deficient functioning of the testes in terms of synthesis of testosterone and spermatogenesis. The conditions *Alpa Retas*(primary hypogonadism/testicular failure), *Ksheena Retas* (secondary testicular failure) and *Visuska Retas* (severe oligozoospermia) come under the purview of *Shukrakshaya*.[8]

Shukra Dushti (vitiation of semen by the morbid *dosha*) leads to *Rogi* (sick), *Kliba* (impotent), *Alpayu* (short lived), *Virupa* (disfigured) progeny. Result will be no conception, or may lead to abortion or miscarriage.

Acharya Caraka has classified *Shukra Dusti* on the basis of abnormal physical characteristics of the semen while *Susruta* has clearly described it on the basis of Doshic vitiation. The 8 types of *Retodusti* described by *Susruta* are *Vatadusta, Pittadushta, Kaphadushta, Kunapa, Granthi, Putipuya, Ksheena* and *Mutra Purisha Gandhi*.[9] (Table 2)

Table No. 2: *Retah dushti*

Type of *Retodushti*	***Dosha* involved**	**Physical characteristics of semen**	**Ejaculatory findings**
1. *Vataja*	*Vata*	Frothy, thin, unctuous and scanty and discharges with difficulty	Discharges with difficulty
2. *Pittaja*	*Pitta*	Bluish yellowish tinge, very hot, putrid in smell	Causes burning in the phallus
3. *Kaphaja*	*Kapha*	semen becomes excessively viscid.	-
4. *Kunapagandhi*	*Rakta*	Red in colour with corpse like smell	Painful
5. *Granthibuta*	*Kapha-vata*	Semen becomes clotted and sinks in water	-
6. *Putipuya*	*Pitta-kapaha*	Semen becomes foul smelling and discoloured	Burning
7. *Ksheena*	*Vata-pitta*	Semen- less in quantity with reduced viscosity	Painful
8. *Mutra-purishagandhi*	*Tridosha*	Mixed with urine and faeces and also foul smelling	-

The 8 types of *Retodusti* described by Caraka includes *Phenila, Tanu, Ruksa (sushka), Vivarna (ashveta), Puti, Picchila, Avasadi and Anya Dhatu Samshrista* (Table 3)

Table No. 3: Types of *Retodusti* described by Caraka

Phenila	Frothy
Tanu	Thin
Ruksa	Dryness
Vivarna	Discolored
Picchila	Highly viscous
Puti	Putrid smell
Anyadhatu samsrishti	Blood/Epithelial etc
Avasadi	Sedimenting

***Retopareeksha* for understanding *shukradusti*:**

Abnormal physical characteristics of the semen can be understood by the doshic involvement. *Phenila, Tanu, Ruksa* represents *vataja Shukradushti*; *Vivarna (neela/peeta/ashveta)* indicate *pittaja shukradushti*; *Atyartha picchila* denotes *Kapha dosha*; *Putipuya* indicate *pittakapha* involvement and *anyadhatu samsrishti* is due to *shonitadi dhatu* where as *avasadi* manifest due to vitiation by *kapha-vata dosha*.[10] (Table 4)

Table No.4 : Involvement of *Dosha* in *Retodushti*

Retodushti	**Dosha/Dhatu involvement**
Phenila	
Tanu	*Vata*
Ruksa	
Vivarna	*Pitta*
Picchila	*Kapha*
Puti/Puya	*Pitta-Kapha*
Anyadhatu samsrishti	*Shonitadi dhatu*
Avasadi	*Kapha-vata*
Granthibhuta	
Ksina	*Vata-Pitta*
Mutra Purisa Gandhi	*Tridosha*

Discussion

Shukra dushti assessed with the modern aids leads to better understanding of severity of the condition.

***Phenila*:** Here the semen becomes frothy by mere shaking the sample in sterile container. If the bubbles remain without bursting for longer duration (>5min) *phenilata* is considered to be positive. It is vataja type of *retodushti* and froth is formed due to lowered surface tension. It is one of the causes for increased morphological defects in sperm.

***Tanu*:** It is also *vataja* type of *retodushti;* here the semen sample seems to be thin and watery. Thinness or low density depends on the concentration of sperms in semen. So *tanuta* of semen indirectly indicates sperm count and also add up for early liquefaction. Oligospermia condition can be inferred by this parameter.

***Ruksha*:** *Rukshata* means dryness/deficit of *snigdhata* in semen and practically it becomes difficult to demonstrate. A standard smear has to be prepared on a glass slide using a standard semen drop (20 micro lit) and kept for drying. The sample which is devoid of *snigdhata* dries soon on the slide indicating *rukshata*. Such sample may exert high osmotic pressure on sperms leading to morphological deformities. However it is observed that increased alkalinity of semen leads to *rukshata*. Hence pH>8.5 can be considered as *ruksha retodushti*.

***Vivarna*:** *Sphatikabha* is the quality of optimum *retas* and is true that normal colour of semen is greyish white. The pathological colours are said to be *pita* (yellowish), *nila*, *aruna* etc based on morbid *dosha*. Discolouration due to *pitta dosha* often indicates underlying infection.

Picchila: *Picchilata* is normal quality of shukra and *atyartha picchila* is considered as dushti. *Picchilata* means thread forming and it indicates viscosity of semen. Spinbarkeit test used for cervical mucus can be used for assessment. Measuring the length of thread formed while glass rod lifted from semen sample. Based on the length of thread formed viscosity can be graded. The abnormal viscosity counts for delayed liquefaction and reduced motility of sperms.

***Putipuya*:** In this variety of shukra dushti the morbid dosha involved are pitta and kapha; in which semen sample attains putrid smell and may look like pus. Here one can guess the underlying *pakavasta* (infection) and check for presence of pus cells in the semen. This parameter suggests pyobacterospermia. The test is positive if >5 pus cells /HPF.

***Anyadhatu samshrita*:** In this variety the semen sample may be associated with *shonitadi dhatus*. The presence of gelatin bodies and non spermatozoal cells like RBC's, epithelial cells,

amorphous matter, particulate debris come under this category.

***Avasadi/granthibuta*:** It is kaphaja type of shukra dushti in association with vata; semen will be in the form of coagulum and the sample doesn't liquefy and settles at the bottom of water. Hence it indicates rate of sedimentation.

Conclusion:

Most of the physical characteristic features of optimum *retas* exactly match with qualities of semen. The understanding of *shukradushti* including assessment of morbid *dosha* involvement helps to identify most of the seminal abnormalities. The eight varieties of shukradushti can be merged under one or the other seminal parameters. Ayurveda has laid much focus on physical characters and morbid dosha of semen. The factors assessed by microscopic examination like motility, count and morphology of sperms were only understood by inference. *Phalavattata*, a main character may be attributed to viability, motility, count and normal morphology of sperms. The sperm endowed with normalcy of all these is able to fertilize the ovum i.e., Garbhakara. Retopareeksha with the aid of modern tools gives exact idea about the pathology involved and thus helps in effective management. Hence it can be said that *Retopareeksha* a standard ayurvedic diagnostic tools of male infertility like semen analysis.

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Literary Review

Critical Analysis Of *Praman Sarira* With Special Reference To Cranio Facial Measurements

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Abstract:

Pramana Sharira is the branch of Ayurveda Sharira which deals with the measurements of various body parts. Ayurveda considers head as the abode of Prana (Vitality). It is placed as the superior most organ in our body for the very reason that it is the seat of all sensory organs and Prana. Hence the assessment of Pramana of Shiras holds a great importance as it helps to understand any kind of structural variations/ abnormality. The related opinions of different Acharya may seem perplexing on a first glance but a deeper analysis with the commentaries can bring about the congruence in their views. This review discusses the various analytical aspects of references of craniofacial measurements given in Samhita.

Key Words: Craniofacial Measurements, Pramana Sharira, Shiras, Anthropometry

सारांश: –

प्रमाण शारीर आयुर्वेद के शारीर का वह अंग है, जो शरीर के विभिन्न अंग–प्रत्यंगों के प्रमाण (Measurements) से संबन्धित है। आयुर्वेद के अनुसार शिर प्राण का स्थान होने के कारण शरीर के अङ्गों में सर्वेश्रेष्ठ है। यह सारे ज्ञानेन्द्रियों का अधिष्ठान होने के कारण से शरीर के शीर्षतम स्थान पर स्थित है । इस कारण से शिर का प्रमाण के ज्ञान का चिकित्सा की दृष्टि से महत्वपूर्ण है। शिर के प्रमाण के संबन्ध में विभिन्न संहिताओं में दिए हुए संदर्भों का ऊपर–ऊपर से विश्लेषण करने पर लगता है कि अलग–अलग आचार्यों के मत में भिन्नता है, पर इन सन्दर्भों का टीकाओं के मदद से सूक्ष्म अवलोकन करने पर यह पता चलता है कि उनमें सामञ्जस्य है। यहां शिर के प्रमाण के संबन्ध में संहिताओं में दिये हुए सन्दर्भों का विश्लेषणात्मक अध्ययन किया गया है जिससे इनको सही रूप से समझा जा सके।

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Literary Review

Critical Analysis Of *Praman Sarira* With Special Reference To Cranio Facial Measurements

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Introduction

Thestudy of human anatomy deals with the study of structural framework of the body.While speaking of anatomy, the general impression is that it primarily focus on the internal structural entities. But an important part of anatomy also stresses upon the understanding of external appearance the human body.These ideas have collectively given shape to another separate branch of anatomy called Anthropometry.

Anthropometry is the branch of anthropology which specifically deals with the measurements related to the human body, 'Anthropos' meaning human and 'metry' meaning measurement. It deals with the description of the external human form especially in order to determine the racial, regional and other variations in various parts of the planet. Modern anthropometry was established during late 18th century and now incorporates wide ranging streams like physical anthropology, craniometry and palaeoanthropology, criminology (mainly by the contribution of Alphonse Bertillon; who introduced a system of identification of individuals which was named after him as Bertillonage system), physiognomy (relation between physical features and character traits), phylogeography, racial identification techniques etc.

Ayurveda, being a medical science, deals with the human body. The various Samhitacontain numerous descriptions of the human body. All the major Samhitahave a separate section left apart to describe the human body, namely the ShariraSthana. Though a separate Sharira Sthanais given in all the Samhita, the references related to the human body are found in all parts of these texts, mostly being described in contexts of their applied aspects in medical practice. In the same way, references regarding the external appearance of the human body and the measurements of the human body are also found in parts other than Sharira Sthana.

Most detailed among these are of that of AcharyaSushruta, who has described the measurements of numerous body parts and also described the importance of these measurements. Acharya Charaka and Vagbhata have also described the measurements of the human body. These measurements in general are called by the name Pramana Sharira, meaning the branch of Sharira dealing with Pramanaor measurement.

The aim of this review is to discuss the various references of PramanaSharirarelated to Jatru Urdhwa Sarira (Craniofacial measurements) in our classics with the help of available commentaries and to bring out a consensus opinion regarding the various references in Samhita.

Review of Literature

References of Pramana Sharira

Among the Dasa Vidha Pariksha, the examinations of the Sara, Samhanana and Pramanarequire some background anatomical knowledge. The Sharira Pramana or measurements pertaining to the body have been described in this context of Rogi Pariksha.

Elaborate descriptions are found in Brihatrayi with their commentaries throwing light in to the significant areas. Acharya Sushruta has described Pramana Sharira in context of Atura Pariksha or examination of the patient in the 35th chapter of Sutra Stana, ie Aturopakramaniyam chapter. Acarya Charaka has given his description of Pramana Sharira in the 8th chapter of Vimana Sthana, i.e. Roga bhishakjitiyam chapter. Vagbhata describes it in Prakriti Bhediyam Chapter of Ashtanga Sangraham, Sharirastana.(A.Sa. Sa. 8)

Tools of Measurement:-

Acharya doesn't give the data in form of absolute measurements of various parts, but as proportions to a fixed body part, namely the breadth of the finger of the individual being measured. This unit of measure is called Anguli Pramana. The word Anguli means finger and Pramana means measurement. Thus Anguli Pramana or finger measurement is the equal to the average breadth of the finger of the individual whose body is being measured.

The concept of using Anguli or the average breadth of a finger as a unit of measure can be observed to be a modified form of expressing the measures of the various parts of the body in proportion to a fixed part, here being the Anguli. This method carried the following advantages

1) It provided a suitable universal unit of measurement which was individualised.

2) The physician while examining the patient need not carry any measuring instrument or device as the patient's own hand gave the measure.

3) Even though the absolute value of measurement may vary, the proportions of various body parts remain almost constant.

Gayadasa, commentator of Sushruta Samhita says that one angula is three Yava Pramana. But there are many different opinions regarding the Angula Pramana. The most logical conclusion that evolve is that average breadth of the digits of upperlimb excluding the thumb.

In our classics, the accurate anthropometric points and criteria are not mentioned for individual measurement making the measurements vary in different calculations. On the otherhand modern anthropometry has made remarkable advances in recent years. Invention of sophisticated measuring instruments like 3D body scanners have made revolutionary changes in the application of anthropometry in various specialties like phrenology, physiognomy, forensic science, criminology etc.

In this scenario, the various somatometric techniques and instruments can be effectively used for arriving at a logical conclusion regarding the opinions in samhitas.

Examples for a few somatometric land marks and instruments that are used for craniofacial measurements are discussed below.

Somatometric landmarks used in craniofacial measurements.

1. **Alare (al):** It is the most laterally placed point on the nasal wing. This point is determined by measuring nasal breadth.
2. **Chelion (ch):** It is the point on the mouth-opening where the lateral margins of the upper and lower lips meet i.e., corners of the mouth.
3. **Ectocanthion (ec):** It is the point on the lateral side of the eye where the upper and lower lid-margins meet.
4. **Endocanthion (en):** It is the point on the medial side of the eye where the upper the upper and lower lid margins meet.
5. **Euryon (eu):** It is the most laterally placed point on the sides of the head. This point can only be determined by measuring the maximum head breadth.
6. **Frontotemporale (ft):** It is the most anterior and inner point on the linea temporalis on the frontal bone. Place the first finger on the margin of the anterior and lateral wall of the forehead above the orbits; now slide on the convex linea temporalis to locate the desired point. This point lies usually slightly higher than the tangent drawn on the highest elevation of the upper margins of the eyebrow ridges.
7. **Glabella (g):** It is the point on the protuberance of the lower forehead above nasal root and between the eyebrow ridges intersected by the mid- saggittal plane.
8. **Gnathion (gn):** It is the lowest point on the lower margin of the lower jaw intersected by the mid saggital plane. This point can be palpated on the lower jaw from behind the slightly anteroro to chin.
9. **Gonion (go):** It is the lowest posterior and most lateral point on the angle of the lower jaw. The point lies on the lateral side of the angle.

10. **Inion (i):** It is the point on the tuberculum linearum on the posterior protuberance in mid saggital plane. This point can be clearly felt at the juncture of the posterior protuberance and the neck. The tip of the so-called protuberance is taken as the landmark for measurement on the living. It is difficult to locate this point accurately among children and women.
11. **Labrale Superior (ls):** It is the point in the mid-saggital plane cut by a tangent drawn at the highest elevation of the upper margin of the integumental tip.
12. **Labrale Inferior (li):** It is the point on the lower margin of the lower lip in the mid-saggital plane.
13. **Menton (me):** It is the lowest point on the anterior wall of the chin.
14. **Metopion (m):** It is the point where horizontal line joining the highest projection of the frontal protuberance is cut by the mid-saggital plane.
15. **Nasion (n):** It is the point on the nasal root intersected by mid-saggital plane. Nasal root is not the depression of the nose but at the nasofrontal suture which can be felt by slightly probing the root of the nose. Note that nasion usually lies in the level of the medial end of the eye brows mostly at the lower margins and not at the height of the eye brows.
16. **Ophryon (on):** It is the point where a tangent drawn upon the upper borders of the eye brow ridges is cut by mid-saggital plane. Ophryon (on) may sometime lie at the same point as glabella (g), but is usually a few millimetres higher.
17. **Opisthocranion (op):** It is the most posterior point on the posterior protuberance of the head in the mid-saggittal plane. This point is determined by measuring maximum head length.
18. **Orbitale (or):** It is the deepest point on the lower margin of the orbit. This point can be easily felt through the skin by the first finger. This can be determined up to an accuracy of 1-2 mm.
19. **Post aurale (pa):** It is the most lateral point on the posterior margin of the helix.
20. **Pronasale (prn):** It is the most anteriorly placed point on the tip of the nose when the head is held in mid saggital plane.
21. **Prosthion (pr):** It is the point on the lower margin of the gums of the upper jaw at the mid-saggital plane between the middle incisors. This is the most downward point and lies on the lower border of the gum.
22. **Stomion (sto):** It is the point where the slit of the mouth with closed lips cuts the mid-saggital plane.
23. **Subaurale (sba):** It is the lowest point on the lower margin of the ear lobe.
24. **Subnasale (sn):** It is the point where the lower margin of the nasal septum meets the integument of the upper lip. This point should be sought where the tangent drawn to the nasal septum meets the upper lip.
25. **Superaurale (sa):** It is the highest point on the margin of the helix when the head is in the eye-ear plane.
26. **Tragion (t):** It is the point on the upper margin of tragus where tangents drawn to the anterior and upper margin of this cartilage cut each other. This point lies 1-2 mm below the helix spine. Some anthropologists take this point in the middle of the tragus or at the tip. Others take it at the ear opening or auriculare.
27. **Trichion (tr) or Crinion:** It is the point where the anterior border of the hair on the forehead is cut by the mid-saggital plane. It is difficult to determine this point in children with less hair as well as in cases of bald individuals.
28. **Vertex (v):** It is the highest point on the head when the head is in eye-ear plane. This is not an anatomically determined point and is dependent on the orientation of the skull.
29. **Zygion (zy):** It is the most laterally placed point on the zygomatic arch. These points are determined by taking bizygomatic breadth.

Somatometric Instruments used in craniofacial measurements

Head Height Needle: It is used with the anthropometer to ensure the vertical condition of the instrument while taking head height. The needle

should be in the mid-sagittal plane of the head. It consists of two steel rods joined at right angles with a groove at the end of the horizontal needle which is fired on the cross bar of the anthropometer rod.

Spreading Caliper: It is used for taking measurements on the living (mainly on the head and skeleton). It consists of two long arms which are curved outwards and bounded at one end. A meter scale (35 cm.) is fixed to one of the arms, the meter scale passes through a socket on the other arm.

Orbitometer: It is used to take measurements on the orbit. A thin graduated row is placed within another metal tube. One end of graduated rod is placed against the orbital margin and then the screw is pushed till the ledge touches the other desired point.

Goniometer: It is used for taking various angles of the face and skull. It consists of a moveable needle with a heavy base which is attached to a protractor. There is a slot on the back containing a spring and screws which allow the goniometer to be attached with the sliding or spreading calipers.

Tape: It is used to measure the girths of various parts of the body and skeleton. It is made of steel and is graduated in mm. Width of the tape should be about 1 cm.

Croniophore: It is used to orient the skull in the horizontal plane for taking angles. There are two kinds of craniophores currently in use:

Discussion

On casual reading, the descriptions of Pramana Sharira, according to both Charaka and Sushrutamay seem dissimilar, but a finer analyses reveal the inherent congruence between the opinions of two Acharya.

The analysis of some measurements relating to the head has been done as below.

There is a major incongruence of opinions of Charakaand Sushrutaregarding the length of Chibuka. Charaka states it to be 4 whereas Sushruta2 Angula. Commentaries of Sushruta[1] define Chibukaas the part of the face below the lower lip, i.e. from lower lip to mental protuberance whereas commentaries of Charakaremain silent in this regard.

The measurements of length of the tooth (including the part covered by gums according to commentaries), length of ala of nose, root of ear, distance between eyebrows and distance between eyes are described by Sushruta only. Two similar terms are observed in this regard: - Nayanantaraused by Sushruta (measuring 2 Angula) and Akshimadhya used by Charaka (measuring 4 Angula). It must be concluded that Akshimadhyais same as Drishtyantara described by Sushruta which is also 4 Angula. The word 'Drishti' described here is explained by Dalhanaas the Krishna Taraka which is of the size of Masura Dalaas explained in Shalakya tantra.[2] Thus Nayanantara is the distance between medial canthi of the eyes, whereas Akshimadhya and Drishtyantara are the distance between pupils.

Sushruta explains the horizontal diameter of oral cavity under the term 'Vadanantara'measuring 4 Angula. Dalhana states that this measure is taken with mouth open.[3] But Charakaexplains Asyato be of 5 Angulaand describe another term Oshthato be of 4 Angula.

The length of nose refers to the length of the bridge of the nose (called Nasavamshaby Dalhana)[4] and is equal to 4 Angula. The nose, the forehead or Lalataand the part below the nose divide face into three equal vertical parts, total of which is 12 Angulawhich is the length of the face according to Sushruta. The lengths of nose, forehead and ear described by both Charakaand Sushrutaare same. Sushruta uses the term 'Mukhaayama'and Charaka 'Anana Utsedha' for vertical length of the face even though the measure described is the same (12 Angula). Dalhana has clearly described this measurement to be from Chibuka to Lalatanta,[5] i.e. upper limit of forehead or the anterior hairline.

There are detailed descriptions of craniometry in our classics. The head circumference has been described to be 32 Angulaby Charaka. The dimensions of nose are described under three measures- the length of nose (4 Angula), the Nasaputabhaga (2 Angula) and Nasaputa Maryada (2/3 Angula). The distances between the vertex and anterior hairline and vertex and posterior hairline have been described respectively as Keshanta-mastakantara and Mastaka Avatukeshanta by Sushruta. The word 'Avatuka' is not used commonly in current terminology. So, naturally there are diverse opinions in this regard. Some are of the opinion that it means the thyroid prominence. But

the dictionary meaning of the word suggests that this word can be used for any depressed area such as fossa and also Monier-Williams Sanskrit dictionary describes it as the nape of the neck or as the hind curl (hair on the back of the head).[6] Also, from the contextual and practical measurability sense, Avatukais to be taken as the depression above the neck and below the external occipital protuberance which corresponds to the posterior hairline. Dalhana says that Avatuis same as Krikatika (which is situated on back of head and is described as the joint of head and neck).[7] Also, Sushruta describes another measure Karnaavatuantara in which also the word 'Avatu' comes which refers to the depressed area below the ear (the site of Vidhura Marma which is described by Vagbhata in Ashtanga Hridaya as "Adhastat Karnayoh Nimne").[8] So the meaning of Avatuka in this context is not the thyroid eminence or jugular notch but is the depression above the neck corresponding to the posterior hairline.

The Karnaavatuantara also is taken by some to be distance between Karna and Avatu. But this is not acceptable as the measure is 14 Angula which is greater and thus the measure Karnaavatuantara denotes the distance between the hollows below each ear. Dalhanaalso clarifies in this context that the Karnaavatu is behind the ear (PaschatkarnayohItyarthah).[9]

In a similar fashion, the descriptions of the rest of the measurements can also be justified and understood analyzing them in the light of various commentaries available.

Conclusions:

General conclusions:

The following conclusions can be arrived at after this study.

1. Anthropometry was well developed in samhita period. The words 'Pramana' and 'metry' are related to measurement. Thus, anthropometry (measurements related to human body) is same as Pramana Sharira described in various AyurvedaSamhita. The vast descriptions and elaborate commentaries and their description in context of clinical examination (Aatura Pareeksha) show that the concept of anthropometry was well developed during the period when samhitas were written. Even though modern anthropometry is of recent origin, the concept was present long ago. Craniometric landmarks also are described in great detail in Ayurveda Samhita.
2. Comparison of measurements given by Caraka and Sushruta.

   On casual reading, the descriptions of PramanaSharira according to Sushruta and Caraka may seem dissimilar, a finer reading brings to light the inherent congruence and the variation that exists between the opinions of two Acharya is very limited and the variation is mostly in the terminology used to describe the measurements.

Anthropometric land marks for few measurements

After the careful analysis, accurate anthropometric landmarks can be fixed for the various craniometric measurements described in various Samhitaas per the landmarks of modern anthropometry as follows:

Sr. No.	Measurement_Ayurveda terminology	Landmarks as per modern anthropometryo
1.	Chibuka	labrale inferior (li) to gnathion (gn)
2.	Vadanantara	chelion (ch) to chelion (ch)
3.	Nasa	nasion (n) to pronasale (prn)
4.	Karna	superaurale (sa) to subaurale (sba)
5.	Lalata	glabella (g) to trichion (tr)
6.	Sravana-Apanga	tragion (t) to ectocanthion (ec)
7.	Shira Parinaha	horizontal circumferance of head at level of glabella

Referance

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III.B. Corrections, Retractions and "Expressions of Concern"

Editors assume initially that authors are reporting work based on honest observations. Nevertheless, two types of difficulty may arise.

First, errors may be noted in published articles that require the publication of a correction or erratum of part of the work. The corrections will appear on a numbered page, be listed in the contents page, include the complete original citation, and link to the original article and vice versa online. It is conceivable that an error could be so serious as to vitiate the entire body of the work, but this is unlikely and will be handled by editors and authors

on an individual basis. Such an error should not be confused with inadequacies exposed by the emergence of new scientific information in the normal course of research. The latter requires no corrections or withdrawals.

The second type of difficulty is scientific fraud. If substantial doubts arise about the honesty or integrity of work, either submitted or published, it is the editor's responsibility to ensure that the question is appropriately pursued, usually by the authors' sponsoring institution. However, it is not ordinarily the task of editors to conduct a full investigation or to make a determination; that responsibility lies with the institution where the work was done or with the funding agency. The editor should be promptly informed of the final decision, and if a fraudulent paper has been published, the journal will print a retraction. If this method of investigation does not result in a satisfactory conclusion, the editor may choose to conduct own investigation. As an alternative to retraction, the editor may choose to publish an expression of concern about aspects of the conduct or integrity of the work.

The retraction or expression of concern, so labeled, will appear on a numbered page in a prominent section of the print journal as well as in the online version, be listed in the contents page, and included in its heading the title of the original article. It will not simply be a letter to the editor. Ideally, the first author will be the same in the retraction as in the article, although under certain circumstances the editor may accept retractions by other responsible persons. The text of the retraction should explain why the article is being retracted and include a full original citation reference to it.

The validity of previous work by the author of a fraudulent paper cannot be assumed. Editors may ask the author's institution to assure them of the validity of earlier work published in their journals or to retract it. If this is not done editors may choose to publish an announcement expressing concern that the validity of previously published work is uncertain.

III.C. Copyright

The copyright status of articles in a given journal can vary: some content cannot be copyrighted (articles written by employees of the governments in the course of their work, for example).

III.D. Overlapping Publications

III.D.1. Duplicate Submission

The Journal will not consider manuscripts that are simultaneously being considered by other journals.

III.D.2. Redundant Publication

Redundant (or duplicate) publication is publication of a paper that overlaps substantially with one already published in print or electronic media.

Readers of primary source periodicals, whether print or electronic, deserve to be able to trust that what they are reading is original unless there is a clear statement that the article is being republished by the choice of the author and editor. The bases of this position are international copyright laws, ethical conduct, and cost-effective use of resources. Duplicate publication of original research is particularly problematic, since it can result in inadvertent double counting or inappropriate weighting of the results of a single study, which distorts the available evidence.

This journal does not wish to receive papers on work that has already been reported in large part in a published article or is contained in another paper that has been submitted or accepted for publication elsewhere, in print or in electronic media. This policy does not preclude the journal considering a paper that has been rejected by another journal, or a complete report that follows publication of a preliminary report, such as an abstract or poster displayed at a professional meeting. Nor does it prevent the journals considering a paper that has been presented at a scientific meeting but not published in full or that is being considered for publication in a proceedings or similar format.

When submitting a paper, the author must always make a full statement to the editor about all submissions and previous reports that might be regarded as redundant or duplicate publication of the same or very similar work. The author must alert the editor if the manuscript includes subjects about

which the authors have published a previous report or have submitted a related report to another publication. Any such report must be referred to and referenced in the new paper. Copies of such material should be included with the submitted paper.

III.D.3. Acceptable Secondary Publication

Certain types of articles, such as guidelines produced by governmental agencies and professional organizations, may need to reach the widest possible audience. In such instances, editors will choose to publish material that is also being published in other journals. Secondary publication for various other reasons, in the same or another language, especially in other countries and/or states, is justifiable, and can be beneficial, provided all of the following conditions are met.

1. The authors have received approval from the editors of both journals; the editor concerned with secondary publication must have a photocopy, reprint, or manuscript of the primary version.
2. The priority of the primary publication is respected by a publication interval of at least one week.
3. The paper for secondary publication is intended for a different group of readers; an abbreviated version could be sufficient.
4. The secondary version faithfully reflects the data and interpretations of the primary version.
5. The footnote on the title page of the secondary version informs readers, peers, and documenting agencies that the paper has been published in whole or in part and states the primary reference. A suitable footnote might read: "This article is based on a study first reported in the [title of journal, with full reference]."

   Permission for such secondary publication should be free of charge.
6. The title of the secondary publication should indicate that it is a secondary publication (complete republication, abridged republication, complete translation, or abridged translation) of a primary publication. Of note, the National Library of Medicine does not consider translations to be "republications," and does not cite or index translations when the original article was published in a journal that is indexed in MEDLINE.

III.D.4. Competing Manuscripts Based on the Same Study

Two kinds of competing submissions will be considered: submissions by coworkers who disagree on the analysis and interpretation of their study, and submissions by coworkers who disagree on what the facts are and which data should be reported.

Setting aside the unresolved question of ownership of the data, the following general observations may help editors and others dealing with these problems.

III. D.4.a. Differences in Analysis or Interpretation

If the dispute centers on the analysis or interpretation of data, the authors should submit a manuscript that clearly presents both versions. The difference of opinion should be explained in a cover letter. The normal process of peer and editorial review of the manuscript may help the authors to resolve their disagreement regarding analysis or interpretation.

If the dispute cannot be resolved and the study merits publication, both versions will be published. Options include publishing two papers on the same study, or a single paper with two analyses or interpretations. In such cases it would be appropriate for the editor to publish a statement outlining the disagreement and the journal's involvement in attempts to resolve it.

III.D.4. b. Differences in Reported Methods or Results

If the dispute centers on differing opinions of what was actually done or observed during the study, the journal editor will refuse publication until the disagreement is resolved. Peer review cannot be expected to resolve such problems. If there are allegations of dishonesty or fraud, editors will inform the appropriate authorities; authors will be notified of editor's intention to report a suspicion of research misconduct.

III.D.5. Competing Manuscripts Based on the Same Database

Editors may sometimes receive manuscripts from separate research groups that have analyzed the same data set, e.g., from a public database. The manuscripts may differ in their analytic methods, conclusions, or both. Each manuscript will be considered separately. Where interpretations of the same data are very similar, it is reasonable but not necessary for editors to give preference to the manuscript that was received earlier. However, editorial consideration of multiple submissions may be justified in this circumstance, and there may even be a good reason for publishing more than one manuscript because different analytical approaches may be complementary and equally valid.

III.E. Correspondence

As a mechanism for submitting comments, questions, or criticisms about published articles, as well as brief reports and commentary unrelated to previously published articles. This will likely, but not necessarily, take the form of a correspondence section or column. The authors of articles discussed in correspondence should be given an opportunity to respond, preferably in the same issue in which the original correspondence appears. Authors of correspondence will be asked to declare any competing or conflicting interests.

Published correspondence may be edited for length, grammatical correctness, and journal style.

Although editors have the prerogative to sift out correspondence material that is irrelevant, uninteresting, or lacking in cogency, they have a responsibility to allow a range of opinion to be expressed. The correspondence column will not be used merely to promote the journal's, or the editors', point of view. In all instances, editors will make an effort to screen out discourteous, inaccurate, or libelous statements.

In the interests of fairness and to keep correspondence within manageable proportions, journal may want to set time limits for responding to articles and correspondence, and for debate on a given topic. Journal has also set policy with regard to the archiving of unedited correspondence that appears on line. These policies should be published both in print and electronic versions of the journal.

III.F. Supplements, Theme Issues, and Special Series

Supplements are collections of papers that deal with related issues or topics, are published as a separate issue of the journal or as part of a regular issue, and are usually funded by sources other than the journal's publisher. Supplements can serve useful purposes: education, exchange of research information, ease of access to focused content, and improved cooperation between academic and corporate entities. Because funding sources can bias the content of supplements through the choice of topics and viewpoints, this journal adopts the following principles. These same principles apply to theme issues or special series that have external funding and/or guest editors.

1. The journal editors take full responsibility for the policies, practices, and content of supplements, including complete control of the decision to publish all portions of the supplement. Editing by the funding organization will not be permitted.
2. The journal editors will retain the authority to send supplement manuscripts for external peer review and to reject manuscripts submitted for the supplement.
3. The journal editors will approve the appointment of any external editor of the supplement and take responsibility for the work of the external editor.
4. The sources of funding for the research, publication, and the products the funding source make that are considered in the supplement should be clearly stated and prominently located in the supplement, preferably on each page. Whenever possible, funding should come from more than one sponsor.
5. Secondary publication in supplements (republication of papers previously published elsewhere) will be clearly identified by the citation of the original paper. Supplements will avoid redundant or duplicate publication. Supplements will not republish research results, but the republication of guidelines or other material in the public interest might be appropriate.

IV. Manuscript Preparation and Submission

IV.A. Preparing a Manuscript for Submission

Editors and reviewers spend many hours reading manuscripts, and therefore appreciate receiving with manuscripts that are easy to read and edit. Much of the information in journals' instructions to authors is designed to accomplish that goal in ways that meet each journal's particular editorial needs. The guidance that follows provides a general background and rationale for preparing manuscripts for any journal.

IV.A.1.a. General Principles

The text of observational and experimental articles is usually (but not necessarily) divided into sections with the headings Introduction, Methods, Results, and Discussion. This so-called "IMRAD" structure is not simply an arbitrary publication format, but rather a direct reflection of the process of scientific discovery. Long articles may need subheadings within some sections (especially the Results and Discussion sections) to clarify their content. Other types of articles, such as case reports, reviews, and editorials, are likely to need other formats.

Publication in electronic formats has created opportunities for adding details or whole sections in the electronic version only, layering information, cross-linking or extracting portions of articles, and the like. Authors need to work closely with editors in developing or using such new publication formats and should submit material for potential supplementary electronic formats for peer review.

Double spacing of all portions of the manuscript including the title page, abstract, text, acknowledgments, references, individual tables, and legends-and generous margins make it possible for editors and reviewers to edit the text line by line, and add comments and queries, directly on the paper copy. If manuscripts are submitted electronically, the files should be double spaced, because the manuscript may need to be printed out for reviewing and editing.

During the editorial process reviewers and editors frequently need to refer to specific portions of the manuscript, which is difficult unless the pages are numbered. Authors should therefore number all of the pages of the manuscript consecutively, beginning with the title page.

IV.A.1.b. Reporting Guidelines for Specific Study Designs

Research reports frequently omit important information. The general requirements listed in the next section relate to reporting essential elements for all study designs. Authors are encouraged in addition to consult reporting guidelines relevant to their specific research design. For reports of randomized controlled trials authors should refer to the CONSORT statement. This guideline provides a set of recommendations comprising a list of items to report and a patient flow diagram.

IV.A.2. Title Page

The title page should carry the following information:

1. The title of the article. Concise titles are easier to read than long, convoluted ones. Titles that are too short may, however, lack important information, such as study design (which is particularly important in identifying randomized controlled trials). Authors should include all information in the title that will make electronic retrieval of the article both sensitive and specific.
2. Authors' names and institutional affiliations.
3. The name of the department(s) and institution(s) to which the work should be attributed.
4. Disclaimers, if any.
5. Corresponding authors. The name, mailing address, telephone and fax numbers, and e-mail address of the author responsible for correspondence about the manuscript (the "corresponding author;" this author may or may not be the "guarantor" for the integrity of the study as a whole, if someone is identified in that role. The corresponding author should indicate clearly whether his or her e-mail address is to be published.
6. The name and address of the author to whom requests for reprints should be addressed.
7. Source(s) of support in the form of grants, equipment, drugs, or all of these.

8. Word counts. A word count for the text only (excluding abstract, acknowledgments, figure legends, and references) allows editors and reviewers to assess whether the information contained in the paper warrants the amount of space devoted to it, and whether the submitted manuscript fits within the journal's word limits. A separate word count for the Abstract is also useful for the same reason.
9. The number of figures and tables. It is difficult for editorial staff and reviewers to tell if the figures and tables that should have accompanied a manuscript were actually included unless the numbers of figures and tables that belong to the manuscript are noted on the title page.

IV.A.3. Conflict of Interest Notification Page

To prevent the information on potential conflict of interest for authors from being overlooked or misplaced, it is necessary for that information to be part of the manuscript. It should therefore also be included on a separate page or pages immediately following the title page.

IV.A.4. Abstract and Key Words

An abstract should follow the title page. The abstract should provide the context or background for the study and should state the study's purposes, basic procedures (selection of study subjects or laboratory animals, observational and analytical methods), main findings (giving specific effect sizes and their statistical significance, if possible), and principal conclusions. It should emphasize new and important aspects of the study or observations.

Because abstracts are the only substantive portion of the article indexed in electronic database and the only portion many readers read, authors need to be careful that abstracts reflect the content of the article accurately.

3 to 10 key words or short phrases that capture the main topics of the article. These will assist indexers in cross-indexing the article and may be published with the abstract. Terms from the Medical Subject Headings (MeSH) list of Index Medicus should be used; if suitable MeSH terms are not yet available for present terms may be used.

IV.A.5. Introduction

Provide a context or background for the study (i.e., the nature of the problem and its significance). State the specific purpose or research objective of, or hypothesis tested by, the study or observation; the research objective is often more sharply focused when stated as a question. Both the main and secondary objectives should be made clear, and any pre-specified subgroup analyses should be described. Give only strictly pertinent references and do not include data or conclusions from the work being reported.

IV.A.6. Methods

The Methods section should include only information that was available at the time the plan or protocol for the study was written; all information obtained during the conduct of the study belongs in the Results section.

IV.A.6.a. Selection and Description of Participants

Describe your selection of the observational or experimental participants (patients or laboratory animals, including controls) clearly, including eligibility and exclusion criteria and a description of the source population. Because the relevance of such variables as age and sex to the object of research is not always clear, authors should explain their use when they are included in a study report; for example, authors should explain why only subjects of certain ages were included or why women were excluded. The guiding principle should be clarity about how and why a study was done in a particular way. When authors use variables such as race or ethnicity, they should define how they measured the variables and justify their relevance.

IV.A.6.b. Technical information

Identify the methods, apparatus (give the manufacturer's name and address in parentheses), and procedures in sufficient detail to allow other workers to reproduce the results. Give references to established methods, including statistical methods see below; provide references and brief descriptions for methods that have been published but are not well known; describe new or substantially modified methods, give reasons for using them, and evaluate

their limitations. Identify precisely all drugs and chemicals used, including generic name(s), dose(s), and route(s) of administration.

Authors submitting review manuscripts should include a section describing the methods used for locating, selecting, extracting, and synthesizing data. These methods should also be summarized in the abstract.

IV.A.6.c. Statistics

Describe statistical methods with enough detail to enable a knowledgeable reader with access to the original data to verify the reported results. When possible, quantify findings and present them with appropriate indicators of measurement error or uncertainty (such as confidence intervals). References for the design of the study and statistical methods should be to standard works when possible (with pages stated). Define statistical terms, abbreviations, and most symbols. Specify the computer software used.

IV.A.7. Results

Present your results in logical sequence in the text, tables, and illustrations, giving the main or most important findings first. Do not repeat in the text all the data in the tables or illustrations; emphasize or summarize only important observations. Extra or supplementary materials and technical detail can be placed in an appendix where it will be accessible but will not interrupt the flow of the text; alternatively, it can be published only in the electronic version of the journal.

When data are summarized in the Results section, give numeric results not only as derivatives (for example, percentages) but also as the absolute numbers from which the derivatives were calculated, and specify the statistical methods used to analyze them. Restrict tables and figures to those needed to explain the argument of the paper and to assess its support. Use graphs as an alternative to tables with many entries; do not duplicate data in graphs and tables. Avoid non-technical uses of technical terms in statistics, such as “random” (which implies a randomizing device), “normal,” “significant,” “correlations,” and “sample.”

Where scientifically appropriate, analyses of the data by variables such as age and sex should be included.

IV.A.8. Discussion

Emphasize the new and important aspects of the study and the conclusions that follow from them. Do not repeat in detail data or other material given in the Introduction or the Results section. For experimental studies it is useful to begin the discussion by summarizing briefly the main findings, then explore possible mechanisms or explanations for these findings, compare and contrast the results with other relevant studies, state the limitations of the study, and explore the implications of the findings for future research and for clinical practice.

Link the conclusions with the goals of the study but avoid unqualified statements and conclusions not adequately supported by the data. In particular, authors should avoid making statements on economic benefits and costs unless their manuscript includes the appropriate economic data and analyses. Avoid claiming priority and alluding to work that has not been completed. State new hypotheses when warranted, but clearly label them as such.

IV.A.9. References

IV.A.9.a. General Considerations Related to References

Although references to review articles can be an efficient way of guiding readers to a body of literature, review articles do not always reflect original work accurately. Readers should therefore be provided with direct references to original research sources whenever possible. On the other hand, extensive lists of references to original work on a topic can use excessive space on the printed page. Small numbers of references to key original papers will often serve as well as more exhaustive lists, particularly since references can now be added to the electronic version of published papers, and since electronic literature searching allows readers to retrieve published literature efficiently.

Avoid using abstracts as references. References to papers accepted but not yet published should be designated as “in press” or “forthcoming”; authors should obtain written permission to cite such papers as well as verification that they have

been accepted for publication. Information from manuscripts submitted but not accepted should be cited in the text as "unpublished observations" with written permission from the source.

Avoid citing a "personal communication" unless it provides essential information not available from a public source, in which case the name of the person and date of communication should be cited in parentheses in the text. For scientific articles, authors should obtain written permission and confirmation of accuracy from the source of a personal communication.

Some journals check the accuracy of all reference citations, but not all journals do so, and citation errors sometimes appear in the published version of articles. To minimize such errors, authors should therefore verify references against the original documents. Authors are responsible for checking that none of the references cite retracted articles except in the context of referring to the retraction. For articles published in journals indexed in MEDLINE, the ICMJE considers PubMed the authoritative source for information about retractions.

IV.A.9.b. Reference Style and Format

The Uniform Requirements style is based largely on an ANSI standard style adapted by the National Library of Medicine (NLM) for its databases. For samples of reference citation formats, authors should consult National Library of Medicine web site.

References should be numbered consecutively in the order in which they are first mentioned in the text. Identify references in text, tables, and legends by Arabic numerals in parentheses. References cited only in tables or figure legends should be numbered in accordance with the sequence established by the first identification in the text of the particular table or figure. The titles of journals should be abbreviated according to the style used in Index Medicus.

This Journal requires that the references from the Ayurvedic classics should be cited within parentheses in the text, i.e. (Cha. Soo. 25/40).

IV.A.10. Tables

Tables capture information concisely, and display it efficiently; they also provide information at any desired level of detail and precision. Including data in tables rather than text frequently makes it possible to reduce the length of the text.

Type or print each table with double spacing on a separate sheet of paper. Number tables consecutively in the order of their first citation in the text and supply a brief title for each. Do not use internal horizontal or vertical lines. Give each column a short or abbreviated heading. Authors should place explanatory matter in footnotes, not in the heading. Explain in footnotes all nonstandard abbreviations. For footnotes use the following symbols, in sequence:

***,†,‡,§,||,¶,**,††,‡‡**

Identify statistical measures of variations, such as standard deviation and standard error of the mean.

Be sure that each table is cited in the text.

If you use data from another published or unpublished source, obtain permission and acknowledge them fully.

Additional tables containing backup data too extensive to publish in print may be appropriate for publication in the electronic version of the journal. In that event an appropriate statement will be added to the text. Submit such tables for consideration with the paper so that they will be available to the peer reviewers.

IV.A.11. Illustrations (Figures)

Figures should be either professionally drawn and photographed, or submitted as photographic quality digital prints. In addition to requiring a version of the figures suitable for printing, this Journal asks authors for electronic files of figures in a format (e.g., JPEG or GIF) that will produce high quality images in the web version of the journal; authors should review the images of such files on a computer screen before submitting them, to be sure they meet their own quality standard.

For x-ray films, scans, and other diagnostic images, as well as pictures of pathology specimens

or photomicrographs, send sharp, glossy, black-and-white or color photographic prints, usually 127 x 173 mm (5 x 7 inches). Letters, numbers, and symbols on Figures should be clear and even throughout, and of sufficient size that when reduced for publication each item will still be legible. Figures should be made as self-explanatory as possible. Titles and detailed explanations belong in the legends, however, not on the illustrations themselves.

Photomicrographs should have internal scale markers. Symbols, arrows, or letters used in photomicrographs should contrast with the background.

If photographs of people are used, either the subjects must not be identifiable or their pictures must be accompanied by written permission to use the photograph. Whenever possible permission for publication should be obtained.

Figures should be numbered consecutively according to the order in which they have been first cited in the text. If a figure has been published, acknowledge the original source and submit written permission from the copyright holder to reproduce the material. Permission is required irrespective of authorship or publisher except for documents in the public domain.

IV.A.12. Legends for Illustrations (Figures)

Type or print out legends for illustrations using double spacing, starting on a separate page, with Arabic numerals corresponding to the illustrations. When symbols, arrows, numbers, or letters are used to identify parts of the illustrations, identify and explain each one clearly in the legend. Explain the internal scale and identify the method of staining in photomicrographs.

IV.A.13. Units of Measurement

Use only standard Units of Measurements. If some new measurements or scoring patterns are used they should be explained in detail in the text.

IV.A.14. Abbreviations and Symbols

Use only standard abbreviations; the use of non-standard abbreviations can be extremely confusing to readers. Avoid abbreviations in the title. The full term for which an abbreviation stands should precede its first use in the text unless it is a standard unit of measurement.

IV.B Sending the Manuscript to the Journal

This Journal accepts electronic submission of manuscripts, whether on disk or attachments to electronic mail. Electronic submission saves time as well as postage costs, and allows the manuscript to be handled in electronic form throughout the editorial process (for example, when it is sent out for review). When submitting a manuscript electronically, authors should consult with the instructions for authors of the journal they have chosen for their manuscript.

If a paper version of the manuscript is submitted, send the required number of 6 copies of the manuscript and figures; they are all needed for peer review and editing, and editorial office staff cannot be expected to make the required copies.

Manuscripts must be accompanied by a cover letter, which should include the following information.

- A full statement to the editor about all submissions and previous reports that might be regarded as redundant publication of the same or very similar work. Any such work should be referred to specifically, and referenced in the new paper. Copies of such material should be included with the submitted paper, to help the editor decide how to handle the matter.
- A statement of financial or other relationships that might lead to a conflict of interest, if that information is not included in the manuscript itself or in an authors' form
- A statement that the manuscript has been read and approved by all the authors, that the requirements for authorship as stated earlier in this document have been met, and that each author believes that the manuscript represents honest work, if that information is not provided in another form; and
- The name, address, and telephone number of the corresponding author, who is responsible for communicating with the other authors about revisions and final approval of the proofs, if that information is not included on the manuscript itself.

The letter should give any additional

information that may be helpful to the editor, such as the type or format of article in the particular journal that the manuscript represents. If the manuscript has been submitted previously to another journal, it is helpful to include the previous editor's and reviewers' comments with the submitted manuscript, along with the authors' responses to those comments. Editors encourage authors to submit these previous communications and doing so may expedite the review process.

Copies of any permission to reproduce published material, to use illustrations or report information about identifiable people, or to name people for their contributions must accompany the manuscript.

V. References

A. References Cited in this Document

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B. Other Sources of Information Related to Biomedical Journals

World Association of Medical Editors (WAME) www.WAME.org <http://www.WAME.org>

Council of Science Editors (CSE) www.councilscienceeditors.org <http://www.councilscienceeditors.org>

European Association of Science Editors (EASE) www.ease.org.uk <http://www.ease.org.uk>

Cochrane Collaboration www.cochrane.org <http://www.cochrane.org>

The Mulford Library, Medical College of Ohio www.mco.edu/lib/instr/libinsta.html <http://www.mco.edu/lib/instr/libinsta.html>

"This is a reprint (*with minor alterations according to the need of this Journal*) of the ICMJE Uniform Requirements for Manuscripts Submitted to Biomedical Journals. The editors of this Journals prepared this altered version. The ICMJE has neither endorsed nor approved the contents of this reprint. The ICMJE periodically updates the Uniform Requirements, so this reprint prepared on 1.1.2007 may not accurately represent the current official version at www.ICMJE.org <http://www.ICMJE.org>. The official version of the Uniform Requirements for Manuscripts Submitted to Biomedical Journals is located at www.ICMJE.org <http://www.ICMJE.org>."

Annexure I

Manuscript no. JOA/NIA/20 /

Authorship Criteria and Responsibility
Financial Disclosure, Acknowledgment and Copyright Transfer Form

Manuscript Title :

I/We certify that the manuscript represents valid work and that neither this manuscript nor one with substantially similar content under my/our authorship has been published or is being considered for publication elsewhere. For papers with more than 1 author, We agree to allow the corresponding author to serve as the primary correspondent with the editorial office, to review the edited typescript and proof.

I/We have seen and approved the submitted manuscript. All of us have participated sufficiently in the work to take public responsibility for the contents. All the authors have made substantial contributions to the intellectual content of the paper and fulfil at least 1 condition for each of the 3 categories of contributions: i.e., Category 1 (conception and design, acquisition of data, analysis and interpretation of data), Category 2 (drafting of the manuscript, critical revision of the manuscript for important intellectual content) and Category 3 (final approval of the version to be published).

I/We also certify that all my/our affiliations with or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript are completely disclosed on the title page of the manuscript. My/our right to examine, analyze, and publish the data is not infringed upon by any contractual agreement. I/We certify that all persons who have made substantial contributions to the work reported in this manuscript (e.g., data collection, writing or editing assistance) but who do not fulfil the authorship criteria are named along with their specific contributions in an acknowledgment section in the manuscript. If an acknowledgment section is not included, no other persons have made substantial contributions to this manuscript. I/We also certify that all persons named in the acknowledgment section have provided written permission to be named.

The author(s) undersigned hereby transfer(s), assign(s), or otherwise convey(s) all copyright ownership, including any and all rights incidental thereto, exclusively to the Journal of Ayurveda, in the event that such work is published in Journal of Ayurveda.

Authors' name(s) in order of appearance in the manuscript.

1. Name	Signatures	(date)
2. Name	Signatures	(date)
3. Name	Signatures	(date)
4. Name	Signatures	(date)
5. Name	Signatures	(date)
6. Name	Signatures	(date)

Annexure II

Manuscript Submission Checklist

Submitted by: E-mail ☐ Post ☐ Both ☐

Covering letter and submission :

1. Covering letter (in original) ☐
2. Copyright transfer form (in original) ☐
3. Illustrations (in original) ☐
4. Manuscript (E-mail/original) ☐
5. Category for which submitted ☐

Presentation and Format :

1. Printed on A4 paper with 1" margins on all sides in double space. ☐
2. Abstract, text, acknowledgement, references, legends, tables starting on a new page. ☐
3. Title page contains the following:
   - Full title of the paper ☐
   - Initials, surname and highest degree of authors, affiliation ☐
   - Name of Departments/Institution ☐
   - Details of Corresponding Authors including e-mail ☐
   - Numbers in Arabic numerals. ☐
4. Abstract (Hindi and English) and Key words provided. ☐
5. “What this study adds” Box (only for research papers and short communications). ☐
6. References. ☐
7. Pages numbered consecutively. ☐

Language and Grammar :

1. Uniform American English. ☐
2. Abbreviations spelt out in full for first time. ☐
3. Text arranged as per IMRAD format. ☐
4. Follows style of writing in Journal of Ayurveda. ☐
5. Conventional units used throughout manuscript. ☐

Tables and Figures :

1. No repetition of data in Table/graphs and in text. ☐
2. Figures are black and white (except Images), good quality; with labels on back. ☐
3. Table numbers in roman numerals and Figure numbers in Arabic numerals. ☐
4. Correct symbols used for footnotes to tables. ☐
5. Figure legends provided. ☐
6. Patient privacy maintained ☐

Short Communication

AYURVEDA NEWS AND VIEWS

Dr. Rizwana Parveen

National & International Seminars & Fairs

1 National level Field Workshop on Medicinal Plants in Western Ghats,
organized by Regional Medical Research Centre, Belgaum. Date : 6th to 8th January, 2015.

2. Ayurveda World Expo 2015
organized by K & D Communications Ltd. Date : 8th to 13th January, 2015.

3. Ayurveda-Yoga-Vedanta International Conference, organized by Karnataka Samskrit University. Date : 10th and 11th January, 2015.

3. National Conference on Application of Dosha-Dhatu-Mala in Physio-Pathology of Pranavaha Srotastha Vyadhi (Respiratory Disorders),
organized by Department of Kaumarbhitya/Bal Roga and Department of Kriya Sharir, Faculty of Ayurveda IMS, BHU. Date : 21st and 22nd January, 2015.

4. National Symposium & Workshop on Molecular & Ayurvedic Therapies for Inflammation,
organized by Members of the Molecular Biology Unit (MBU), IMS, BHU.
Date : 7th to 9th February, 2015.

5. National Yoga Week - 2015,
organized by Morarji Desai National Institute of Yoga, New Delhi. Date : 12th to 18th February, 2015.

6. International Conference "Global Public Health Infrastructure in Transition: Challenges and a Way Forward",
organized by The Department of Social Work,New Delhi, India, and School of Public Health, University of Minnesota,Minneapolis, USA.

   Date : 16th to 20th February, 2015.

7. Ayur'15 Workshop and National Seminar on "Clinical & Diagnostics skills in Ayurveda", organized by Parul Institute of Ayurved, Vadodara, Gujarat.

   Date : 26th to 28th February, 2015.

8. National Workshop cum Seminar on Frontiers in Ethnomedicinal Research : Traditional to Translational (FER-15), organized by Faculty of Science,Indira Gandhi National Tribal University (IGNTU), Amarkantak(MP). Date : 9th to 11st March, 2015.

9. Ayurved Mahasammelan and Conference "Holistic Health by Ayurveda", organized by All India Ayurvedic Congress. Date : 12th to 15th March, 2015.

10. 19th World Congress on Clinical Nutrition, organized by Institute of Medical Sciences, BHU,Varanasi. Date : 13th to 15th March, 2015.

11. Workshop For Post Graduate Students of Ayurveda "Avenues Ahead", organized by Maharashtra University of Health Sciences, Nashik. Date : 17th March, 2015.

12. National Seminar on Standardization and Quality Control Of Herbal Raw Drugs, organized by Department Of Dravyaguna, Dr. B.R.K.R. Government Ayurvedic College, Hyderabad.

    Date : 25th and 26th March, 2015.

13. A National Seminar on Empowring & Empanelling Ayurved System of Medicine, organized by S.C. Mutha Aryangla Vaidyak Mahavidyalaya. Date : 26th and 27th March, 2015.

14. National Seminar on "Relevance of Caraka-Samhita and its Practices in Contemporary Age", organized by Deptt. of Samhita & Sanskrit, Faculty of Ayurveda, IMS BHU, Varanasi. Date : 28th and 29th March, 2015.

15. Joint International Training Workshop on Herbal Medicine, organized by JSS University Mysore and Centre for Science and Technology. Date : 30th and 31st March, 2015.

*Sr. Research Fellow-Journal of Ayurveda, NIA, Jaipur

Ayurveda Views:

Ayurveda's top three 'super seeds' for super health

The super seeds mentioned below may be tiny, but, they are huge in their nutritional value. Let us take a look at the multiple health benefits of these common super seeds and their ayurvedic uses, and determine how best we can incorporate them in our regular diet.

Flaxseeds

Flaxseeds, also known as linseeds, are a rich source of dietary fibre, Omega-3 fatty acids, rich in antioxidants, helps increase good cholesterol levels (HDL) and lowers bad cholesterol (LDL), apart from promoting fertility, relieving constipation, improving immunity and preventing cancer.

Flaxseeds are being used in Ayurvedic preparations for ages now, due to their therapeutic properties. Seeds and oil of the plant are used for their medicinal value. Flaxseeds are known to increase volume of urine, are beneficial in treatment of respiratory disorders, useful for colds, coughs, sore throat, and pulmonary complaints. Ayurvedic treatments suggest infusion made by soaking 30gms of powdered seeds overnight in a glass of water, and can be given with limejuice to treat tuberculosis with beneficial results.

Ayurveda also suggests that the seeds are helpful in treatment of gonorrhoea, irritation of genito-urinary organs, cystitis, nephritis, when taken in the form of tea repetitively. Ayurvedic physicians recommend hot poultice of flaxseed oil in treating eczema and other skin disorders.

However, it is to be noted here that flaxseeds are heat producing, and hence it should be used under the guidance of an Ayurvedic physician.

To include them in your diet, ground flaxseeds are the best, as they are easily digestible. You could grind them in small quantities and store in an air-tight container and consume them quickly, as they have a short shelf life. They can be added to yogurt, oatmeal, whole wheat flour, desserts or shakes.

Sesame Seeds

The sesame seeds possess nutritive, curative and preventive properties. The copper content present in them offers relief from rheumatoid arthritis, while magnesium present in the seeds improves cardiovascular health and lung functioning, prevents migraines and osteoporosis.

Sesame seeds are used in the treatment methods and therapies of Ayurveda. From an Ayurvedic perspective, the sesame seed is sweet, astringent, pungent, bitter, and has heating effect. Sesame seed oil form a fundamental part of Ayurvedic massages, due to their calming, nourishing and warming effect. A self-massage with sesame oil promotes physical strength, nourishes muscles and bones, helps better joint movement. In Ayurveda, Sesame seed oil is an inevitable ingredient for Panchakarma therapies. Further, according to Ayurvedic physicians, it helps promote sound sleep, strengthens intellect and nervous system, thereby nourishing hair and skin.

Sesame seeds can be consumed by adding to dips. They can also be added to vegetables, chicken, garlic, ginger and soy sauce or included in bread and muffins.

Sunflower Seeds

They are an excellent source of vitamin E, neutralises free radicals and prevent asthma, rheumatoid arthritis, and osteoarthritis. The high magnesium content in them helps in blood pressure management, headaches and migraines, and promoting healthy teeth and bones.

The benefits of sunflower seeds are plenty including controlling cell damage, thereby preventing cancer, due to the presence of selenium. Ayurveda says, sunflower seeds help reduce inflammation, helps in cholesterol management, and improves detoxification.

Sunflower seeds are best stored in refrigerator. They can be added to salads, scrambled eggs, or in hot or cold cereals. Grinding a cup or two of sunflower seeds in a food processor with lemon juice and garlic, creates a delicious nutty spread to boost your immune system.

Some basic Ayurveda tips for a healthy life

- Maintaining the equilibrium of body elements and

the procedure of maintaining the equilibrium of the body elements is the main objective of Ayurveda. Based on these objectives Ayurveda suggests a healthy man's regimen to be followed. The following are some basic tips from Ayurveda, which, if incorporated in your regimen, will help you to lead a healthy life.

- Always follow the systematized daily routine, and keep yourselves in-tune with change in seasons, following a well-planned diet and exercise schedule.
- Ayurveda emphasizes on maintenance of personal, social and civic hygiene, which is a must for positive health.
- Never sleep during the day as it leads to indigestion.
- Drinking buttermilk is excellent as it is easily digestible, kindles hunger, instigates vata and kapha and cures dropsy, haemorrhoids, enlargement of abdomen, abdominal tumour, duodenal diseases, dysuria, enlargement of spleen, loss of appetite, and anaemia.
- Ayurveda recommends vegetarian foods that give more nourishment to the body than non-vegetarian foods.
- Always try to eat fresh lukewarm food and in limited quantities. Food should be taken at least 2 to 3 hours before bedtime, as it helps in ensuring proper digestion and a sound sleep.
- Make oil massage a part of your daily routine.
- Physical exercise should be an inevitable part of your daily routine. Apart from this, yoga practice will help in bringing lightness to the body, stability, ability to work, resistance to discomfort and will stimulate digestion.
- Coconut water is sweet, coolant, easily digestible, relieves thirst, is an aphrodisiac, improves hunger and cleanses the urinary bladder.
- Periodic use of rejuvenation therapy is considered important in maintenance of positive health, given, its therapeutic potential to delay the ageing process and improve quality of life.
- Ayurveda also believes that mind is a very powerful tool in both causing and curing any disease, and hence, mental discipline and adherence to moral values are considered a pre-requisite for health. Hence, ethical basis of life is considered to be a vital health support system.

Mindful breathing may reduce stress and blood glucose levels in women

A new research has found that breathing exercises may help obese women reduce their stress and blood glucose levels.The research developed by University of Massachusetts Medical School researcher Jon Kabatzinn revealed that Mindfulness Based Stress Reduction (MBSR) treatment has helped in reducing fasting glucose levels and to improve the quality of life in obese women.

The practise involves paying attention to one's thoughts and feelings and bodily sensations in the present moment in a non-judgmental and non-reactive manner through mindfulness exercises like breathing.

The Assistant Professor of Medicine and Gynaecology at Penn State College of Medicine in the United States, Nazia Raja-Khan said MBSR reduces fasting glucose and improves quality of life considerably, without affecting body weight or insulin resistance.

Generally, obese women are more prone to increased diabetes due to stress and end up with higher rate of cardiovascular diseases. In this particular study, women who received at least eight weeks of MBSR treatment reported reduced stress levels and it was noticed that their fasting glucose dipped considerably.

Mindfulness breathing exercise simply focuses on being able to accept and be aware of your breath. However, on doing this perfectly, you are ultimately bound to receive the said benefits of stress reduction and reduced blood glucose levels.

It has also been proven earlier that mindfulness breathing helps the mind focus better by boosting concentration levels and therefore, boosting productivity.