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Research Papers–*Randomized trials, intervention studies, studies of screening and diagnostic tests, cohort studies, cost-effectiveness analyses, and case control studies.*

Short Communications– *Brief accounts of descriptive studies, initial/partial results of a larger trial, and a series of cases;*

Correspondence– *Letters commenting upon recent articles in Journal of Ayurveda, other topics of interest or useful clinical observations. Debate on important issues such as those raised in the editorial forum are most welcome.*

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A major criteria for acceptance of an article will be addition to existing knowledge and as such manuscripts are required to include 'what this study adds'.

2 copies of Books may be sent for book review section.

EDITORIAL

Relevance of exploration and validation of traditional and folklore practices in strengthening *Ayurveda*

Ayurveda has descended as an eternal tradition since time immemorial. In the due course of time, efforts have been made to make it popular and user friendly. Generally, barring the principles, the focus has been laid on practical approaches. In clinical practice, most of the local physicians used to focus on resources commonly available in the particular area at that point of time. Gradually, these developed into certain folklore practices. These folklore practitioners used to practice on the basis of their traditional knowledge and expertise. Based on their clinical experiences, they developed newer formulations and also explored newer indications for the already prevalent formulas. The incorporation of newer formulas happened over long periods of time. These processes involved various stages of evolution of knowledge and experimental evidences but mostly what was documented was only the final result of these processes. Thus, there is lacking of recorded evidences of the stages in which these formulations developed in many cases. In these studies, right from the Phase 1 to phase IV were conducted but the documentation in the true sense were not available in the purview of current research parameters. Documentation of these folklore practices prevailing across the India is also a process of research and incorporating all the influencing parameters study and analysis of document in material should be done in the light of classical knowledge and modern contemporary knowledge.

This process of incorporation of new drugs and formulations was a continuous trend, which continued from the time of *Charaka Samhita* up to the 17th Century (till the date of *Yogaratnakar*). All these folklore practices should be incorporated into mainstream *Ayurveda* to enrich the totality of clinical practice. Numerous researches have been conducted since the last 50 years in various academic institutions across India but unfortunately, only avery little part of this research has come into the clinical parlance and most of these researches remain in the various Institutes as documents only. Thus, efforts should be made to explore all the popular practices and then validated by analytical and clinical research should be carried out to evaluate the practical utility of these formulations in the current area so that we can restore the missing link.

In this era of modernization, restoration of that wisdom must be done with the help of advanced technologies and the results of these exercises should be made available before the *Vaidya* community and common people. The clinical and rational applications of this knowledge only can original glorious status of *Ayurveda*.

Prof. Sanjeev Sharma
Director

Clinical Study

To assess the efficacy of *Basti Karma* in management of *Gridhrasi* w.s.r. to Sciatica.

*Sanjay Kumar, **Gopesh Mangal, ***Sri Niwas Sharma

Abstract :

Sciatica is the degenerative changes affecting lumbar region. The management of Sciatica in conventional medicine is temporary and many cases require surgical treatment. In this, the Non-Steroidal Anti-Inflammatory Drugs (NSAID's) and analgesics are the main drug; however they have serious adverse effects and have limitations for a long term therapy. *Gridhrasi* (Sciatica) produces disability in people affecting almost each & every routine work of a person.

Ayurvedic management seems to be more satisfactory because of its long lasting effects and multi-systemic regenerative actions without any harm. Therefore, it was decided to evaluate certain Ayurvedic management for a group of patients of *Gridhrasi* which could be safe, effective & readily available. *Basti* Chikitsa is the best treatment for *Vata* vyadhi like *Gridhrasi*. The study had been done on 38 clinically diagnosed registered patients from the IPD/ OPD of N.I.A. Jaipur. In this study, Karma *Basti* was planned in 38 patients with *Vrishadi-Niruha Basti* & *Vajigandhadi Anuvasana-Basti* for 30 days

Observations and findings were documented & evaluated by using various assessment criteria. Symptomatically & Statistically significant improvement was observed in all clinical parameters in majority of the cases. The results obtained indicated improvement in sign & symptoms and *Basti* were effective in combating the disease.

Keywords : *Gridhrasi*, Sciatica, Karma *Basti*, *Niruha Basti*, *Anuvasana Basti*

सारांश–

गृध्रसी पृष्ठ कटि प्रदेश को प्रभावित करने वाला विकार है। आधुनिक चिकित्सा में गृध्रसी का अस्थायी इलाज ही उपलब्ध है। इसमें स्टीरायड़ शोथ एवं दर्द नाशक दवाएं दी जाती है। जबकि कई रोगियों में शल्य कर्म किया जाता है। जिसमें कभी–कभी गम्भीर उपद्रव उत्पन्न हो जाते हैं। इन दवाओं का लम्बे समय तक प्रयोग करने से गम्भीर उपद्रव होते हैं। आयुर्वेदिक चिकित्सा का गृध्रसी में बिना किसी हानि के लम्बे समय तक प्रभाव रहता है। इसलिए गृध्रसी में एक निश्चित आयुर्वेदिक चिकित्सा का प्रयोग किया गया है, जो सुरक्षित, प्रभावितशाली एवं सर्व सुलभ चिकित्सा है। बस्ति वातव्याधि यथा गृध्रसी की सर्वश्रेष्ठ चिकित्सा है। प्रस्तुत अध्ययन गृध्रसी के 38 रोगियों पर किया गया है, जो राष्ट्रीय आयुर्वेद संस्थान के अन्तरङ्ग विभाग एवं बहिरङ्ग विभाग में पञ्जीकृत किये गये थे। इस अध्ययन में वृषादि निरूह बस्ति और वाजिगन्धादि अनुवासन बस्ति का 30 दिन तक प्रयोग किया गया। चिकित्सा के प्रभावों का सूक्ष्म निरीक्षण एवं पर्यवेक्षण करके आंकड़े इकट्ठे किये गये है, जो लाक्षणिक एवं सांख्यिकी के आधार पर उत्तम प्रभाव प्रदर्शित करते है। अत: यह निष्कर्ष पाया गया कि बस्ति चिकित्सा गृध्रसी रोग के शमन में बहुत ही प्रभावी है।

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Clinical Study

To assess the efficacy of *Basti Karma* in management of *Gridhrasi* w.s.r. to Sciatica.

Sanjay Kumar, Gopesh Mangal, Sri Niwas Sharma

Introduction

The low back pain is common problem seen in modern society. Out of which 40% persons have radicular pain and this comes underneath the Sciatic-Syndrome. Such presentation was, also, common in old era and Ayurveda named it as *Gridhrasi Roga*. It is considered as *Shool Pradhana Vata Vyadhi*. Many researches were conducted on this disease, but still the complete cure of this is mirage.

Gridhrasi indicates the typical gait that resembles of a bird "Gridhra" i.e. vulture, which is often seen in patients of *Gridhrasi Roga*. [1]

The cardinal clinical features of *Gridhrasi Roga* are. –

- *Ruka* (Pain)- *Toda* (Pricking Sensation) - *Stambha* (Stiffness) -*Muhur Spandana* in the *Sphika – Kati – Uru – Janu – Jangha – Pada* in order
- In *Kaphanubandhi Tandra, Arochaka and Gaurava* are also present. [2]
- *Sakthikshepam–Nigraha* i.e. restricted lifting of lower limb.[3]

The clinical features seen in *Gridhrasi Roga* can be well correlated with Sciatica of modern medicine. *Sciatica* is a set of symptoms including pain that may be caused by general compression and/or irritation of one of five spinal nerve roots that give rise to each sciatic nerve, or by compression or irritation of the left or right or both sciatic nerves. The pain is felt in the lower back, buttock, and/or various parts of the leg and foot. In addition to pain, there may be numbness, muscular weakness, pins and needles or tingling and difficulty in moving or controlling the leg. Typically, the symptoms are only felt on one side of the body.[4,5]

Materials And Methods

Following materials & methods will be employed for conducting the present trial research project:-

A) Selection Of Patients

The Study was conducted on the 38 clinically and radiologically diagnosed patients of *Gridhrasi*. They were registered in the OPD/ IPD P.G. Department of Panchkarma, N.I.A, Jaipur (Rajasthan) irrespective of religion, sex, occupation & caste etc. after obtaining due consent.

a) Inclusion criteria

1. Patients in the age group of 25-60 yrs suffered from *Gridhrasi*.
2. Patients with Pratyatma lakshana of *Gridhrasi*.
3. Patients had positive physical signs/ special tests of Sciatica.
4. Patients had chronicity of *Gridhrasi* less than 5yrs.
5. Sciatica due to Disc prolapsed (L4-5 & L5-S1), Lumbar Spondylosis & Disc herniation.

b) Exclusion criteria

1. Bilateral sciatica
2. Patent suffered from Tuberculosis (spine), Tumours / neoplasm of spinal cord, pyogenic osteomylitis or any infective conditions of spine.
3. Pain due to Spinal deformity, Fracture of hip bone, Sacro-iliac Arthritis.
4. Patients with Rheumatoid arthritis, Gout, arthritis, etc.
5. Sciatica with uncontrolled Diabetes & uncontrolled Hypertension.

B) Selection of *Basti* Procedure

Basti relieves stiffness, contractions and adhesions, Effective in paralytic conditions, Effective in dislocations and fracture conditions, Effective in

those conditions where *Vata* aggravated in extremities, Relieves pain, Effective in disorders of GI tract, Beneficial to debilitated and weak persons. *Basti* is considered as *Ardha Chikitsa* or sometimes *Sampurna Chikitsa*.[6]

Gridhrasi is a *Vata* vyadhi and counted under 80 *Nanatmaja Vata vyadhi*. Thus *basti* had choosen for the treatment of *Gridhrasi*. For *Niruha basti*, *Vrishadi-Niruha Basti* [7] had taken from *Sushruta Samhita* and *Anuvasana basti* had been taken from Yog Ratnakara i.e.*Vajigandhadi Anuvasana Basti*.[8]

C) Management Of Patients And Treatment Schedule

Karma Basti were given to 38 registered patients with *Vrishadi-Niruha Basti* & *Vajigandhadi Anuvasana Basti*. In this course, with the *Purva karma?* (i.e. *Abhyanga* with *Dashamool Tail* & *Svedana* with *Dashamool kwath vashpa*) 30 *Basti* were administered, in following manner, 1st day *Vajigandhadi Anuvasana Basti* had administered, then 12 *Vajigandhadi Anuvasana* and 12 *Vrishadi Niruha* were administered on alternate days in the morning till 25 days and in last five days *Vajigandhadi Anuvasana Basti* were administered in the morning.

Dose of *Basti*

***Niruha Basti* amount** - 750 ml-1000ml

***Anuvasana Basti* amount** - 80 ml-120ml

Total Duration - 30 days

Route of administration - Per Anal

Time of administration

- *Niruha Basti* –before meal at morning (10.00-11.00Am)

-*Anuvasana Basti*-after meal at morning (10.00-11.00Am)

D) Criteria's For Assessment

Clinical assessment of symptoms and severity was done in terms of gradation of symptoms. For this purpose main sign and symptoms were given suitable score. The relative extent of all these criteria was recorded according to the rating scale in each patient before and after the treatment. Both subjective and objective criteria were employed for assessment as follows. [9]

Table No. I Subjective criteria

***Ruka* (Pain)**		***Aruchi* (Anorexia)**	
No pain	**0**	No anorexia	**0**
Occasional pain	**1**	Mild anorexia	**1**
Mild pain but no difficulty in walking	**2**	Moderate anorexia	**2**
Moderate pain and slight difficulty in walking	**3**	Severe anorexia	**3**
Severe pain with severe difficulty in walking	**4**		
***Toda* (Pricking Sensation)**		***Tandra* (Drowsiness)**	
No pricking sensation	**0**	No *Tandra*	**0**
Occasional pricking sensation	**1**	Mild *Tandra*	**1**
Mild pricking sensation	**2**	Moderate *Tandra*	**2**
Moderate pricking sensation	**3**	Severe *Tandra*	**3**
Severe pricking sensation	**4**		

***Stambha* (Stiffness)**		***Gaurava* (Heaviness)**	
No stiffness	**0**	No *Gaurava*	**0**
Sometimes for 5 – 10 minutes	**1**	Mild *Gaurava*	**1**
Daily for 10 – 30 minutes	**2**	Moderate *Gaurava*	**2**
Daily for 30 – 60 minutes	**3**	Severe *Gaurava*	**3**
Daily more than 1 hour	**4**		
***Spandana* (Twitching)**			
No Twitching	**0**		
Sometimes for 5-10 minutes	**1**		
Daily for 10-30 minutes	**2**		
Daily for 30-60 minutes	**3**		
Daily more than 1 hour	**4**		

Table No. II Objective criteria

S.L.R. Test		***Walking Distance***	
> 90	**0**	Patient can walk upto1km without pain	**0**
71 – 90	**1**	Patient can walk upto 500 meters without pain	**1**
51 – 70	**2**	Patient can walk upto 250 meters without pain	**2**
31– 50	**3**	Patient feels pain on standing	**3**
Up to 30	**4**	Patient cannot stand	**4**

Further assessment - Patients were evaluated for severity of illness before and after the intervention, on the basis of Visual Analogue Scale (VAS).

Follow up –30 days.

E) Laboratory parameters:-

1) Routine hematological investigations to rule out any infectious conditions.

2) Radiological examination (X-Ray) of the lumbo sacral spine in antero-posterior and lateral position was taken.

F) Analysis & Statistical Methods to be used

Observations documented during study were analyzed and findings were evaluated by using statistical analysis to establish the efficacy. Mean, percentage, ±S.D., ±S.E., 't' and p value were calculated. Non-parametric, Paired't' test and two tailed p value were used for calculating the 't' value, carried out at the level of 0.05, 0.01, 0.001 & 0.0001 of p values.

Observations

In present study, total 38 patients were registered; in which 30 patients were completed full trial while 08 patents were LAMA. Maximum numbers of patients i.e. 63.16% were of *Vataja* type of *Gridhrasi*, 60.52% patients were having involvement of Right limbs, 39.47% patients were of up to 1 year chronicity, 55.26%% patients were having history of any type of trauma as associated symptoms and 31.58% patients were having habitual constipation. Diminished Knee jerk was present in 55.26% of the patients and diminished ankle jerk was present in 21.05% of the patients.

In present study, all (100%) patients were showing SLR test positive and *Ruka* (pain in sciatica nerve distribution) while 66.67% patients were having complaint of *Toda*. *Stambha* was present in 78.33% patients whereas *Spandana* was present in 48.33% patients. *Aruchi*, *Tandra*, and *Gaurava* were present in 51.67%, 26.67%, and 36.67% of patients respectively.

Table No. III :- Showing the Effect of Therapy

Symptoms	n	Observations Mean BT	Mean AT	Diff	% Relief	Statistical Analysis SD (±)	SE (±)	t value	p value	Signi-ficance
Subjective criteria										
Ruka	30	3.033	1.10	1.933	63.736	0.640	0.117	16.55	<0.0001	E.S
Toda	20	1.50	0.50	1.00	66.67	0.324	0.073	13.78	<0.0001	E.S
Stambha	24	2.083	0.708	1.375	66.00	0.576	0.118	11.70	<0.0001	E.S
Spandana	13	1.23	0.308	0.922	75.00	0.277	0.077	12.00	0.0002	E.S
Aruchi	14	1.714	0.50	1.214	70.83	0.439	0.117	10.36	<0.0001	E.S
Tandra	08	1.75	0.50	1.25	71.43	0.707	0.25	5.00	0.0078	H.S
Gaurava	10	1.50	0.30	1.20	80.00	0.632	0.20	6.00	0.002	H.S
Objective criteria										
S.L.R.	30	2.80	1.20	1.60	57.14	0.621	0.113	14.10	<0.0001	E.S
Walking distance	30	2.13	0.63	1.50	70.31	0.572	0.104	14.35	<0.0001	E.S

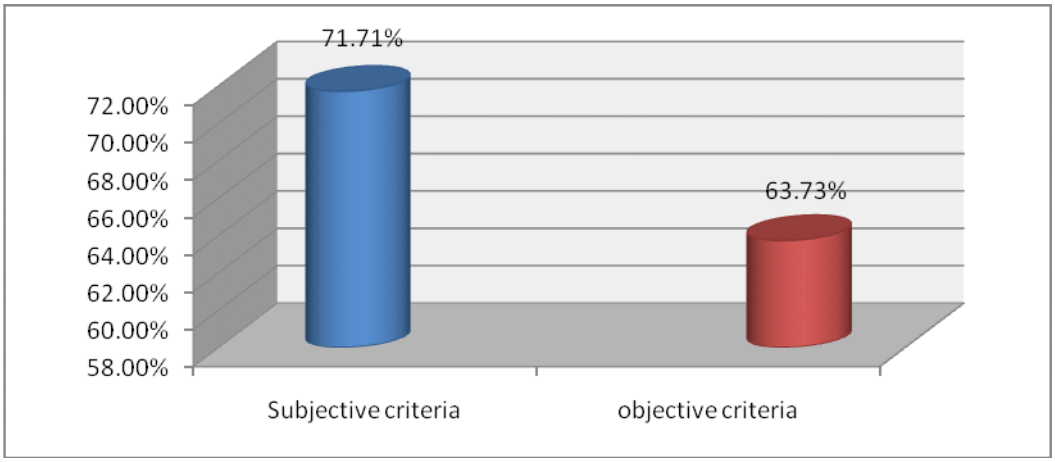
Follow-up

In maximum number of patients i.e. in 80%, no recurrence of symptoms was reported during the period of follow-up after one month. The explanation may be that selected treatment doesn't works only at symptom level, though it works at the level of *Samprapti* and minimize the chances of recurrence of the disease. Thus satisfactory result persists during the period of follow up. Recurrences were observed in total 06 (20%) patients.

Results

1. In present study, 30 patients of *Gridhrasi Roga* (Sciatica) were treated with *Vrishadi-Niruha Basti* & *Vajigandhadi Anuvasana-Basti* in 30 days marked significant results were found in all clinical feature of the disease. Extremely significant result was found in *Ruka, Toda*, *Stambha, Spandana* and *Aruchi*. Highly Significant results were found in *Gaurava* and *Tandra*.
2. On the basis of improvement in objective variables such as *S.L.R.Test* and *Walking Distance* shows the extremely significant result.
3. Recurrences were also found in some patents after 1 month from completion of therapy. Overall 20% of patients were shows recurrence of disease while 80% patients show no recurrence.
4. In present study, Visual Analogue Scale shows the maximum patents i.e. 53.33% moderate Improvement were found while 3.33% patients had mild Improvement, 33.33% patients got marked improvement and 10% patients were completely cured. (100%-complete, 75-99%-marked, 50-74%-moderate, 25-49%-mild and 0-24%-no improvement)
5. Overall effects of therapy on the basis of subjective criteria show 71.71% improvement while on the basis of Objective criteria shows 63.725% improvement.

Graph showing results of therapy in subjective & objective criteria.



Discussion

In this study, *Vrishadi Niruha Basti* has provided better relief in cardinal symptom, associated symptoms and general symptoms of the disease. Here *Basti* is given in the format of *Karma Basti*. It was used in alternation with *Vajigandhadi Taila Anuvasana Basti*. It is thought to be an ultimate solution for eradication of *Vata Dosha* and *Vata* vitiation is the main cause of *Gridhrasi*. Moreover, it also has action on the vitiated *Pitta*, *Kapha* and *Rakta*. [10] *Basti* not only have localized action, but the active principles (virya) of *Basti* drugs are absorbed and through channels of the body it reaches at the site of lesion and bring about systemic action and relieves the disease. [11] *Basti* acts by reaching up to the umbilical region (transverse colon), sacroiliac region (rectum), flanks and hypochondrial regions (ascending and descending colon) and churning of the faecal and morbid matters present there in and at the same time by spreading its unctuous effect in whole body, drawn out the faecal and morbid matter with ease. [12]

As a whole the effect of *Basti* can be summarized as encolonic (action on tissue of colon), end colonic (action inside colon), and diacolonic (for systemic action). Thus *Basti Dravya* after reaching to large and small intestine get absorbed from intestine, now due to *Guna* of the *Basti Dravya*, it breaks the obstructions and expels out the morbid material from all over the body (*Srotoshodhana*), thus help in breaking down the pathogenesis of disease.[13] *Basti* help in *Vatanulomana* thus helping correcting the *Apana vayu*. Action of *Basti* directly pacifies *Apana Vayu* which in turn brings back the equilibrium of *Agni* which controls two other important *Vayu- Samana Vayu* & *Prana Vayu*. *Basti* relieves *Ruka*, *Toda*, *Stambha* etc. It is very effective in those conditions where *Vata* aggravated in *shakha* /extremities.

It is assumed that the prescribed line of treatment have contributed for reducing the inflammation and for giving strength to the nerves and muscles of the affected area which may be the reason for relief of symptoms. It is known that the prolapse occurred by the rupture of annulus fibroses in intervertebral disc prolapse can be corrected by shrinkage and fibrosis of the extended disc material and not by its reposition within the disc.[14]

Conclusions

Gridhrasi described under 80 types of *Nanatmaja Vatavyadhi* and commonly seen in society as a prominent trouble. *Vyana Vayu* is an essential factor for manifestation of the disease *Gridhrasi*. *Gridhrasi* is a painful condition and so far there is no established therapy. Mainly *Vatavyadhi* Chikitsa has been advocated in *Gridhrasi*. Conventional management is just temporary and seems like a delusion while Ayurvedic management eradicates the root cause and brings about substantial relief. *Basti* being the preferentially best line of treatment in *Vata Vikara* and very effective in *Gridhrasi*. Ayurvedic classics have described *Vata Dosha* as the main offender in *Gridhrasi*. Sometimes Kapha is the Anubandhi *Dosha*. It is supported

clinically as maximum number of the patients shows *Vataprakopaka Hetus* as the cause.

As most of the patients hailed from *Parihani Kala*, degenerative changes occur at this stage. It is the main aetiological factor of sciatica. On the basis of Ayurvedic fundamentals, we can explain it as *Dhatukshaya* leading to *Vata Prakopa* and *Gridhrasi*. In this study *Karma Basti* were effective in combating the disease. Major improvement was observed on all signs and symptoms as well as on SLR. The selected management has potential effect on *Gridhrasi Roga* (Sciatica), with the added advantage of being free from side effects. Preventive aspect and patient's education play an important role in the management of *Gridhrasi*. Proper guidelines about posture etc. along with exercises strengthening the spine are helpful for effective management.

References

1. Vachaspatayam and Shabda kalp druma, derivation of word 'Gridha'
2. Agnivesha, Charaka, Dridhabala, Charaka samhita, Chikitsa Sthana, *Vatavyadhi Chikitsa Adhyaya,* 28/56-57, with '*Vidyotini*' Hindi commentary, Kashinath Shastri, edited by Gangasahaya Pa??eya, Vol-2, Chaukhabha Sanskrit Sansthan, Varanasi, 2007;787-788
3. Dhanwantri, Sushruta, Nagarjuna, Sushruta Samhita, Nidana Sthana *Vata-vyadhi nidana,* 1/74 with *"Ayurveda Tatvadipika"*, Hindi commentary, Ambikadatta Shastri, Vol-1 Chaukhambha Sanskrit Sansthan, Varanasi, 2009; 303.
4. Weber H, Holme I, Amlie E, The natural course of acute sciatica with nerve root symptoms in a double-blind placebo-controlled trial evaluating the effect of piroxicam. *Spine (Phila Pa 1976) 1993;18:1433–1438*
5. Tulder M, Peul W, Koes B. Sciatica: what the rheumatologist needs to know. *Nat Rev Rheumatol. 2010; 6:139–145. doi: 10.1038/nrrheum.2010.3.*
6. Agnivesha, Charaka, Dridhabala, Charaka samhita, Siddhi Sthana, *Kalpana Siddhi Adhyaya* (1/32-34,39-40), with '*Vidyotini*' Hindi commentary, Kashinath Shastri, edited by Gangasahaya Pa??eya, Vol-2, Chaukhabha Sanskrit Sansthan, Varanasi, 2007; 970-971
7. Dhanwantri, Sushruta, Nagarjuna, Sushruta Samhita, Chikitsa Sthana. *Niruhakrama Chikitsa* 38/67-70; with *"Ayurveda Tatvadipika"*, Hindi commentary, Ambikadatta Shastri, Vol-1 Chaukhambha Sanskrit Sansthan, Varanasi, 2009; 213-214.
8. *Yoga Ratnakara*: *Vidyotini* Hindi commentary, by Sh. Lakshmi Pati Shastri, *Vatavyadhi Chikitsa* 154, Chaukhambha Sanskrit Sansthan, Varanasi (2002)
9. Dhiman SK, Sharma Sriniwas, *To assess the comparative efficacy of katibasti and basti Karma in the management of Gridhrasi (w.s.r to sciatica)* 2011 NIA Thesis, Jaipur
10. Ibidem (7) *Sushruta Samhita*, Chikitsa Sthana, *Netrabastipramanapravibhaga Chikitsa* (35/6), Chaukhambha Sanskrit Sansthan, Varanasi 2009; 189
11. Ibidem (7) *Sushruta Samhita*, Chikitsa Sthana, *Netrabastipramanapravibhaga Chikitsa* (35/27), Chaukhambha Sanskrit Sansthan, Varanasi 2009;192
12. Ibidem (6) *Charaka Samhita,* Siddhi Sthana, *Kalpana Siddhi Adhyaya,*(1/41-42), Chaukhabha Sanskrit Sansthan, Varanasi 2007; 972
13. Ibidem (6) Caraka Samhita, Siddhi Sthana, *Kalpana Siddhi Adhyaya* (1/40-41) chaukhabha Sanskrit Sansthan, Varanasi 2007; 971-972.
14. Nair P.K.S., Madhavikutty P., Namboodiri P.K.N. Tewari N.S. *Therapeutic effect of vaitarana vasti in IVDP with Sciatica and related problems, J.R.A.S.Vol.XXII No.3-4(2001)* pp.120-130.

Clinical Study

A Step up approach to the management of Essential Hypertension (*Shirodhara* and *Tagaradi Kwath*)

*Dr. Garima Bajaj, **Dr.B.N.Sinha, ***Dr. H.C.Gupta

Abstract:

India is gaining a dubious distinction by becoming the capital for life style disorders. The various studies concluded that incidence of hypertension (HTN), obesity and heart disorders are increasing at an alarming rate, esp. in young, urban population. Thus control of these diseases and their complications is of paramount importance and need of the hour. The present study was conducted to evaluate the effect of both non-pharmacological and pharmacological treatment- *Shirodhara* and *Tagaradi Kwath* in the treatment of various grades of Essential Hypertension and evolve a step up treatment for Essential Hypertension. Out of 52 patients who completed the trial, in the patients treated with *Shirodhara* and *Tagaradi Kwath*, the symptomatic as well as parametric relief was marked in all the 3 grades of hypertension. In severe HTN, these therapies are able to reduce the dosage requirement of allopathic medicine from 9.5mg to 5.25mg per day. This study helps to form a step up treatment module for essential hypertension.

Keywords : Hypertension, Essential Hypertension, *Shirodhara*, *Tagaradi Kwath*.

सारांश–

विश्व में विकृत जीवन शैली जन्य रोगों की संख्या दिन प्रतिदिन बढ़ रही है। भारतवर्ष भी इस से अछूता नहीं है। विभिन्न सर्वेक्षणों से यह ज्ञात हुआ है कि भारत वर्ष में भी जीवन शैली प्रभावजन्य रोग जैसे उच्चरक्तचाप, मेदोरोग व हृद्रोगों से प्रभावित रोगियों की संख्या निरंतर बढ़ रही है, मुख्य रूप से युवावर्ग व शहरी समाज में। अतः इस प्रकार के रोगों तथा उनसे होने वाले दुष्प्रभावों को नियंत्रित करना अत्यंत आवश्यक है। इस परीक्षण में शिरोधारा व तगरादि क्वाथ द्वारा उच्च रक्तचाप की औषधीय व गैर औषधीय चिकित्सा पद्धति स्थापित करने का एक प्रयास किया गया है। चिकित्सीय परीक्षण पूर्ण करने वाले 52 रोगियों में शिरोधारा व तगरादि क्वाथ द्वारा सभी लक्षणों व रक्तचाप में अभूतपूर्व परिवर्तन देखा गया। उच्चरक्तचाप की तृतीय श्रेणी अर्थात् तीव्र उच्च रक्तचाप के रोगियों में आयुर्वेदिक चिकित्सा का प्रयोग, एलोपैथिक दवा की अनिवार्य मात्रा को 9.5 मि.ग्रा. प्रतिदिन से घटाकर 5.25 मि.ग्रा. प्रतिदिन करने में सहायक सिद्ध हुआ। तथा यह परीक्षण उच्चरक्तचाप की आयुर्वेदिक चिकित्सा पद्धति विकसित करने में सहायक सिद्ध हुआ।

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Clinical Study

A Step up approach to the management of Essential Hypertension (*Shirodhara* and *Tagaradi Kwath*)

Dr. Garima Bajaj, Dr. B.N. Sinha, Dr. H.C.Gupta

Introduction:

The effect of globalization and increasing population of India has increased competitiveness for employment. Fast pace of life, changed life style and food habits of the Indian society have resulted in increased prevalence of many disorders where stress plays a major role, such as Diabetes Mellitus, Bronchial Asthma, Rheumatoid Arthritis (RA), Peptic ulcer, Depressive illness and Hypertension. Diabetes, RA and Hypertension if not treated or controlled may progress to complications which lead to enhanced morbidity and mortality. Thus control of these diseases and their complications is of paramount importance and need of the hour.

The current information indicates that apart from AIDS and Viral Hepatitis, CVA, IHD and Diabetes mellitus are the foremost killer diseases. Hypertension plays an important role in the development of cerebral stroke and IHD. It is also associated in patients with Diabetes Mellitus. The recent data reflects that Hypertension affects about one billion individuals worldwide. It increases the risk for development of cerebral stroke, cardiac and renal events. Today's fast pace of life has also resulted in stressful conditions, thereby resulting in the development of Essential hypertension even in young individuals[1][2][3].

Ayurveda being a life science can offer solutions to reduce the number of incidences and treat such disorders.

Aims and Objectives:

- To evaluate the effect of *Shirodhara*and *TagaradiKwath* in the management of various grades of Essential HTN.
- To evolve a step up treatment for Essential HTN.

Method of Study:

All the patients fulfilling the criteria of diagnosis and inclusion were divided into 3 groups following the JNC VI criteria for grades of hypertension – Mild, Moderate and Severe.

Criteria Of Inclusion

- Patients who are willing for the trial.
- Patients in the age group of 20-70 years.
- Patients diagnosed as essential hypertensive.
- Only uncomplicated and clinically stable cases were considered.

Criteria Of Exclusion

- Patients below the age of 20 yrs. or above 70 years.
- Patients with renal diseases.
- Patients with liver diseases.
- Patients with CVS disorders like IHD or coarctation of aorta.
- Patients with CNS disorders.
- Patients with endocrinal disorders.
- Pregnant and lactating women.
- Patients with SBP> 200 mm Hg and DBP > 125 mm Hg.

Within each group, the patients were randomly divided into 2 sub-groups-The control group and the trial group.

Group I – 20 patients with mild HTN.

IA – 10 patients (Control Group) – put on placebo.

IB – 10 patients (Trial Group) – put on *Shirodhara*.

Group II – 20 patients with moderate HTN.

II A – 10 patients (Control Group) – put on placebo.

II B – 10 patients (Trial Group) - put on *Shirodhara* (for 15 days) and *Tagaradikwath* for 2 months.

Group III – 20 patients with severe HTN

III A – 10 patients (Control Group) - put on Enalapril-5mg (dose was adjusted as per the need of the patient)

III B – 10 patients (Trial Group) – put on *Shirodhara* (for 15 days) and *TagaradiKwath*along with Enalapril for 2 months.

Capsules filled with powdered black gram were used as placebo.

All the patients were advised some life style modifications and beneficial *Ahara-Vihara*(Dietary and Behavioral regimen).

Trial Drug:

Shirodhara- Shirodhara was done with ***Madhuyashti Kshirapaka***.

Tagaradi Kwath- Adviced by Bhaishajya Ratnavali in Pralapaka Jwara Chikitsa. It has 12 main constituents: *Tagara, Parpataka, Aragvadha, Mustaka, Kutki, Ashwagandha, Brahmi, Draksha, Shvetachandan, Dashmula*and *Shankhpushpi.*

Duration of Trial: 2 months

Criteria of Assessment: Assessment was made according to 8 main symptoms described by American Heart Association: Headache, Palpitation, Dizziness, Fatigue, Breathlessness, Chest pain, Nausea/ Vomiting and Pale/ Red skin. Also Blood Pressure was assessed with the help of mercury sphygmomanometer.

The improvement was then assessed clinically and statistically.

Results:

In the study the effect of therapies on different variables (8 cardinal signs) in the control groups and trial groups were recorded in terms of grades as well as percentage of change observed over pre-trial values. A comparative study of data observed both grade wise and percentage wise is presented below:

MILD HTN

Table 1: Comparative study of clinical features percentage wise in group - IA and IB of Mild HTN

Symptoms	Group-I A (Control Gp)					Group-I B (Trial Gp)					t_{IA} vs $_{IB}$	p
	Mean Score		%	SD	t	Mean Score		%	SD	t		
	BT	AT	Relief	±		BT	AT	Relief	±			
Headache	1	0.75	**25**	0.4629	1.5272	1.7143	0.5714	**66.67**	0.6901	4.382	2.979	>0.01 (S)
Palpitation	0.375	0.25	**33.33**	0.3536	1	0.7143	0.1428	**80**	0.5345	2.8287	1.933	>0.05 (N.S.)
Dizziness	1.25	1	**20**	0.4629	1.527	1.8571	0.8571	**53.85**	0.5773	4.583	1.862	>0.05 (N.S.)
Breathlessness	1.375	1	**27.27**	0.5176	2.049	1.1429	0.7143	**37.5**	0.5345	2.1218	0.1971	>0.05 (N.S.)
Fatigue	1	1	**0**	0	0	1	0.2857	**71.43**	0.4879	3.874	4.163	>0.001 (S)
Chest Pain	0.375	0.25	**33.33**	0.3536	1	0.2857	0	**100**	0.3780	1.999	0.7375	>0.05 (N.S.)
Nausea/ vomiting	0.25	0.125	**50**	0.3536	1	1	0	**100**	0.6901	3.2864	3.595	>0.001 (S)
Pale/Red Skin	-	-	-	-	-	-	-	-	-	-	-	Symptom absent

After 2 months of trial, improvement in symptoms in both the groups- Group I-A (Control Group) which was treated with the placebo and Group I-B (Trial Group) which was treated with *Shirodhara* with *MadhuyashtiKshirapaka*, were evaluated. In Headache- the control group showed

only 25% relief as compared to 66.67% in the trial group (p> 0.01). In Palpitation, the control group showed only 33.33% improvement but the Trial group had 80% improvement. As the number of patients who had palpitation in Mild hypertension was very less in each group (<6) the data was not statistically significant (p> 0.05). The control group showed 20% relief in Dizziness as compared to 53.85% relief in the trial group, and this difference was statistically not significant. (p >0.05). In breathlessness, the control group showed 27.27% relief as compared to 37.5% relief in the trial group (p >0.05). In Fatigue, the control group showed no improvement but 71.43% improvement was present in the trial group (p >0.001). In Chest Pain, the control group showed 33.33% relief as compared to 100% relief in the trial group (p >0.05).In Nausea/ Vomiting, control group showed 50% relief as compared to 100% relief in the trial (p >0.001). The symptom Pale/ red Skin was absent in individuals with Mild Hypertension. Although the percentage improvement was excellent in all the symptoms in the trial group, but a few symptoms e.g. palpitation, dizziness and chest pain were less predominant in patients with Mild HTN, so the data was less and thus not statistically significant.

Moderate HTN

Table 2: Comparative study of clinical features percentage wise in groups II A& II B of moderate HTN

Symptoms	Group-II A (Control Gp)					Group-II B (Trial Gp)					t_{IA} vs $_{IB}$	p
	Mean Score		%	SD	t	Mean Score		%	SD	t		
	BT	AT	Relief	±		BT	AT	Relief	±			
Headache	1.572	1.429	**9.097**	0.3780	1	2.7	0.3	**88.89**	0.6992	10.86	7.738	< 0.001 (H.S.)
Palpitation	0.286	0.286	**0**	0	0	0.8	0.1	**87.5**	0.4830	4.581	3.7961	> 0.001 (S)
Dizziness	1.286	1.143	**11.12**	0.3780	1	1.7	0.3	**82.35**	0.6992	6.335	4.310	< 0.001 (H.S.)
Breathlessness	1	1	**0**	0	0	2	0.9	**55**	0.7379	4.715	3.905	> 0.001 (S)
Fatigue	1	1	**0**	0	0	0.8	0.1	**87.5**	0.4830	4.581	3.7961	> 0.001 (S)
Chest Pain	0.714	0.571	**20.03**	0.3780	1	0.9	0.3	**66.67**	0.5164	3.6742	1.991	> 0.05 (N.S.)
Nausea/ vomiting	0.714	0.429	**39.92**	0.4880	1.549	0.9	0.1	**88.89**	1.0328	2.449	1.2170	> 0.10 (N.S.)
Pale/Red Skin	0.286	0.143	**50**	0.3780	1	0.3	0	**100**	0.4830	1.963	0.7180	> 0.10 (N.S.)

In moderate HTN, control group which was treated with placebo showed only 9.09% relief in headache as compared to 88.89% relief in the trial group which was treated with *Shirodhara* for 15 days and *Tagaradi Kwath* for 2 months, and this difference was statistically highly significant (p <0.001). In palpitation, control group showed no improvement but 87.5% improvement was present in the trial group (p >0.001). In Dizziness, the control group showed only 11.12% relief as compared to 82.35% relief in the trial group, and this difference was statistically highly significant (p<0.001). Although in Breathlessness, the control group showed no improvement, but the trial group

showed 55% improvement (p >0.001). In Fatigue, the control group showed no improvement but 87.5% improvement was present in the trial group (p >0.001). In Chest Pain, the control group showed only 20.03% relief as compared to 66.67% relief in the trial group but this difference was statistically not significant (p >0.05). In Nausea/ Vomiting, the control group showed 39.92% relief as compared to 88.89% relief in the trial group but this difference was statistically not significant (p >0.10). In Pale/ Red skin, the control group showed 50% relief as compared to 100% relief in the trial group but this difference was statistically not significant (p >0.10). % improvement in the trial group was better than the control group but notupto the level of significance because of less number of patients with certain symptoms.

Severe HTN

Table 3: Comparative study of clinical features percentage wise in group III A& III B of severe HTN

Symptoms	Group-II A (Control Gp)					Group-II B (Trial Gp)					t_{IA} vs $_{IB}$	p
	Mean Score		%	SD	t	Mean Score		%	SD	t		
	BT	AT	Relief	±		BT	AT	Relief	±			
Headache	2.2	1.2	**45.45**	0.4714	6.707	2.5	0.7	**72**	0.6325	8.999	6.4128	<0.001 (H.S.)
Palpitation	1	0.3	**70**	0.4831	4.581	1	0.2	**80**	0.4216	6.002	0.4931	>0.10 (N.S.)
Dizziness	1.7	1	**41.18**	0.6750	3.2787	2.2	0.7	**68.18**	0.5271	8.998	2.954	>0.001 (S)
Breathlessness	2	1.1	**45**	0.3162	9	2.1	1	**52.38**	0.3162	11	1.414	>0.10 (N.S.)
Fatigue	1	1	**0**	0	0	1	0.4	**60**	0.5164	3.674	3.674	>0.001 (S)
Chest Pain	1.1	0.8	**27.27**	0.4831	1.9634	1.7	0.7	**58.82**	0.6667	4.7438	2.689	>0.01 (S)
Nausea/ vomiting	0.8	0.2	**75**	0.5164	3.674	0.9	0.1	**88.89**	0.7888	3.2064	0.6709	>0.10 (N.S.)
Pale/Red Skin	1	0.4	**60**	0.5164	3.674	0.7	0	**100**	0.4830	4.58	0.4472	>0.10 (N.S.)

In severe HTN, control group which was given Allopathic medicine (Enalapril) showed 45.45% relief in headache as compared to 72% relief in the trial group in which patients were given TagaradiKwath and Shirodhara along with Enalapril, and this difference was statistically highly significant (p <0.001). In Palpitation, control group showed 70% relief as compared to 80% relief in the trial group and this difference was not significant statistically (p >0.10). In Dizziness, the control group showed 41.18% relief as compared to 68.18% in the trial group (p >0.001). In breathlessness, the control group showed 41.18% relief as compared to 68.18% in the trial group (p >0.001). In fatigue, the control group showed no relief but 60% relief was observed in the trial group (p >0.001). In Chest Pain, the control group showed 27.27% relief as compared to 58.82% relief in the trial group (p >0.01). In Nausea/ Vomiting, the control group showed 75% relief as compared to 88.89% relief in the trial group and this difference was not significant statistically (p >0.10). In the symptom Pale/ Red skin, the control group

showed 60% relief as compared to 100% relief in the trial group but this difference was statistically not significant (p >0.10). The data is suggesting a positive (better) improvement in the trial group over the control group suggesting added advantage of *Ayurvedika* therapy.

Table 4: Mean dose of Enalapril required for control of blood pressure in both Control and Trial groups of Severe Hypertension

Enalapril	Control grp	Trial grp.
Mean Dose (mg/day)	9.5	5.25

Besides excellent symptomatic relief in the patients with Severegrade of Essential HTN with the addition of Ayurveda therapy- Shirodhara and TagaradiKwathwe are able to reduce the dose of Modern medicine (Enalapril), thus curtailing its side effects.

Table 5: Mean control of blood pressure in control and trial groups of all the three grades of Essential Hypertension- Mild, Moderate and Severe.

Mean Control of BP (in mm Hg)	Mild HTN		Moderate HTN		Severe HTN	
	Control Group	Trial Group	Control Group	Trial Group	Control Group	Trial Group
Systolic	0.25	12	2.57	28.2	37	37.8
Diastolic	1	7.14	0.19	20	27.2	28.2

Discussion:

For this clinical study two measures of treatment were adopted namely-*Shirodhara* and *Tagaradi Kwath*[4]. *Shirodhara* is a non-drug treatment whereas *Tagaradi Kwath* was a compound drug comprising of 12 ingredients-*Tagara, Parpataka, Aragvadha, Mustaka, Kutki, Ushira, Ashwagandha, Brahmi, Draksha, Shvetachandana, Dashmula* and *Shankhapushpi*[5]. The possible mode of action of both the therapies can be summed up as under-

Shirodhara-*Shirodhara* with *Madhuyashti Kshirapaka* has a calming effect on the mind and thus reduces the stress, which is one of the causes of essential HTN. *Madhuyashti* being a *medhyarasayana* calms down the anxiety and stress[6], thus results in lowering of BP. *Shirodhara* stimulates the baroreceptors and chemoreceptors of *Sringatakamarma* and help in reducing the BP by release of vasodilator substances. Also it brings about symptomatic relief in headache, fatigue like symptoms by facilitating the release of anti-pain substances viz. b-endorphins and enkephalins[7].

Tagaradi Kwath -*Tagaradi Kwath* has 12 main ingredients. Since hypertension is a *Tridoshaja Vyadhi* with predominence of *Vatadosa,* the various contents of *Tagaradi Kwath* pacify all the three *doshas* in various ways.

Dashmula is *a known Vatashamaka*. Also it has *Shothahara* property. It acts as a diuretic and thus decreases the hydrostatic pressure thereby reducing the BP. *Aragvadha, Kutki, Mustaka* and *Draksha* have *pachana* and *virechana karma* leading to *vatanulomana*, thus pacifying all *Vatadoshas*. *Parpataka, Ushira* and *Shveta Chandana* have *pittashamaka* effect thereby resulting in cooling, thus reducing the symptoms of burning sensation, dizziness and flushing. *Kutki*induces bile secretion thereby promoting the digestion of lipid content of the diet. Thus it promotes the metabolism of lipids. *Ashwagandha* has adaptogenic effect and also act as a *rasayana*. Apart from this *Tagaradi Kwath* contains *Tagara, Brahmi* and *Shankhapushpi* which have got *medhya* effect and possess anti-stress property[8][9]. So various contents of the drug have a multi-pronged approach in combating the menace.

Conclusion:

1. The *Ayurvedika* therapy and drug treatment formulated on the basis of etiopathogenesis result in significant control of blood pressure and has

a definite role in the management of hypertension.

2. A step care management strategy can be formulated on the basis of present study. Only *Shirodhara* is beneficial in the cases of Mild Hypertension.

3 *Shirodhara* and *TagaradiKwath* are beneficial in the cases of Moderate Hypertension.

4 *Shirodhara* and *Tagaradi Kwath* when added to the modern drug in patients of Severe Hypertension have additional benefits. The doses and number of modern drugs can be curtailed by adding the *Ayurvedika* therapy. So the side effects of modern drugs can be minimized or prevented.

Since it is a time bound study, we can't evaluate the effect of *Shirodhara* and *Tagaradi Kwath* in large Number of cases. It requires a specific, selective sampling study. It also requires intense biochemical, clinical and experimental study to establish the details of pharmacological actions.

References:

1. Munjal Y., API- Textbook of Medicine: 9th Edition, Jaypee Brothers Medical Publishers (P) Ltd, 2012, p.2055
2. Fauci, Braunwald, Kasper et al, Harrison's principles of Internal Medicine, 17th Edition, McGraw Hill Medical, 2008, p.1549-1562.
3. Nicki R.Colledge, Brian R.Walker, Stuart H.Ralston, Davidson's Principles and Practice of Medicine, Elsevier, Churchill Livingstone, 21th Edition, 2010, p.606-612.
4. Gupta H.C. et.al., A new step care treatment of Hypertension, PhD thesis, BHU,1990.
5. Shastri Ambikadutt Kaviraj, Bhaishajya Ratnavali, Pandit Govind Das Senkrita, vidyotinihindivyakhya, Jwarachiktsaprakaranam, 2011, 5/281.
6. CharakSamhita, Commentary ChakrapaniDutta, Ed. R.K.Sharma, Bhagwan Das; Chaukhamba Sanskrit Series, Varanasi, 1984.
7. Yadaiah P. Dr., Clinical Panchkarma, 3rd Edition, Dr.P.JayalaxmiYadaiah, Hyderabad, 2013, p. 14-16.
8. Sharma P.V.Prof, Dravyaguna Vigyanam, Chaukhamba Bharti Academy, Varanasi, Reprint 2012.
9. Mishra Brahmshankar, VaishyaRupalalji, BhavaprakashNighantu: by ShriBhav Mishra, Chaukhamba Sanskrit Bhawan, Varanasi, 2012, p. 28-29, 269-270, 279-281.

Clinical Study

A Clinical study on *Karnabadhirya* w.s.r. to Sensorineural hearing loss (SNHL) with *Nagaradi Taila*, *Gudadi Nasya* and *Arogya Rasayana*

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Abstract:

Karna is the seat of *Shravanendriya*, the functional aspect of hearing. *Karnabadhirya* is main symptoms of *Karnaroga*. The treatment of *Karnabadhirya* is same as *Karnashoola* i.e. *Vatashamanachikitsa*.

There is no established treatment module for SNHL in the modern science. In this clinical study for *Vata* & *Kaphadoshashamana,* we have used the medicine *Nagaragi Taila*, *Gudadi Nasya* and *Arogya Rasayan* in three study groups for comparative.

The improvement in the status of patients has been assessed on various parameters and compared between pre trial and post trial values.

Keywords: *Karnabadhirya, Vatadosha, Nagaradi Taila, Gudadi Nasya, Arogya Rasayan* etc.

सारांश–

श्रोत्रेन्द्रिय का अधिष्ठान कर्ण है। कर्णबाधिर्य विविध कर्णरोगों का एक मुख्य लक्षण है। कर्णबाधिर्य चिकित्सा में कर्णशूल के समान वातदोष शमन चिकित्सा की जाती है। कर्णबाधिर्य की आधुनिक चिकित्सा विज्ञान में संवेदनात्मक बाधिर्य से तुलना की जा सकती है। इस चिकित्सकीय अध्ययन में वातदोष शमन के लिये नागरादि तैल कर्णपूरण, गुडादिनस्य एवं आरोग्य रसायन का तीन समूहों में तुलनात्मक अध्ययन किया गया है तथा उनकी चिकित्सा के पूर्व एवं चिकित्सा के पश्चात् विभिन्न मापदण्डों के आधार पर तुलनात्मक अध्ययन किया गया है।

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Clinical Study

A Clinical study on *Karnabadhirya* w.s.r. to Sensorineural hearing loss (SNHL) with *Nagaradi Taila*, *Gudadi Nasya* and *Arogya Rasayana*

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Introduction-

Shalakya Tantra, one among the eight branches of *Ayurveda* is considered with due importance by ancient scholars since it deals with the parts of vital importance as well as sensory organs. Any impairment anywhere in these structures could result in serious complications which might produce disturbances in somatic and psychic health there by hampering the routines of the individual.

Karna is the seat of *Shravanendriya*, the functional aspect of hearing. They are related with *Shabdavaha Srotas* and *Nadis*. According to *Sushruta*, the *Srotas* are of two types, one in *Antahmukha* or introverted and the other is *Bahirmukha* or extroverted. *Karna* is the one among the *Bahirmukha Srotas*[1].

The term deaf is frequently applied to those who are deficient in hearing as well as people who are unable to detect the loudest sound.

WHO recommended that the term deaf should be applied only to those individual whose hearing impairment is so severe that they are unable to benefit from any type of amplification[2].

Over 5% of the world's population i.e. 360 million people has disabling hearing loss (328 million adults and 32 million children). Disabling hearing loss refers to hearing loss greater than 40 db in the better ear in adults and a hearing loss greater than 30 db in the better ear in children.

Around half of all deafness and hearing impairment can be prevented if common cause were dealt with at primary health care level. According to modern point of view hearing loss can be of three types[3] –

1. Conductive hearing loss
2. Sensori neural hearing loss
3. Mixed hearing loss

It is a fact that systemic descriptions of *Karnaroga* are available in all the ancient texts. *Badhirya* is one among the *Karna-gatarogas* that can be correlated with Sensori neural hearing loss.

The characteristics of SNHL are[4] –

- A positive Rinne's test i.e. Air Conduction > Bone Conduction.
- Weber test lateralised to better ear.
- More often involving high frequencies.
- No gap between air and bone conduction curve on audiometric test.
- Loss may exceed 60 db.
- Speech discrimination is poor.
- There are difficulties in hearing in the presence of noise.

But there is no established treatment module for SNHL in the modern science. In *Ayurveda* many preparations for the management of *Badhirya* have been mentioned. To make a safe, economic and effective treatment protocol according to *Ayurveda*, this present work was selected with three trial drugs i.g. *Nagaradi Taila*[5], *Gudadi Nasya*[6] and *Arogya Rasayana*.

In the present clinical trial the patients of *Badhirya* fulfilling the inclusion criteria were registered from OPD/IPD of P.G. department of *Shalakya Tantra*, National Institute of *Ayurveda*, Jaipur.

Material And Methods

Plan of study

Patients attending the OPD/IPD of P.G. department of *Shalakya Tantra*, National Institute of *Ayurveda*, Jaipur with signs and symptoms of

Badhirya (SNHL), having age between 10 to 60 years were selected for the present clinical study and randomly divided into three groups. A total number of 45 patients were registered and studied into three groups.

Group I : 15 patients were administered *Nagaradi Taila Karnapurana* and *Arogya Rasayana* orally.

Group II: 15 patients were treated with *Gudadi Nasya* and *Arogya Rasayana* orally.

Group III: 15 patients were treated with *Gudadi Nasya* and *Nagaradi Taila Karnapurana.*

Dose schedule :

Nagaradi Taila : 6 to 10 drops in each ear once daily in the morning.

Gudadi Nasya : 6 to 8 drops in each nostril once daily in the morning.

Arogya Rasayana : 6 grams orally twice daily.

Duration of trial : one month.

Criteria of assessment :

Table no. I

Grade of Sign & Symptom	*Badhirya* (Deafness)	*Karnanada* (Tinnitus)	*Bhrama* (Dizziness)
0	25 db (better ear)	No sound heard	No dizziness
1	26 – 40 db (better ear)	Only heard in quiet environment, no interference with sleep or daily activities	Slight dizziness on working
2	41 -60 db (better ear)	Occasionally interfere with sleep but not daily activities	Moderate dizziness on working
3	61 -80 db (better ear)	Occasionally interfere with sleep and daily activities	Moderate to severe dizziness on working
4	81 db or more (better ear)	Almost always heard, leads to disturb sleep pattern	Severe dizziness on working

Observations :

The observational data of 45 registered patients was collected and grouped on the basis of Age, Sex, Occupation, Habitat, Dietary habits, Socioeconomic status, *Prakriti*, Marital status, Educational status, *Nidana*, Symptomatology etc.

Clinical Profile

Table No. II

	Group I	Group II	Group III	Total
Patients Registered	15	15	15	45
Completed the trial	15	15	13	43
LAMA	00	00	02	02

Total 45 patients were registered for the present clinical work. 43 patients completed the trial and 02 patients discontinued.

Table No. III : Effect of *Nagaradi Taila Karnapurana* and *Arogya Rasayana* on various symptoms of *Badhirya* (SNHL) in group I (paired 't' test)

S.N.	Symptoms	Mean Value			% Relief	SD (±)	SE (±)	t value	p value
		BT	AT	DE					
1.	*Badhirya*	2.07	1.53	0.53	25.81	0.60	0.15	2.59	< 0.05
2.	*Karnanada*	0.73	0.27	0.47	63.64	0.67	0.17	2.02	> 0.05
3.	*Bhrama*	0	0	0	0	0	0	0	>0.10

Table No. IV : Effect of *Gudadi Nasya* and *Arogya Rasayana* on various symptoms of *Badhirya* (SNHL) in group II (paired 't' test)

S.N.	Symptoms	Mean Value			% Relief	SD (±)	SE (±)	t value	p value
		BT	AT	DE					
1.	*Badhirya*	2.33	1.60	0.73	31.43	0.60	0.16	3.52	< 0.01
2.	*Karnanada*	0.33	0.07	0.27	80	0.62	0.16	1.26	> 0.10
3.	*Bhrama*	0.27	0.00	0.27	100	0.52	0.14	1.48	> 0.10

Table No. V : Effect of *Gudadi Nasya* and *Nagaradi Taila Karnapurana* on various symptoms of *Badhirya* (SNHL) in group III (paired 't' test)

S.N.	Symptoms	Mean Value			% Relief	SD (±)	SE (±)	t value	p value
		BT	AT	DE					
1	*Badhirya*	2.15	1.62	0.54	25	0.52	0.14	3.74	< 0.01
2	*Karnanada*	0.77	0.38	0.38	50	0.77	0.21	1.81	< 0.05
3	*Bhrama*	0.15	0.08	0.08	50	0.28	0.08	1.00	> 0.10

Table No. VI : Effect of therapy on *Badhirya* in each group (paired 't' test)

Groups	Mean Value			% Relief	SD (±)	SE (±)	t value	p value	Rem-arks
	BT	AT	DE						
Group I	2.07	1.53	0.53	25.81	0.60	0.15	2.59	< 0.05	S
Group II	2.33	1.60	0.73	31.43	0.60	0.16	3.52	< 0.01	S
Group III	2.15	1.62	0.54	25.00	0.52	0.14	3.74	< 0.01	S

Table No. VII : Effect of therapy on *Karnanada* in each group (paired 't' test)

Groups	Mean Value			% Relief	SD (±)	SE (±)	t value	p value	Rem-arks
	BT	AT	DE						
Group I	0.73.	0.27	0.47	63.64	0.67	0.17	2.02	> 0.05	NS
Group II	0.33	0.07	0.27	80.00	0.62	0.16	1.26	> 0.10	NS
Group III	0.77	0.38	0.38	50.00	0.77	0.21	1.81	< 0.05	S

Table No. VIII : Effect of therapy on *Bhrama* in each group (paired 't' test)

Groups	Mean Value			% Relief	SD (±)	SE (±)	t value	p value	Rem-arks
	BT	AT	DE						
Group I	00	00	00	00	00	00	00	> 0.10	NS
Group II	0.27	0.00	0.27	100	0.52	0.14	1.48	> 0.10	NS
Group III	0.15	0.08	0.08	50.00	0.28	0.08	1.00	> 0.10	NS

Effect of Therapy On Various Symptoms in All Groups

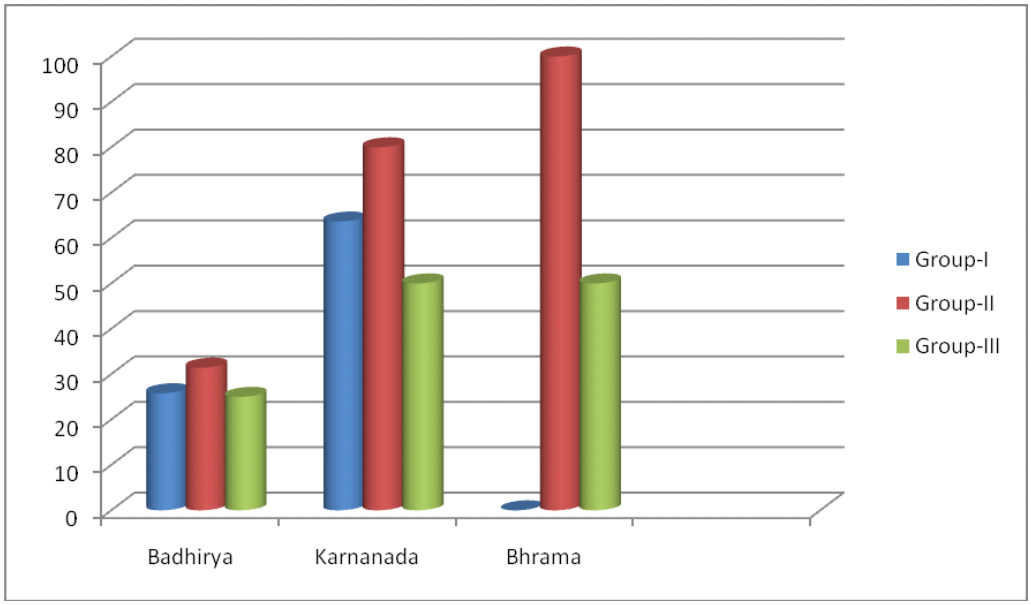

Table No. IX : Overall Effect of Therapy

Result	No. of patients						Total no. of patients	% of relief
	G – I	%	G – II	%	G – III	%		
Cured	0	00	1	6.67	3	23.08	4	9.30
Moderate Relief	2	13.33	1	6.67	0	00	3	6.98
Mild Relief	6	40.00	9	60.00	4	30.77	19	44.18
Unchanged	7	46.67	5	33.33	6	37.50	18	41.86

Discussion :

The present clinical study involved 43 patients of *Badhirya* (SNHL); maximum were belonging to 51 to 60 year age group (44.19%), Male sex (76.74%), Hindu religion (83.72%), Married (86.05%), Service men (27.91%), Middle class group(60.47%), Urban habitat (62.79%), Regular food habbit (62.79%), Bilateral ear involved (72.09%), *Vata-Kapha Prakriti* (55.81%), Disturbed sleep pattern (58.14%) and Noisy surroundings (62.79%).

Mostly the patients were revealed with *Anashanaaharanidana* (60.45%) and exposure to cold *Viharaja Nidana* (60.45%).

The patients presented with associated symptoms had *Karnanada* (25.58%) and *Bhrama* (9.30%). In the present study maximum (41.86%) patients were found with Grade-II hearing loss, 27.90% patients were found with Grade-III hearing loss, 23.26% patients were found with Grade-I hearing loss and 6.98% patients were found with Grade-IV hearing loss.

Effect on *Badhirya* :

While assessing the clinical improvement in the symptom of *Badhirya*, the present study showed 25.81% relief in group-I which is statistically significant ($p < 0.05$), in group-II31.43% relief and in group-III 25% relief was observed which was found significant statistically ($p < 0.01$).

Effect on *Karnanada* :

The effect of therapy on the symptom of *Karnanada* in the present study showed 63.64% relief in group-I, 80% in group-II which was found statistically non significant and in group-III 50% relief was observed which was found statistically significant ($p < 0.05$).

Effect on *Bhrama* :

The effect of therapy on the symptom *Bhrama* showed 0% relief in group-I, 100% relief in group-II, 50% relief in group-III which was found statistically non significant ($p > 0.10$) in all the groups.

Effect of *Nagaradi Taila Karnapurana* and *Arogya Rasayana* (Group-I)

Present study shows 25.81% relief in *Badhirya*, 63.64% improvement in *Karnanada* and none of the patients were found having the symptom of *Bhrama*.

Effect of *Gudadi Nasya* and *Arogya Rasayana* (Group-II)

Present study shows 31.43% relief in *Badhirya*, 80% improvement in *Karnanada* and 100% improvement in *Bhrama*.

Effect of *Gudadi Nasya* and *Nagaradi Taila Karnapurana* (Group-III)

Present study shows 25% relief in *Badhirya*, 50% improvement in *Karnanada* and 50% improvement in *Bhrama*.

Overall Effect of Therapy

Overall the combined effect of therapy among 43 patients of *Badhirya* showed that 4 patients (9.30%) were cured, 3 patients (6.98%) showed moderate improvement, 19 patients (44.18%) showed mild improvement and no improvement was observed in 18 patients (41.86%).

Conclusion :

The present clinical study essentially aimed to evaluate the effectiveness of three *Ayurvedic* formulations viz. *Nagaradi Taila, Gudadi Nasya* and *Arogya Rasayana* in the management of *Badhirya* w.s.r. to sensori-neural hearing loss. A total number of 43 patients were selected and randomly divided into 3 groups. All the formulations were found effective in reducing signs and symptoms and found statistically significant on various criterias of assessment.

References:

1. Shastri Ambikadutta. Sushruta Samhita of Sushruta, Ayurveda Tattva Sandipika Hindi commentary, Part-I, Sharira Sthana. Reprint ed. , Ch.5/10, Page No.56 . Varanasi: Chaukhamba Sanskrit Sansthan; 2011.
2. Dhingra PL, Dhingra Shruti. Diseases of Ear Nose and Throat, 5th ed., Ch. 5, Page No. 42, Elsevier India (P) Ltd.; 2010.
3. Dhingra PL, Dhingra Shruti. Diseases of Ear Nose and Throat, 5th ed., Ch. 4, Page No. 25, Elsevier India (P) Ltd.; 2010.
4. Dhingra PL, Dhingra Shruti. Diseases of Ear Nose and Throat, 5th ed., Ch. 5, Page No. 37, Elsevier India (P) Ltd.; 2010.
5. Tripathi Indradev, Tripathi Dayashankar. Yogaratnakara, Vaidyaprabha Hindi commentary, Karnaroga Chikitsa, Shloka No. 53, Page No. 733 . Varanasi: Chaukhamba Krishnadas Academy; 2013.
6. Tripathi Jagadishvara prasad. Chakradatta of Sri Chakrapanidatta, Bhavarthasandipini Hindi commentary, Karnaroga Chikitsa, Shloka No.30, Page No.459. Varanasi: Chaukhamba Sanskrit Series Office; 2008.

Clinical Study

Clinical evaluation of *Pippalee (Piper longum* Linn.*)* in *Agnidushti*

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Abstract:

Agni has prime role to maintain the healthy state of body. Ancient *Ayurveda* scholars have opined vitiation of *agni* is the root cause of all diseases. In the present era, diseases related to *anna vaha srota* and *purisha vaha srota* are commonly observed in clinical practice, in which *agni* is a prime responsible factor. Present study aimed to evaluate the efficacy of *pippalee* (*Piper longum* Linn.) in *agnidushti*. 60 patients were selected irrespective of their sex, religion and occupation based on inclusion and exclusion criteria. Powder of *Pippalee* fruit *(Piper longum* Linn.*)* with plain water in dilute form was administer in selected patients at a dose of 2 gm. into two divided doses per day in between two meals for a period of one month. After one month, all the subjective and objective parameters were evaluated. The efficacy of the stipulated drug on *agnidushti* was evaluated based on statistical analysis. Based on analysis study resulted out that after one month administration of drug, powder of *pippalee* (fruit of *Piper longum* Linn.), was significantly effective in subjective parameters of *agnidushti*.

Keywords: *Agni, Pippalee, Agnidushti.*

सारांश:

स्वस्थावस्था को बनाये रखने में अग्नि की महत्वपूर्ण भूमिका है। प्राचीन आयुर्वेदीय आचार्यों के मतानुसार दूषित अग्नि सभी रोगों का मूल है। वर्तमान समय में अन्नवह व पुरीषवह स्त्रोतगत व्याधि सबसे ज्यादा पायी जाती है, जिसका मुख्य कारण अग्निदुष्टि ही है। अग्निदुष्टि में पिप्पली की कार्मुकता देखने हेतु वर्तमान शोध कार्य किया गया है। जाति, धर्म, व्यवसाय निरपेक्ष से 60 रोगियों का शोध कार्य में समावेश किया गया। भोजन के मध्य में 2 ग्राम पिप्पली फल के चूर्ण को दो मात्रा में विभाजित करके सामान्य पानी के साथ दिन में दो बार एक माह तक सेवन करवाया गया। एक माह के पश्चात सभी रोगियो का पुनः परीक्षण किया गया। पर्यवेक्षण के आधार पर यह देखा गया कि पिप्पली चूर्ण अग्निदुष्टि के लक्षणों पर उत्तम प्रभावी हैं।

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Introduction:

Shareera is composed of *dosha dhaatu* and *mala*[1]. Out of these three components, *dosha* has an important role for the regulation of the body[2]. All these *dosha* possess some specific qualities to maintain the life[3]. *Pitta* possesses the *ushna guna* which is identical to qualities of *agni* and this *ushna guna* is responsible for all types of metabolic activity[4]. The ingested food particles are directly digested, absorbed and metabolized through the action of *ushmatva* of *agni* and in due course of time the heat is produced for sustaining the body in a homeostatic state[5]. However, no diseases can occur without the vitiation of *vaayu, pitta* and *kapha* but apart from these three factors, the distinct role of *agni* cannot be ignored[6]. Fundamentally, all the diseases are produced due to *mandaagni* and the term *mandaagni* is implied in terms of *mandaagni, tekshnaagni, vishamagni* or ultimately the altered state of *agni*[7]. The fundamental principle to treat any disease is *agni samrakshana*[8]. By means of concurrent science, the functions of *agni* are likely to be compared with gastric juice and different enzymes at gastro intestinal level[9]. All of them are responsible for digestion, absorption and metabolism. Altered function of the enzymes secreted from gastro intestinal tract leads to pathogenesis several of gastro intestinal diseases. In the present era, diseases related to *anna vaha srota* and *purisha vaha srota* are commonly observed in clinical practice, in which *agni* is a prime phenomenon. In the pathogenesis of disease, *dosha, dushya, srota, agni* and *aama* are required to be analyzed for fruitful treatment[10]. *Agni* is vitiated due to *abhojana, ajeerna bhojana, ati bhojana, vishamaashana, ati ruksha bhojana, guru bhojana, seeta bhojana, asaatma bhojana, samdushta bhojana, vireka vibhrama, vamana vibhrama, sneha vibhrama, vyaadhi karshana, desha-kaala-ritu vaishaamya, vega vidhaarana*, with manifestation of specific sign and symptoms[11]. *Pippalee* is a well known drug in *Ayurveda*. Botanically identified as *Piper longum* Linn. fruit and root of the plants are used in various disease conditions. *Pippalee (Piper longum* Linn.*)* by virtue of *katu rasa* and *anushna veerya, laghu, snigdha, tikshna guna*, *pippalee* may acts on *agnidushti* by initiating its activity[12]. Present study aimed to evaluate the efficacy of *pippalee* (*Piper longum* Linn.) in *agnidushti*.

Materials and methods:

Selection of the patients: 60 patients were selected from OPD and IPD of Institute of Post Graduate Ayurvedic Education and Research at Shyamadas Vaidya Shastra Pith, irrespective of their sex, religion and occupation.

Inclusion criteria:

1. Patients having the sign and symptoms of *agnidushti*.
2. Patients above 16 years of age and below 70 years of age. [13]
3. Patients were willing to include themselves in the study.
4. Primarily detected *agnidushti* patients not taking any medicines.
5. Patients satisfying the maximum subjective criteria for *agnidushti*

Exclusion criteria:

1. Patients below the age of 16 years and above 70 years of age.[13]
2. Patients those who were not willing to include themselves in the study.
3. Patients suffering from any other systemic diseases like Hepatic Failure, Renal Failure, Cardiac Disorder, Diabetes Mellitus, Malignancy and Thyroid Disorders.

4. Patients with certain Gastro Intestinal symptoms not satisfied the subjective criteria of *agnidushti*.
5. Patients were receiving any other supplementary therapy.

Subjective parameters of *agnidushti*[14]:

Vishtambha (abdominal distension), *Sadana* (depression), *Shiraruka* (head ache), *Murcchaa* (fainting), *Bhrama* (reeling and fall on ground), *Prishthagraha* (griping pain in back of chest), *Jrimbhaa* (yawing), *Angamarda* (twisting pain) ,*Trishnaa* (feeling of thirst), *Jvara* (rise of body temperature), *Chardi* (Vomiting), *Pravaahana* (tenesmus), *Arocaka* (unwilling for food), *Avipaaka* (indigestion).

Objective parameters of *agnidushti*:

1. Examination of Stool for Routine Examination and Microscopic Examination (occult blood)
2. Biochemical tests:
   a. L.F.T (Liver Function Test) with G.G.T (Gamma Glutamyl Transpeptidase)
   b. Serum amylase
   c. Serum Lipase

Administration of drug:

Powder of fruit of *Pippalee* (*Piper longum* Linn.) with plain water in dilute form was administered in selected patients at a dose of 2 gm in two divided doses per day in between two meals for a period of one month. After one month, all the subjective and objective parameters were evaluated. The efficacy of the stipulated drug on *agnidushti* was evaluated on the basis of the statistical analysis.

Dropped out of patient:

Among the 60 patients, total 6 patients were dropped out during study course. Hence, complete clinical study had been accomplish in 54 patients.

Follow up:

All the patients reviewed after 7days, 15 days and 7 days accordingly for a period of 30 day.

Assessment of subjective parameters for *agnidushti*:

Subjective parameters evaluated by the preliminary approach of arbitrary grading system. Appropriate literary meaning of particular words made the grading.

Table I. scoring of subjective parameters for *agnidushti*:

Sign and symptoms	Score				
	0	1	2	3	4
Vishtambha (abdominal distension)	Abdominal distention not occurs.	Abdominal distention present occasionally in 24 hours.	Abdominal distention present 2 times in 24 hours.	Abdominal distention continuously present in 24 hours.	Abdominal distension continuously present more than 24 hours.
Sadana (depression)	No depression	Depression in unfavorable condition	Depression in favorable condition	Intermittent depression	Continuous depression.
Shiraruka (head ache)	Headache not occurs.	Headache occurs occasionally in 24 hours.	Headache occurs intermittently in 24 hours.	Headache continuously present in 24 hours.	Headache continuously present more than 24 hours.
Murcchaa (fainting)	Fainting not occurs.	Fainting for 5 minutes in an attack.	Fainting for 10 minutes in an attack.	Fainting for 15 minutes in an attack.	Fainting for 20 minutes in an attack.

Bhrama (reeling and fall on ground)	Reeling & fall on ground not occurs.	Reeling & fall on ground occurs occasionally in 24 hours	Reeling & fall on ground occurs 1 times in 24 hours.	Reeling & fall on ground occurs 2 times in 24 hours.	Reeling & fall on ground occurs maximum time in 24 hours
Prishthagraha (griping pain in back of chest)	Griping pain behind chest not occurs.	Griping pain behind chest intermittently in 24 hours.	Griping pain behind chest 12 hours in 24 hours.	Griping pain behind chest continuously 24 hours.	Griping pain behind chest continuously more than 24 hours.
Jrimbhaa (yawing)	Yawing not occurs.	Yawing occurs occasionally in 24 hours.	Yawing occurs at regular interval in 24 hours.	Yawing occurs continuously in 24 hours.	Yawing occurs continuously more than 24 hours.
Angamarda (twisting pain)	Twisting pain in whole over the body not occurs. occasionally in 24 hours.	Twisting pain in whole over the body occurs	Twisting pain in whole over the body in a particular time in 24 hours.	Twisting pain in whole over the body in 24 hours.	Twisting pain in whole over the body more than 24 hours.
Trishnaa (feeling of thirst)	No Feeling of thirst.	Feeling of thirst 7-9 times/24 hrs either/or intake of water 5-7 times/24 hours with quantity 1.5-2 lit/ 24 hours.	Feeling of thirst 9-11 times/24 hrs. either/ or intake of water 7-9 times/24 hours with quantity 2-2.5 lit/ 24 hours.	Feeling of thirst 11-13 times/24 hrs. either/ or intake of water 9-11 times/24 hours with quantity 2.5-3 lit/ 24 hours.	Feeling of thirst >13 times/ 24 hrs. either/ or intake of water >11 times/ 24 hours with quantity >3 lit/ 24 hours.
Jvara (rise of body temperature)	Body temperature is in normal state.	Rise of body temperature occasionally in 24 hours	Rise of body temperature in particular time in 24 hours.	Rise of body temperature intermittently in 24 hours.	Rise of body temperature continuously in 24 hours (99°F).
Chardi (vomiting)	Vomiting not occurs.	Vomiting occurs occasionally in 24 hours.	Vomiting occurs particular time in 24 hours.	Vomiting occurs once in 24 hours.	Vomiting occurs twice in 24 hours.

Pravaahana (tenesmus)	Tenesmus not present in every defecation in 24 hours.	Tenesmus present in every defecation occasionally in 24 hours.	Tenesmus present in every defecation intermittently in 24 hours.	Tenesmus present in every defecation continuously in 24 hours.	Tenesmus present in every defecation continuously more than 24 hours.
Arocaka (unwilling for food)	Willing towards all food.	Unwilling towards food occurs occasionally.	Unwilling for food but could take the meal.	Unwilling towards aversion for foods but not to the other.	Totally unwilling for food.
Avipaaka (indigestion)	Indigestion not occurs.	Indigestion occurs after intake of heavy food.	Daily after each meals / seldom feels hunger but eats the foods	Eats only once in a day and does not have hunger by evening.	Never gets hungry always feel heaviness in abdomen in every day

Table II. shows assessment of grading and remarks:

Grade	Grade of point	Sign (degree)	Remark
G4	4	++++	Very severe
G3	3	+++	Severe
G2	2	++	Moderate
G1	1	+	Mild
G0	0	Nil	Normal

Assessment of progress of subjective parameters:

The assessment of progress was first note at the end of 7 days, 15 days and after 7 days i.e. after the course of treatment.

An assessment scale was framed to assess the rate of improvement. At the end of treatment the result in view of percentage of relief was classified under the following headings.

Table III. Shows assessment of percentage of relief and remarks:

Percentage of relief	Remark
100% improvement of subjective parameters.	Complete remission
>75%-100% improvement of subjective parameters.	Marked improvement
>50%-75% improvement of subjective parameters.	Moderate improvement
>25%-50% improvement of subjective parameters.	Mild improvement
Equal or <25% improvement of subjective parameters.	No improvement

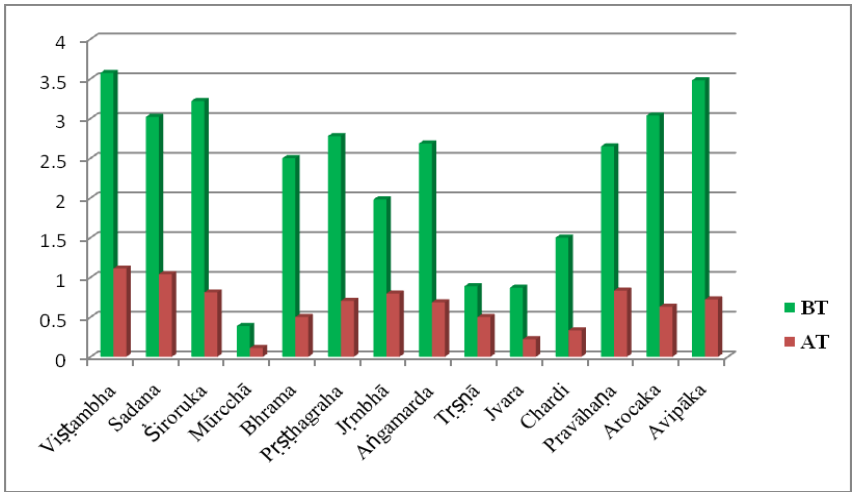
Statistical analysis:

Drug effect was evaluated by Statistical method Paired t-test.

Result: Effect of drug on subjective parameters:

Table IV. Effect of test drug on the subjective parameters of *agnidushti*:

Sl. No.	Sub. Para.	N=54	Mean score		% of relief	S.D. (±)	S.E.M (±)	't' value	P value
			BT	AT					
01.	*Vishtambha*	53	3.574	1.111	68.91	8.584	1.168	2.10	<0.05
02.	*Sadana*	50	3.02	1.04	65.56	6.041	0.822	2.40	<0.05
03.	*Shiraruka*	48	3.22	0.81	74.72	8.742	1.189	2.02	<0.05
04.	*Murcchaa*	15	0.388	0.111	71.39	1.458	0.198	1.39	>0.05
05.	*Bhrama*	45	2.50	0.50	80	7.192	0.978	2.06	<0.05
06.	*Prishthagraha*	46	2.778	0.704	74.65	7.233	0.984	2.10	<0.05
07.	*Jrimbhaa*	44	1.981	0.796	59.81	3.623	0.493	2.40	<0.05
08.	*Angamarda*	52	2.685	0.685	74.49	6.152	0.837	2.39	<0.05
09.	*Trishnaa*	25	0.888	0.500	43.79	1.337	0.182	2.13	<0.05
10.	*Jvara*	18	0.870	0.222	74.52	2.316	0.315	2.05	<0.05
11.	*Chardi*	30	1.50	0.333	77.80	3.468	0.472	2.47	<0.05
12.	*Pravaahana*	48	2.648	0.833	68.54	5.412	0.736	2.46	<0.05
13.	*Arocaka*	54	3.037	0.630	79.25	7.930	1.079	2.23	<0.05
14.	*Avipaaka*	54	3.481	0.722	79.25	9.730	1.324	2.08	<0.05



Graph 1: Shows the effect of drug on the subjective parameters of 54 patients of *agnidushti*.

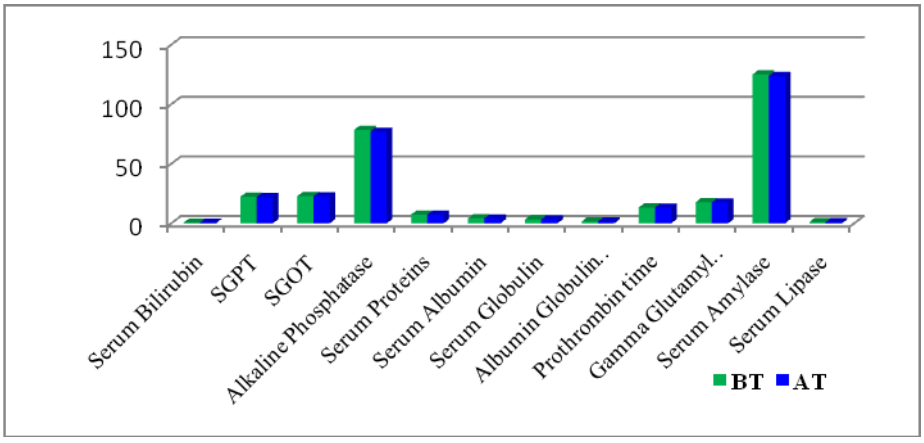
Effect of drug on objective parameters:

Before and after administration of drug the biochemical parameters and examination of stool were observed. Objective parameters were observed in 30 patients out of 54 patients of *agnidushti*. That's why the analysis was done in 30 patients.

Biochemical tests:

Table V. effect of drug on the biochemical tests of 30 patients of *agnidushti*:

Sl. No.	Objective Parameter	N=30	Mean score		% of relief	S.D. (±)	S.E.M (±)	't' value	P value
			BT	AT					
01.	Serum Bilirubin	30	0.494	0.469	5.06	0.130	0.023	1.08	>0.05
02.	SGPT	30	22.27	22.07	0.898	0.550	0.100	2	>0.05
03.	SGOT	30	22.83	22.63	0.876	0.637	0.116	1.72	>0.05
04.	Alkaline Phosphatase	30	78.46	76.93	1.96	4.477	0.817	1.87	>0.05
05.	Serum Proteins	30	7.34	7.23	1.50	0.145	0.026	4.35	<0.001
06.	Serum Albumin	30	4.186	4.113	1.74	0.130	0.023	3.17	<0.001
07.	Serum Globulin	30	3.326	3.283	1.31	0.063	0.011	3.90	<0.001
08.	Albumin Globulin ratio	30	1.685	1.658	1.60	0.055	0.010	2.7	<0.01
09.	Prothrombin time	30	13.3	13.1	1.50	0.550	0.100	2	>0.05
10.	Gamma Glutamyl Transpeptidase	30	17.733	17.566	0.941	0.531	0.097	1.72	>0.05
11.	Serum Amylase	30	125.033	123.6	1.146	4.099	0.748	1.91	>0.05
12.	Serum Lipase	30	1.08	1.07	0.648	0.025	0.004	1.75	>0.05



Graph 2: shows the effect of test drug on the biochemical tests of participant.

Result and observation:

The assessment of progress was first noted at the end of 7th day, 15th day and 30th day i.e. after the course of treatment. An assessment scale was framed to assess the rate of improvement. Result obtained from this study is tabulated bellow.

Table VI. percentage of relief of subjective parameter after treatment:

Percentage of relief	Remark	Subjective parameter
100% improvement of subjective parameters.	Complete remission	No such
? 75% - < 100% improvement of subjective parameters.	Marked improvement	*Bhrama* (Reeling and fall on ground), *Chardi* (Vomiting), *Arocaka* (unwilling for food), *Avipaaka* (Indigestion).
? 50% - < 75% improvement of subjective parameters.	Moderate improvement	*Vishtambha* (Abdominal distension), *Sadana* (Depression), Shiraruka (Head ache), *Murcchaa* (Fainting), *Prishthagraha* (Griping pain in back of chest), *Jrimbhaa* (Yawing), *Angamarda* (Twisting pain), *Jvara* (Rise of body temperature), *Pravaahana* (Tenesmus).
?25% - < 50% improvement of subjective parameters.	Mild improvement	*Trishnaa* (Feeling of thirst)
< 25% improvement of subjective parameters.	No improvement	No such

Discussion:

Digestion in terms of jatharaagni paaka; absorption in terms of bhutaagni paaka, and metabolism in terms of dhaatvaagni paaka is radically ensure the role of agni in the process of digestion, absorption and metabolism. Agnimaandya i.e. suppression of the power of digestion and metabolism causes the aggravation of all the three doshas. To assess the state of agni preliminary approach was taken to make an arbitrary grading system (table-I) where Grade 4 was considered as maximum agnidushti and Grade 0 was considered as the minimum agnidushti (table-II). After one month administration of drug marked and moderate improvement was observed. Study pointed out that the selected drug (powder of Piper longum Linn.) was significantly effective in subjective parameter of agnidushti (table-IV). All the subjective parameters were to be found statistically significant ($P<0.05$) except Murcchaa where observed 'p' value was statistically insignificant ($P>0.05$). Significant changes of objective parameters were observed on the parameter of serum proteins, serum albumin, serum globulin, albumin globulin ratio. Others were found to be insignificant (table-V). At the end of treatment the result in view of percentage of relief was classified (table-VI). Here in no such parameter 100% improvement was observed. Less than 100% to 75% i.e. marked improvement of subjective parameters were observed on the parameters of bhrama (reeling and fall on ground), chardi (vomiting), arocaka (unwilling for food), avipaaka (indigestion). Moderate improvement (≥50% - < 75%) was observed on the parameters of vishtambha (abdominal distension), sadana (depression), shiraruka (head ache), murcchaa (Fainting), prishthagraha (Griping pain in back of chest), jrimbhaa (yawing) , angamarda (twisting pain), jvara (rise of body temperature), pravaahana (tenesmus). Similarly mild improvement (≥25% - < 50%) was observed on the parameter trishnaa. The drug pippalee is a well drug in *Ayurveda* due to its multidimensional action. The drug may acts through its katu rasa (pungent taste), laghu (light), snigdha (unctuous), tikshna guna (raggedness property),

madhura vipaaka (sweet metabolic transformation) and anushna veerya (medium temperate active potency)[15]. All the dravya are constitute by five mahaabhuta[16]. So, after analysis the pancabhautika composition of pippalee, it was observed that Pippalee have the capacity to mitigate the agnidushti by its deepana (stimulation of digestion), paacana (digestion and metabolism), rocana (craving), lekhana (scrap), vrimhana (nourishing) and shodhana (purification) karma (action). In *aamaavasthaa* the *deepan, paacana, rocana, lekhana* etc. *karma* and in *pacyamaanaavasthaa shodhana karma* are conscientious.

Conclusion:

Present study finds out that subsequent one-month administration of drug, powder of *pippalee* fruit (*Piper longum* Linn.), was significantly effective in subjective parameter of *agnidushti*. Eventually marked to moderate improvement was observed in the participants but no significant changes were found in most of the objective parameters of *agnidushti,* assessed in this study. Reason behinds this may be the limitation of study like mall sample size, short duration of study and few objective criteria were not found in each selected patient.

References:

1. Acharya JT, editor. Sushruta Samhitaa of Sushruta. Sutra Sthana, Reprint edition. Ch.15, Ver. 3. Varanasi: Chaukhambha Sanskrit Sansthan; 2013.p.67.
2. Paradakara Shastri HS, editor. Astanga Hridaya of Vagbhata, Sutra Sthana, Reprint ed., Ch.1, Ver.6. Varanasi: Chaukhamba Sanskrit Sansthan; 2014.p.6.
3. Acharya JT, editor. Charaka Samhitaa of Agnibesha, Sutra Sthana. Reprint edition. Ch.1, Ver.59-61. Varanasi: Chaukhambha Prakashan; 2011.p.16-17.
4. Acharya JT,editor. Charaka Samhitaa of Agnibesha, Sutra Sthana. Reprint edition.Ch.12, Ver.11. Varanasi: Chaukhambha Prakashan; 2011.p.80.
5. Acharya JT,editor. Charaka Samhitaa of Agnibesha,Cikitsa Sthana. Reprint edition.Ch.15, Ver.9-15. Varanasi: Chaukhambha Prakashan; 2011.p.512-514.
6. Acharya JT, editor. Charaka Samhitaa of Agnibesha, Sutra Sthana. Reprint edition. Ch.19, Ver. 5. Varanasi : Chaukhambha Prakashan; 2011.p.111.
7. Paradakara Shastri HS, editor. Astanga Hridaya of Vagbhata, Nidana Sthana, Reprint ed., Ch.12, Ver.1. Varanasi : Chaukhamba Sanskrit Sansthan; 2014.p.513.
8. Acharya JT, editor. Charaka Samhitaa of Agnibesha,Cikitsa Sthana. Reprint edition. Ch.5, Ver. 136. Varanasi: Chaukhambha Prakashan; 2011.p.442.
9. Dwarakanatha C. The Concept of Ama and Sama, In: Introduction to Kayacikitsa. 3rd ed. Varanasi: Chaukhambha Orientalia; 1996. p .45.
10. Acharya JT,editor. Charaka Samhitaa of Agnibesha, Vimana Sthana. Reprint edition.Ch.8,Ver.101. Varanasi: Chaukhambha Prakashan; 2011.p.278.
11. Acharya JT, editor. Charaka Samhitaa of Agnibesha,Cikitsa Sthana. Reprint edition. Ch.15, Ver. 42-44. Varanasi: Chaukhambha Prakashan; 2011.p.517.
12. Acharya JT, editor. Charaka Samhitaa of Agnibesha, Sutra Sthana. Reprint edition.Ch.26, Ver.42 (4). Varanasi: Chaukhambha Prakashan; 2011.p.144.
13. Acharya JT, editor., Sushruta Samhitaa of Sushruta, Sutra Sthana. Reprint edition. Ch. 35, Ver. 29. Varanasi:Chaukhambha Sanskrit Sansthan; 2013. p.155.
14. Acharya JT, editor. Charaka Samhitaa of Agnibesha,Cikitsa Sthana. Reprint edition.Ch.15, Ver.45-46. Varanasi: Chaukhambha Prakashan; 2011. p. 517.
15. Pandey G.C, editor. Bhava Prakash Nighantu of Bhavamisra. 7th edition. Varanasi: Chaukhambha Bharati Academy Publication; 1986. p. 15.
16. Acharya JT, Charaka Samhitaa of Agnibesha, Sutra Sthana . Reprint edition. Ch. 26, Ver.10. Varanasi: Chaukhambha Prakashan; 2011.p.138.

Clinical Study

An Etiopathological Study of *Madhumeha* (Diabetes Mellitus) and The Therapeutic Effect of *"Mehantaka Yoga"*

**Dr. Rakesh Saraswat, **Dr. Sunil Yadav, ***Prof. Loknath Sharma*

Abstract

In the present clinical study, clinically diagnosed fifteen *madhumehi* patients were recommended allopathic medicine (Glipizide) in the dose of one tablet (5mg) a day with water before 15 minutes of meal for two month as a control group A and fifteen *madhumehi* patients were recommended *Ayurvedic* medicine (*Mehantaka yoga*) 2-2 capsule (500 mg each) twice a day with like worm water before 15 minutes of meal for two month as an *ayurvedic* medicine group B and fifteen *madhumahi* patients were recommended allopathic medicine (Glipizide) in the dose of one tablet (5mg) a day along with (*Mehantaka* capsule) 2-2 twice (500mg each) a day with luke worm water before 15 minutes of meal for 2month as a combined group C. patient were thoroughly assessed on various subjective and objective and laboratory parameters. after 60 days of therapy a significant improvement in various clinical parameters of madhumeha was observed.

Key words :- *Madhumeha*, Diabetes mellitus, *Mehantaka Yoga*, Hyper Glycemia.

सारांश–

उपस्थित चिकित्सकीय शोध में 45 रोगियों में से 15 रोगियों को ऐलोपैथिक मेडिसिन (ग्लीपीजाइड) 5 मि.ग्रा. दिन में एक बार (पानी के साथ खाने से 15 मिनट पहले) दो माह तक दिया गया एवं 15 रोगियों को आयुर्वेदिक मेडिसिन (मेहान्तक योग) 2–2 कैप्सुल (500 मि.ग्रा. प्रत्येक) दिन में दो बार गुनगुने पानी के साथ खाने से 15 मिनट पहले दिया गया तथा 15 रोगियों को ऐलोपैथिक मेडिसिन एवं मेहान्तक योग का दिन में दो बार गुनगुने पानी के साथ 2 महीने तक दिया गया तथा 2 माह की चिकित्सा के उपरान्त परीक्षण करने पर योग का मधुमेह के विभिन्न लक्षणों में लाभ पाया गया। अतः मैहान्तक योग निश्चित रूप से मधुमेह की चिकित्सा में लाभकारी हैं।

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Clinical Study

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Introduction

In modern medical science, symptomatology of Madhumeha is equivalent to the features of Diabetes mellitus. Among the several health problems Diabetes mellitus is a giant disease considered as one of the arch enemy of the mankind. Diabetes and its complications pose a major threat to future public health resources throughout the world. Based on a compilation of studies from different parts of the world, the World Health Organization (W.H.O.) has projected that the maximum increase in diabetes would occur in India.The Ayurvedic management of Diabetes aims not only to achieve a strict glycemic control but also to treat the root cause of the disease. For it various modalities of treatment are developed which depends upon the underline pathology.

Modern view

Diabetes mellitus is caused by an absolute or relative lack of insulin that, among other consequences, leads to an increase in plasma glucose concentration. The disease was given its name because of the glucose excretion in the urine. The disease can be classified into several types, depending on its cause and course. This classification is useful, even though it is greatly simplified. **In type I [insulin-dependent diabetes mellitus (IDDM)],** previously called juvenile diabetes;--A there is an absolute lack of insulin, so that the patient needs an external supply of insulin. The condition is caused by a lesion in the beta cells of the pancreas, as a rule produced by an autoimmune mechanism that may, in certain circumstances, have been triggered by a viral infection. The pancreatic islets are infiltrated by T lymphocytes and autoantibodies against islet tissue [islet cell antibodies (ICA) and insulin (insulin autoantibodies {IAA}] can be detected. ICA may in some cases be detected years before the onset of the disease. After the death of the beta cells, the ICA again disappears. 80% of patients form antibodies against glutamatede-carboxylase expressed in the beta cells. Type I diabetes mellitus occurs more frequently in the carriers of certain HLA antigens (HLA-DR3 and HLA-DR4), i.e. there is a genetic disposition.

Type II (Non-insulin-dependent diabetes mellitus [NIDDM]), formerly called maturity onset diabetes;--**B** is by far the most common form of diabetes. Here, too, genetic disposition is important. However, there is a relative insulin deficiency: the patients are not necessarily dependent on an exogenous supply of insulin. Insulin release can be normal or even increased, but the target organs have a diminished sensitivity to insulin.

Most of the patients with type II diabetes are overweight. The obesity is the result of a genetic disposition, to large an intake of food, and too little physical activity. The imbalance between energy supply and expenditure increases the concentration of fatty acids in the blood. This in turn reduces glucose utilization in muscle and fatty tissues. The result is a resistance to insulin, forcing an increase of insulin release. The resulting down regulation of the receptors further raises insulin resistance. Obesity is an important trigger, but not the sole cause of type II diabetes. More important is the already existing genetic disposition to reduced insulin sensitivity. Frequently, insulin release has always been abnormal. Several genes have already been defined that promote the development obesity and type II diabetes. Among other factors, the genetic defect of a mitochondrial decoupling protein limits substrate consumption. If there is a strong genetic disposition, type II diabetes can already occur at a young age (maturity-onset diabetes of the young [MODY]).

Reduced insulin sensitivity predominantly affects the insulin effect on Reduced insulin sensitivity predominantly affects the insulin effect on glucose metabolism, while the effects on fat and

protein metabolism are still well maintained. Thus, type II diabetics tend especially toward massive hyperglycemia without corresponding impairment of fat metabolism.

Relative insulin deficiency can also be caused by autoantibodies against receptors or insulin as well as by very rare defects in the biosynthesis of insulin, of insulin receptors, or of intracellular transmission. (→C)

Even without any genetic disposition, diabetes can occur in the course of other diseases, such as pancreatitis, with destruction of the beta cells **(pancreas deprived diabetes; →C)** or by toxic damage to these cells. The development of diabetes mellitus is promoted by an increased release of antagonistic hormones. Among these are somatotropin (in acromegaly), glucocorticoids (in cushing's disease or stress [so called **steroid diabetes**]), epinephrine (in stress), progestogens and choriomammotropin (in pregnanacy), ACTH, thyroid hormone, and glucagon. Severe infections increase the release of several of the above hormones and thus the manifestation of diabetes mellitus (→C).[1,2]

Ayurvedic View

According to *Vagbhata* two types of pathogenesis get precipitated 3 – *Dhatukshayata Avritapathata* 3

The different types of *Samprapti* which are mentioned by various *Acharyas* are being described below. *Sampraptivishishta Anilatmaka Madhumeha*

तथाविध शरीरे - बहुद्रव श्लेष्मा, बहु अबद्धमेद, बहु क्लेदयुक्त शरीरे । [4] (Ch.Chi. 4/6 Chakrapani)

This Samprapti of Vataja Prameha mentions the persons who have the specific body tendency for Prameha onset i.e. Tathavidha Sharire. These persons may be due to genetic predisposition, Prakriti manifestation or sedentary habits have the specific Abaddhatva Meda Bahulyata. If these persons consume excessive Vata provocative Ahara, Vihara or Manobhighatakara Bhava, their Vata gets provoked quickly. This provoked Vata further gets implicated by Meda. Now this provoked Vata – Meda complex leads to transfer of either or Vasa, Majja, Lasika, Oja to Mutravaha Srotasa. When Oja due to influence of Vata adopts Kshaya and Ruksha Guna and excreted through urinary tract this disorder is called Madhumeha.[4]

In this context, the process of Avarana is to be understood very clearly. As per the commentary of Chakrapani in context of Gulma and Rakta-pitta, it is obvious that there may be three types of Vata Avarana.Avarana of Vriddha Vata by Vriddha Dosha or Dushya: e.g. Samprapti of Madhumeha. 4 Avarana of Vriddha Vata by Sama or Kshina Dosha either or Dushyas: e.g. Samprapti of Madhumeha 5.Avarana of Sama Vata by provoked Dosha or Dushya: e.g. Samprapti of Madhumeha.Tathavidha Sharire (Genetic predisposition) can also be related to Sahaja Prameha. Sushruta narrated that Sahaja Prameha precipitated because of defect in Beeja 6. Charaka says that Sahaja Madhumeha is a Kulaja Vikara, because of the defect in Beeja (sperm/ovum).

Madhumeha due to Shuddha Vata:Charaka says that–

क्षीणेशु इति वष्द्धवातापेक्षया क्षीणेशु ५ ।

(Ch.Chi. 6/6 Chakrapani)

Due to depletion of Kapha and Pitta, Vata gets aggravated and causes the excretion of Dhatus (like Vasa, Majja, Oja and Lasika) through urinary tract resulting into Madhumeha.[5]

उत्पत्तिविषिश्टानिलजानामसाध्यत्वेनाचिकित्स्यत्वात् । [5]

(Ch.Chi. 6/34, Chakrapani)

i.e. this category of Madhumeha is Asadhya due to Vata as Arambhaka Dosha and its further resultant provocation due to Dhatukshaya.

Dhatukshayajanya Madhumeha

अपकर्शितेश्विति क्षीणेशु, क्षयस्तेशां प्रमेहारम्भकेण वातेनैव उपपोशणादिभिः कर्षनाद् वा क्रियते । [5]

(Ch.Chi. 6/11, Chakrapani)

The Kshaya of Gambhira and Sarabhuta Dhatus like Vasa, Majja, Oja and Lasika lead to Vata Prakopa. The expulsion of Sarabhuta Dhatus through urine occurs in such excess quantity that this Kshaya itself acts as etiological factor again, for Vata Prakopa. Hence this vicious cycle goes on and on, but due to Ashukaritva property of Vata all the stages of Samprapti proceed so fast that it leads to Asadhya stage of disease very quickly.[5]

Avritapathata (Avaranjanya) Madhumeha

Though *Vagbhata* narrated the cause of this

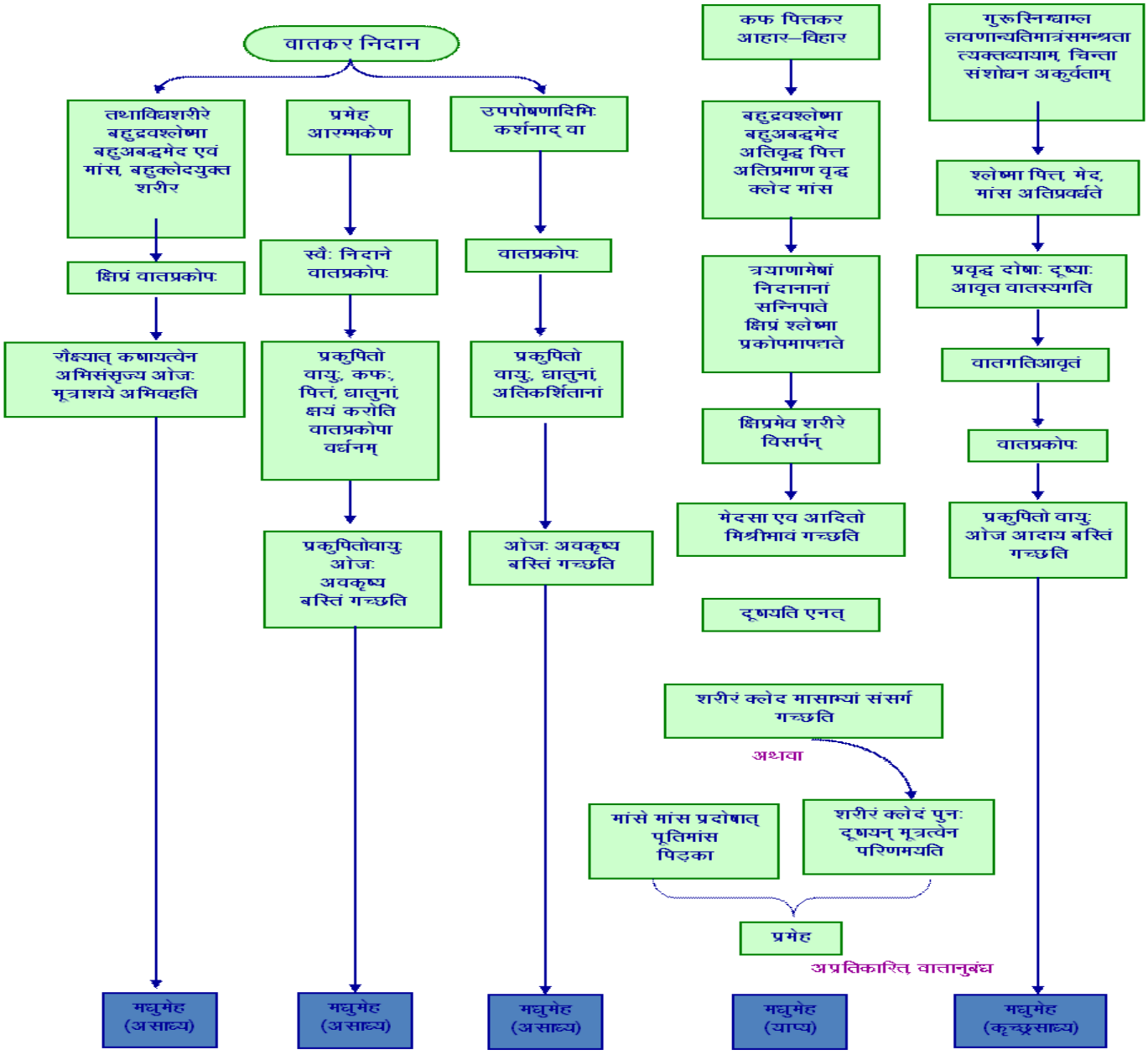
type of *Madhumeha* but not explained the pathogenesis. Charaka emphasized this pathogenic process in well elaborative manner. This is the unique contribution of *Charaka*.

Due to excessive indulgence of heavy, unctuous, salty and sour diet, Avoidance of worry, exercise and purificative measures. *Kapha* and *Pitta* get provoked and vitiates *meda* and *mamsa*. All are in excess quantity. They in turn cause obstruction to the normal pathway of Vata. This obstructed *Vata* get aggravated and draws out the *Apara Oja* from all over the body and carries it towards basti resulting Madhumeha.[7] The *Kricchrasadhyata* of this Avaranajanya Madhumeha is due to provocation of Vata by Kapha-Pittakara etiological factors. Initially, the Vata Dosha remains innocent in the pathology.

Kala Prabhavaja Madhumeha

This type of *Madhumeha* is described by Sushruta. He does not mention the direct pathogenesis but narrated that when all types of Prameha when ignored or ill treated, they get converted into Madhumeha[3]. This is not a separate entity but we can say that this is the last stage or further progression of Kaphaja and Pittaja Prameha or complicated stage of the diseases[6]

SAMPRAPTI



Importance Of This Work

The main aim of present research work is to manage the Madhumehi persons with a herbomineral formulation i.e. Mehantaka yoga (Hypothetical). Present Research work has been undertaken with the following aims and objectives.

- To assess the presence of various etiological factors explained by ayurveda in the diagnosed cases of diabetes mellitus.
- To established a relationship of Nidanas mentioned in Ayurvedic and Modern literature.
- To assess the efficacy of "Mehantaka yoga" (kalpit) in management of Madhumeha (DM).
- To analyze the pathogenesis of Madhumeha (DM).

Clinical Study

Materials And Methods

1. Selection Of Patients

Patients for therapeutic drug trial were selected from the OPD and IPD of the Hospital, National Institute of Ayurveda, Jaipur after screening them as per Ayurvedic and Modern criteria for Madhumeha. Selection was carried out according to relevant history, sign, symptoms and Laboratory investigations including Body Mass Index for Madhumehi person. The minimum number of patents were forty five.

(A) Inclusion Criteria

- Apparently normal individuals between 30 to 70 years of age exposed to various type of stress.
- Diagnosed cases of Madhumeha (DM).
- Patients With Mild Hypertension And Controlled Diabetes Mellitus Will Be Included.

(B) Exclusion Criteria

- Patients of age less than 30 years and above 70 years.
- Patients taking drugs like corticosteroids, tricyclic antidepressant, cycloheptadine which leads to weight gain.

(C) Diagnostic Criteria

- All the patients were diagnosed on the basis of following criteria

Clinical Signs And Symptomatology

- Following symptoms were observed in patients for diagnosis

(01) Chala, Sphiga, Udara and Stana

(02) Ayathopachaya (03) Prabhoot Mootata

(04) Aavil Mootrata (05) Pipasadhikya

(06) Kshudhadhikya (07) Swedatipravritti.

(08) Daurbalya (09) Aalasya

(10) Atinidra (11) Vibandh

(12) Malavritta Jihwa (13) Kar-Paada Daha

(14) Mukhmadhurya (15) Tandra

(16) Krichvyavyata (15) Sandhi Shula

- **Raised Body Mass Index**
- **Raised Hip and Waist Circumference**
- **Various Investigations –**
- *Hematological* – T.L.C., D.L.C, E.S.R., Hb%
- *Biochemistry* – F.B.S., P.P.B.S., Lipid Profile GHb%.
- *Urine Examination* – F.U.S., P.M.U.S., Albumin, pH, Sp.gravity etc.

Follow Up Study

- Patients were followed up after one month and two month.
- Laboratory investigation was repeated after complete treatment.
- Improvement and other effects were noted down.

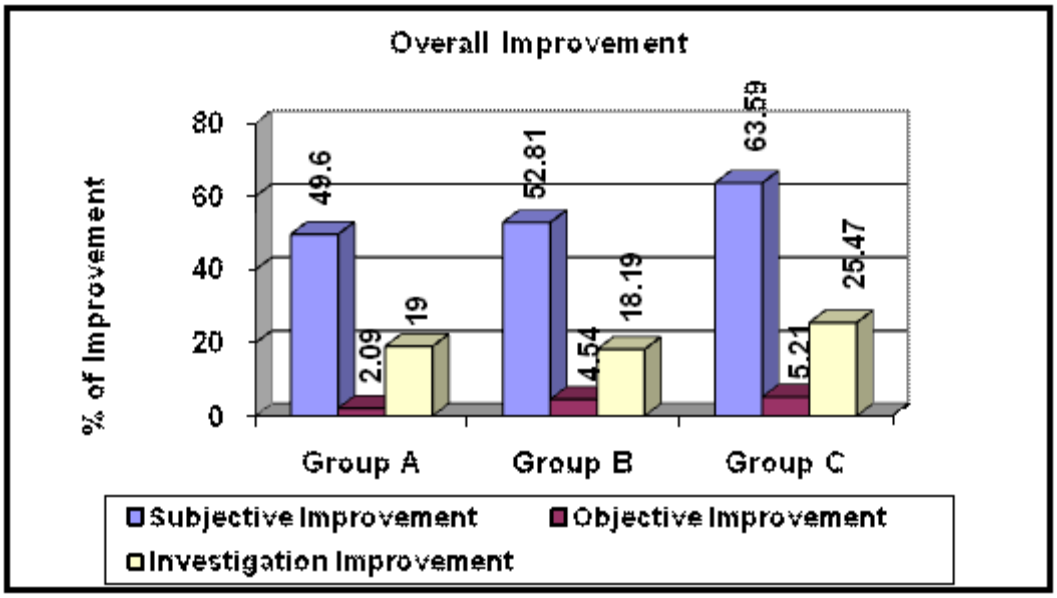
Criteria For Assessment

After the completion of the treatment, the results were assessed by adopting the following criteria.

- Improvement in signs and symptoms of disease on the basis of symptoms score.
- Improvement in laboratory Investigation (i.e. reduce levels) on the basis of lab reports.
- Reduction in Objective assessment parameters.

Showing the comparative improvement in percentage of Madhumehi persons in all Groups separately.

S.No.	Observations	Group A	Group B	Group C
1.	Subjective Improvement	49.60%	52.81%	63.59%
2.	Objective Improvement	2.09%	4.54%	5.21%
3.	Investigation Improvement	19.00%	18.19%	25.47%



Drug Review

Ingredients Of This Drug (Mehantaka Yoga) Are As Follows 9

Amalaki	Guduchi	Kaarvallak
Jambu	Meshsringi	Haridra
Nimba	Aamra	Vang

Mode Of Action

The majority of drugs have *Tikta kashaya rasa, katu vipaka* and *kapha pitta shamaka* properties. These properties of drug are exactly opposite to vitiated meda & kapha dosha of diabetic patients. Due to vata kapha shaman properties of the drug,[9] it normalized the vitiated dosha & it expressed in the form of significant improvement in signs & symptoms parameters. In the state of DM vata prokapa is the main pathological symptoms. vata prakopa mainly their Ruksha, Laghu, Sheeta, Kharah guna. These drugs act by their Tikshna-Guna, Usna-Veerya property they pacify vitiated vata dosha and bring it in the normalized state. By their ushna and Teeksna guna these drugs breakdown the Avarana of vata present in DM. These drugs clean the microchannels (srotas) as a result the level of Agni is improved. It activates the Dhatu poshana karma of Body. The proved antioxidant properties of Amalaki and Guduchi, verify the rasayan properties described in ayurvedic texts. Both the drugs are Tridoshahar, by their rasayan karma & Tridoshahar properties these drugs help in the treatment of Madhumeha, as in Madhumeha almost all Dhatus are vitiated

Discussion

Madhumeha is a disease in which the patient voids excessive quantity of urine having similarity with Madhu i.e. of Kashaya and Madhura taste, Ruksha texture and honey like color.8 In Madhumeha, mainly the Vata and Kapha are predominant though the disease is *Tridoshakopanimittaja*.[4] The *Vata* may be provoked

either directly by its etiological factors or by the Avarana of its path by Kapha, Pitta or other Dushyas. So, Vagbhata has classified the Madhumeha into two categories i.e. Dhatuapakarshanajanya Madhumeha and Avarnajanya Madhumeha.[3] Avaranajanya pathogenesis occurs due to etiological factors mainly concordant with Kapha and Pitta, but the vitiation fo Vata occurs due to *Avarana*. *Dhatuapakarshanajanya* pathology occurs due to depletion of Dhatus, because of the Vata vitiating etiological factors. Acharya Charaka has classified *Madhumeha* into *Santarpanajanya* and *Apatarpanajanya*.[5] The *Apatarpanajanya Madhumeha* can be correlated with *Dhatuapakarshanajanya Madhumeha*, while the Santarpanajanya Madhumeha correlates with Avaranajanya Madhuemeha. Therefore, this disease may be caused both by the under nutrition as well as by over nutrition. The first type of Madhumeha is considered to be Asadhya and no specific remedy is recommended for this. But, the later type has been told as Krichhra Sadhya and can be cured with extensive measurements. The main pathophysiology behind Diabetes mellitus is the disturbed metabolism of the carbohydrates, fats and proteins due to either absolute or relative lack of Insulin. The Diabetes mellitus has been broadly classified as type I and type II.[2] The type I Diabetes mellitus patients are usually asthenic in body constitution and suffer from it in the early years of life, while the type II Diabetes mellitus patients are usually obese and suffer from it in their fourties.[2] The type II Diabetes mellitus patients can be managed easily by hypoglycemic drugs whereas in type I Diabetes mellitus patients besides hypoglycemic drugs, the Insulin therapy is obscure. So, the type I Diabetes mellitus is nearer to Dhatuapakarshanajanya Madhumeha while the type II Diabetes mellitus resembles to Avaranajanya Madhumeha. Coming to pathogenesis of these diseases, kapha plays important role. It is aggravated first, which in turn aggravates the medodhatu, as their properties are identical. Now the aggravated or the dushit medodhatu behaves as a dosha causing atisthaulya and Prameha.[5]

Obesity develops as the result of an excessive consumption of calories; particularly carbohydrate or the obese state itself may be related to hyperinsulinemia.In Diabetes the receptors of the cell is responsible to influx of glucose within the cell from extra cellular fluid (ECF) is failed. Researchers have identified a protein called PC-1 that seems to shut down the insulin receptors of cell. This would explain why the body is resistant to insulin. Thus srotas are not able to carry dhatu (glucose) from ECF to within the cell (*srotosanga*) & glucose circulates in the body (*vimargagamana*). So, we can say that srotosanga & vimaragagamana are the main srotodusti and these are responsible for hyperglycemia. Another cause of diabetes is Agnimandya, because insulin does help in this carrying process of glucose from extracellular to intracellular space. Diabetes mellitus being a hereditary disease is spreading from generations to generation. The changing lifestyle, lack of exercise, fast food and stress are also major reasons for the new patients and for the enhancement of the disease in old ones. Unfortunately, these causative factors remain hidden and are ignored at management level. In the pathogenesis of the Avaranajanya Madhumeha, the kapha and pitta are the main Dosha, whereas the most important Dushyas are Meda and *Kleda*. In *Madhumeha*, the *Dhatukshaya* is also predominant, So, in its management such drugs have to be selected which are against *Meda* and *Kleda* as well as have the *Rasayana* effect.

Most of the modern drugs used in the management of Diabetes produce immediately good response but have side effects also. But it is matter of great concern that the patient of DM has to continue the treatment for a long time. Most of the allopathic drugs, though quite effective but usually produce several side/ toxic effects in the patients of Diabetes Mellitus when used for a long time. At times these drugs also lead to disturbance in the autonomic function of the body. It is also observed that if the patients stop the treatment in between the course of therapy, the symptoms of the disease aggrevate, which at time, lead to several withdrawal effects which are produced in the body of the patients. Most important amongst these is the refound effect of the precipitation of the symptoms of the disease DM.

Considering the limitation in the use of modern drugs in the management of DM. it was considered useful to evaluate certain Ayurvedic drugs on various scientific parameters for the

management of the disease, which could be safe, effective, cost effective, easily available and without any side / toxic, effects. With this objective Mehantaka yoga was selected as a trail drug in the management of DM. Overall study shows symptomatic improvement in Group A was 49.60%, in Group B was 52.81%, while symptomatic improvement in Group C was 63.59%. Overall percentage of improvement on physical parameters in Group A was 2.09% in Group B was 4.54% while in Group C was 5.21%. It showed that group C with symptomatic improvement (63.59%) & Laboratory inprovment (25.47%) had better results in comparison to Group B with symptomatic improvement (52.81%) and laboratory improvement results of improvement than group A (Glipizied only) and group B (*Mehantaka yoga* only) on clinical parameters. No complication was noted in any group

Thus, *Mehantaka yoga* (Hypothetical) when used separately or with OHA (oral hypoglycemic agents) is a good remedy for the management of *Madhumeha (Diabetes mellitus)*.

Conclusion

On the basis of present study entitled "An etiopathological study of *Madhumeha* (Diabetes mellitus) & the therapeutic effect of *Mehantaka yoga*" the following observations are concluded. The disease *Madhumeha* is well documented in vedic literature and is described in detailed in all the Ayurvedic classics like Brihatraye and Laghutraye. The clinical entities Madhumeha and Diabetes mellitus have got a striking similarly inclinicalmanifestation, etiology, pathogenesis, and treatment so there is correlation between both of them. The present research work showed that Diabetes mellitus is more common in upper middle class because of their sedentary and comfortable life style. The problem of Diabetes mellitus is as older as humanity. This has changed equidistantly with the change in human lifestyle, human value, environmental condition, food & occupational habit. Modification of food habit, quantity, quality of food & interval between two meals play an important role in Diabetes mellitus. Mehantaka yoga (hypothetical) was very effective in reducing symptomatic parameter, parameters of physical examination & blood sugar levels. All the patients tolerated medicines very well and no side effects or toxicity effects of any of these drugs were reported by any of the patients, suggesting there by that the drugs selected for the current clinical trial are absolutely safe for internal use by the patients.Patients who were dependent on ayurvedic drugs had better improvement than those on allopathic medicine. Group C (Glipizied + Mehantaka yoga) showed better

References

1. Pathophysiology, S.Silbernagi & F.lang,edition 2006 page no 286-292 Thomas J. Nawak.edition2004 Page no 462-468
2. Harsh Mohan's Text book of pathology. Page no 843-846
3. Astanga hridaya with vidyotani hindi commentary by kaviraj Atridev gupta 11 th edition 1993 Nidan sthan page no s255
4. Charaka samhita by Chakrapani tika by Yadavjee Nidan sthan 2001 page no 212-215 Charaka samhita 1 by pt Kashinath shastri & Dr Goraknath chaturvedi Nidan sthan page no 630-638
5. Charaka samhita by Chakrapani tika by Yadavjee Chikitsa sthan 2001 page no 446-449 Charaka samhita 2 by pt Kashinath shastri & Dr Goraknath chaturvedi Chikitsa sthan page no 227-235
6. Sushruta samhita with hindi translation by Ambika dutta shastri 8 th edition 1993 Nidan sthan page no 251-255
7. Charaka samhita by Chakrapani tika by Yadavjee sutra sthan 2001 page no 103-105 Charaka samhita 1 by pt Kashinath shastri & Dr Goraknath chaturvedi sutra sthan page no 352-355
8. Madhava nidana 1st & 2nd with Madhukosh by shri Sudarshan shastri &shri Yadunandan upadhyaya26 th edition 1976 page no 1-23
9. Bhava prakash nighantu by shri Bhava mishra 5 th edition 1998 Haritakyadi varge page no 10 shaka varga page no 683 Aamradi phalavarga page no 570 Guducyadi varga page no 254-255 page no 328 Aamradi varga page no 550

Clinical Study

A Comprehensive Study on Standardization of *Anguli Pramana* w.s.r. to *Pramana* of *Urdhva Shakha* (Upper Limb)

*Dr. Vikash Bhatnagar, **Dr. Sandeep M. Lahange, ***Dr. Dhannajay

Absract -

Pramana Sharir has been given prime importance in *Ayurveda* classics. *Pramana* means measurement; it plays a major role in understanding the structural constitution of the human body. Besides this *Anguli Pramana*, *Anjali Pramana* & *Hasta Pramana* are also described in *Ayurveda*. The *Anguli Pramana* of different part and subpart of the body has been mentioned in *Ayurveda* classics. Need of Measurement was the prime necessity for human being since the history. Man understand ably turned first to parts of his body and his natural surroundings for measuring instruments. A definite sate of standard unit having consistent inter relation, used to determine magnitude of an entity. *Anguli Pramana* is one of the important concepts in *Ayurveda*. This is described as unit of measurement, which is of Anatomical significance, ample references from the *Samhitas* show *Pramana Sharir* is one of the criteria used in the examination of the person & patient? It helps in determination of the life span, strength and health of the person prognosis and diagnosis of disease too. *Swa Anguli* is the unit measurement seems to be more natural and scientific method. *Ayurveda* has given importance to individualistic approach rather than a generalized one. If the own finger breadth is used for this purpose then the question arises regarding the definite anatomical points where the *Anguli* should be measured. But the individual anthropometric points and criterion to measure are not mentioned in our classics, hence with the help of modern science an effort was made to establish the inclusion of *Pramana Sharir in Ayurveda* Classics is both scientific and authentic.

सारांश

प्रमाण शरीर आयुर्वेद में महत्त्वपूर्ण परीक्ष्य संकल्पनाओं में से एक है। आङ्गुलि प्रमाण मानव शरीर के संरचनात्मक संगठन को समझने में लिए प्रमुख भूमिका निभाता है, संहिताओं में इसके अलावा अंजलि प्रमाण, हस्त प्रमाण, का भी उल्लेख आया है। आयुर्वेदीय संहिताओं में शरीर के विभिन्न अंग प्रत्यंगों का अङ्गुलि प्रमाण बताया गया है। मापन ऐतिहासिक काल में मानव की प्रथम आवश्यकता थी। मानव शरीर मापन के लिए शरीर के कुछ हिस्सों और प्राकृतिक परिवेशों का उपयोग करन शुरू किया। अङ्गुलि प्रमाण आयुर्वेद का एक महत्त्वपूर्ण सिद्धान्त है। संहिताओं में पर्याप्त संदर्भ है कि प्रमाण शारीर व्यक्ति और रोगी की परीक्षा में इस्तेमाल मान दण्डों में से एक है, यह जीवन काल, बल और स्वास्थ्य के निर्धारण में मदद करता है। स्व अङ्गुलि प्रमाण अधिक प्रामाणिक और वैज्ञानिक विधि है। आयुर्वेद में सामान्यकृत व्यक्ति की अपेक्षा व्यक्ति विशेष के सिद्धान्त पर ज्यादा जोर दिया गया है।

यदि स्व अंगुलि का प्रयोग मापन के लिए किया जाए तो यह सवाल उठता है कि निश्चित संरचनात्मक अंग के संदर्भ में अङ्गुलि मान किस स्थान से किया जाये। आयुर्वेदिक संहिताओं में अङ्गुलि प्रमाण के संदर्भ में शरीर रचनात्मक चिन्ह निर्धारित नहीं है। आधुनिक मानव शास्त्र विज्ञान की मदद् से आयुर्वेदिक ग्रंथ में शामिल किये जाने के लिए एक ऐसा प्रयास करने की कोशिश की जा रही है। जो वैज्ञानिक और प्रमाणिक दोनों हो।

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Clinical Study

A Comprehensive Study on Standardization of *Anguli Pramana* w.s.r. to *Pramana* of *Urdhva Shakha* (Upper Limb)

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Introduction:-

Pramana Sharir has been given prime importance in *Ayurveda* classics. *Pramana* means measurement it plays a major role in understanding the structural constitution of the human body including this *Anguli Pramana*, *Anjali Pramana*, *Hasta Pramana* describe in *Ayurveda*. The *Anguli Pramana* of different part and subpart of the body has been mentioned in *Ayurveda* classics.

A patient constitute the *kayadesha* or site for the administration of therapies with a view bringing about he should be examined so as to obtain knowledge regarding the span of life, strength and the intensity of morbidity. With a view the basic goal behind *Pareeksha* is to get knowledge regarding the *Bala* of the *Rogi*. *Pramana* of a *Purusha* gives the detailed Information regarding each body parts in terms of its external features. This can be helpful in understanding the anatomical knowledge required for the practice of *Ayurveda*.

If the own finger breadth use for this purpose this arise the question regarding the definite anatomical points where the *Anguli* should be measured and exact anatomical points of measurement are not mentioned. Thus a problem of standardization of *Anguli Pramana* .A similar situation arises regarding the fixation of exact anatomical points of reference in connection with the measurement of different body part given in *Ayurveda* classics. Anthropometry is a Latin word. "Anthropos" means human and "metry" means measurement. The measurement of man-provides scientific Method and techniques for various measurement and observation on the living man and Skelton. The concept of *Ayurveda*, i.e. measurements with individual parameter looks more scientific method rather than fixing on average basis. But the individual anthropometric points and criterion to measure are not mentioned in our classics, hence with the help of modern science an effort was made to establish that inclusion of *Pramana Sharir in Ayurveda* Classics is both scientific and authentic.

***Ayurveda* Review**

The tool of measurement is known as *maana*. Thus, the measures or *maana* can be broadly considered to be of the following types:

1. *Paayyamaana* –Measures of length
2. *Druvayamaana*- Measures of volume
3. *Poutavamaana*- Measures of weight

Other than these there is one important *Maana*, i.e. *kaala maana* (the measure of time) *Pramana* refers to various means to attain and measurements. In *Ayurveda* classics two types of *Pramana* in the context of measurement are used. One is *Anjali Pramana* and the other *Angula Pramana*. *Angula Pramana* specifically indicates quantitative measurements of human body parts. The measurements of the body parts have been indicated in swa-*Angula Pramana*, whereas other body constituents, including fluids are measured by *Anjali Pramana* .*Pramana* has been given due importance in our classics**.**

Anguli Pramana

Anguli Pramana is a unit of measure followed in ancient time to denote the *Ayama*, *vistara*, *parinaha*, *utsedha* etc. *Aayama* means *Deerdhta* (vertical length or height of body). *Vistara* is horizontal length of body. measurement of complete round border of a substance (circumference) is called *Parinaha*.

***Angula* Can Be Taken As:**

1) Width of the *madhyama parva* of the *madhyama angula*.[1]
2) Measurement obtained by taking the width of the palm and then dividing by Four.[2]

3) *Acharya dalhana* says that the measurement of *marma* as equals to palmer plane i.e. four *Angula*.[3]

4) *Nakha tala bhaga* of *Angushtha*.[4]

5) *paarishadya sabdartha shariram* has described '*Anguli parva*' as Distal nodes and Acharya Dalhan has been used unguli granthi for digital nodes or joint of the finger inter inter phalangial joint which are easily palpable.

6) *Angushtha* use as unit of measurement.[5]

Acharya dalhana described unit measurement for Eye ball with person's own *Angustha* (thumb). He also told that Pramana is two angustha of his own fingers.

7) *Dalhana* has used the word '*Anguli Granthi*' for digital nodes or joint of the finger inter phalangeal joint which are easily palpable.

8) According to *kautilya arthasastra* 8 *yava Madhya* also *madhyamasay purusa* middle finger middle joint (proximal inter phalangeal joint of middle finger is unit measurement for one *Angula*.

Acharya chakrapani described measure the *Anguli Pramana* of female with her finger of male with her finger of children with their own fingers.[6] *Acharya Chakrapani* commenting on *Susruta Samhita* has indicated the site of the proximal inter phalangial joint of the middle finger. Root of the finger and Thumb are the three possible standard of *Angula Pramana*.[7]

Significance of *Anguli Pramana*

A general inquiry regarding *Pramana* was prevalence since time immemorial, which can be traced even up to pre-historical era. This is evident from its notion in the earliest literature like Vedas & oldest medical and other texts.

Acharya Charaka has included *Pramana* among the *Dashavidha Parikshyabhavas*. *Ayupariksha* is an important procedure before starting with the treatment. *Ayupariksha* is done particularly on the basis of measurement of different *Angapratyanga* of the body. Thus *Pramana Pariksha* plays an important role in assessing the *Ayu* of the individual. The assessment and classification of *Sharirik Bala* (immunity) i.e. *Uttam Bala* (Good immunity) and *Heen Bala* (poor immunity) and *Madhyam Bala* (moderate immunity) can be examined with the help of *Anguli Pramaan*.

Acharaya susruta has been described measurement of part and sub part of the body and saras (predominant *Dhatu* and psyche) will be described. for the knowledge of life span.the patient or individual having appropriate *Pramana* of different *Angapratyangas* mentioned is considered to attain *Deerghayu* and *Vittha* and those with moderate and poor measurements attain *Madhyama* and *Alpaayu* respectively.[8]

Acharya Vagbhat has been described the entire body is thus *Eighty-four Angula* in length ;it is equal both in length and breadth; the size mentioned so far of each part of the body is desirable (normal); whereas the less or more of these is undesirable(abnormal).[9]

Other references of *Angula* in *Samhitas* shows that the use of *Angula* as a *Pramana* is used in various fields in *Ayurveda* such as, While describing *Marma* (Vital points) in the body *Sushrutacharya* has described the *Anguli Pramaan* i.e. finger width measurement of each *Marma* and has advised surgeons to avoid taking incision at the particular points of *Marma*.[10]

Modern Review:-

Among civilized people, previous to the introduction of the metric system, linear measurements were derived mostly, if not exclusively, from the human body, Units of measurement were among the earliest tools invented by humans. Ancient Indian measurements related to the body are correlated to the finger. This measure is found throughout the human body in increments. It is the measure used to build ancient temples and is precisely related to the Indus Valley measuring devices. EarlBabylonian and Egyptian records and the Bible indicate that length was first measured with the forearm, hand, or finger.

Concept of Anthropometry[11]

Anthropometry is a Latin word "Anthropos" means human and "metry" means measurement. The measurement of man-provides scientific Method and

techniques for various measurement and observation on the living man and Skelton. It is a systemic, quantitative representation of human body. It deals with the physical dimensions, proportions and variations in measurements. Anthropometry was first used in 19th and early 20th century in criminalistics to identify criminals. Now it has wide application in the field of medicine, space programming and archaeology. Anthropologists have devised a number of measurements for describing the morphology of man. These measurements are defined on the basis of anatomical landmarks and have been in use for many years. Anthropometric surveys provide norms about the physique of national populations. Anthropometry may conveniently be subdivided into the following sections —

(a) Somatometry- measurement of the living body including head and face.

(b) Osteometry—measurement of the skeletal long and short bones.

(c) Craniometry- measurement of the skeletal brain cavity (neurocranium) and face (splanchnocranium).

Somatometric Techniques[12]

Measurements of the body should be taken with the minimum number of clothes preferably in swimming suits. It is easier to locate landmarks on the naked body.

1. The subject should stand erect, barefoot and on a level floor against the wall with his back and hips touching the wall.
2. The feet should run parallel to each other and heels must touch the wall. Measurements should never be taken with shoes on. The shoulders should not be raised upwards.
3. Arms should hand to the maximum and the palms of the hands should touch the thighs. It may be convenient to make a child stand on atable. Anthropometric rod should be placed on the back of the individual, if vertical wall is not available. Arms should hand to the maximum and the palms of the hands should touch the thighs. It may be convenient to make a child. Landmarks and marking them before beginning to take measurements on the body for scientific work.
4. There must be enough light on both the subject and the instrument.
5. The head of the subject should rest without any strain in the eye-ear plane or Frankfurt plane (i.e., tragion and the right orbitale must lie in the same plane).
6. All measurements except those concerning the mid-sagittal plane should be taken on the right side of the body because it is easier to work with instruments with right hand although some experts feel that measures should be taken on the left side because the right side may have undergone changes due to extra workload of the right side. In such cases, measurements should be taken on the left side and special mention should be made thereof.
7. For comparing bilateral symmetry, measurements should be taken on both sides.
8. It must be taken care that the subject should not change his position when measurements are being taken, especially in case of projective measurements.
9. Measurements should not be taken if either the subject or researcher feels bored or tired as they lead to wrong results.
10. The measurements taken with the subject lying are usually greater than those taken while standing.
11. For taking head and face measurements, the subject should be asked to sit on a low stool of about 40 cm. The head should be in eye-ear plane. The landmarks should be marked on the body by a skin-marking pencil. One must have enough practice in locating the landmarks and marking them before beginning to take measurements on the body for scientific work.
12. Measurements should be recorded preferably by another person and the researcher should concentrate on maintaining proper controls.

For all vertical measurements, the anthropometer should be kept vertical. This can be ascertained by fixing an attachable goniometer to the fixed cross bars

Aims and Objectives:

1. To provide scientific parameter of *Anguli Pramana* described in *Susrut Samhita*.
2. To do *Anguli Sthan* determination to find out and fix which site of *Angul* need to be measured.
3. To promote the utility of *Anguli Pramana* in clinical, Para clinical and Surgical fields.
4. To explore the concept of Anthropometry in *Ayurveda Samhita*.
5. To determine the *Pramana of Urdhva Shakha* varios points like *Bhuja Anmsapeetha-kurparanterter, Manibandha, Kurparanterter, Hasta, Hasta Tala*, etc.

Need of Study:

Anguli Pramana is one of the important concepts in *Ayurveda*. *Pramana Sharir* is one of the criteria used in the examination of the patient .It helps in major role in determination of the life span, strength and health of the person and also described in various measurement by *Anguli Pramana* like *Marma Pramana*, *Yantra Pramana*, *Sastra Pramana*, Site of *Siravedha*, *Nabhinaal Kartan*, Incision *Pramana* in different disease. So *Anguli Pramana* is also useful in *Ayurveda* in various measurements taking.

In modern science *Pramana Sharir* is physical Anthropology or Anthrometry which is used only for physical measurement for assessing of height, age, and race. In *Ayurveda Acharya* explained *Pramana* for different body structures remains as a challenge therefore complex measuring techniques and calculations has to be adopted.

Materials and Methods:

The concept related to the subject will be reviewed from *Ayurveda* classics including relevant commentaries. Essential descriptions of Anthropometric measurement are available in modern medical text books. Observational Survey study will be carried out on 100 apparently healthy individuals in and around national institute of *Ayurveda* Jaipur. Measurement would be taken by means of authentic Anthropometric instruments. Reviewing of internet materials, journals and previous research papers related to the subjects.

The present research project is focused on anthropometric measurements of upper limb in reference to the subjects, own *Anguli Praman*. *Acharya Sushruta* described some types of measurements *in Sutra Sthana* chapter 35th (***Aturopkramniya adhyaya***), other than these types- hand breadth and two types of finger breadth measurement from various commentaries (*Addhamal* and *Dalhan*) had been taken.

The following instruments were used for anthropometric measurements.

Instruments

- Measuring tape
- Vernier's calliper
- Anthropometer

Inclusion criteria

- Apparently healthy individuals of age group 25 to 35 years
- Both male and female

Exclusion criteria

- Individuals with congenital deformities
- Individuals with deformities like fracture, pathologies pertaining to musculoskeletal system and other metabolic disorders
- Individuals who had undergone amputation of limb

After deciding which measurements are to be taken, the next important challenge was to determine the surface landmarks on the body for these measurements as given in the *samhitas*. This was very difficult because in *samhitas* it is not clear that from which point the measurements should be taken, for example, even though *bhuja* is described but it is not mentioned that the measurement should be taken on anterior, posterior, lateral or medial aspects. Also, it is hard to determine which point exactly represents the *bhuja*. So the modern anthropometrical landmarks were taken into consideration for measuring the organs.

Assessment criteria:- *Anguli Pramana (i.e figure breadth)* was measured using measuring callipers according to references mentioned in the

classics. The length of *Bhuja* (arm and forearm together), *Amsapeetha Kurparantaranter* (Arm), *Manibandh Kurparantaranter* (forearm) , *Hasta* and the circumference of the wrist joint, the hand breadth hand length and finger breadth according to profarma prepared is taken. The measurements of both left and right arm were taken body. The measurements were taken in centimetres for standardization as per metric system & converted into *Anguli Pramana* and then analyzed statistically.

Anguli Pramana:-

Calculation of *Anguli Pramana*

Anthropometric measurements for unit measurement of *Anguli*, five parameters were taken and the landmarks for each measurement were fixed carefully. All the reading were taken in centimetres with the help of Vernior's calliper and then converted into *Angula Pramana* as described below

1. Width of the palm at the level of metacarpo-phalangeal joints (2nd -5th) and dividing it by four. - (BH-1)
2. Width of line joining the level of proximal inter phalangeal joint of Index finger and **distal inter phalangeal** joint of little finger and dividing it by four.-(BH-2)
3. Width of line join between Proximal inter phalangeal joint of Index finger and **Proximal inter phalangeal** joint of little finger and dividing it by four.-(BH-3)
4. Width of inter phalangeal joint of thumb (*Angustha*).-(BT)
5. Width of *Madhyama Parva* of *Madhyama Anguli* or Width of proximal Inter- phalangeal joint of middle finger.-(BMF)

Upper limb measurements

1. Length of the *Bhuja*:-

The measurement has been taken from the Acromion (most lateral point on the lateral margin of the acromial process) to stylon (corresponds to the deepest point in the styloid process of radius) when the subject was in anatomical position. Measurement is taken with the arm hanging downwards.

Instrument used- Anthropometer (first segment)

2. Length of the *Amsapeetha Kurparantaranter* :-

For the Length of arm measures the straight distance between acromion and radiale (it is the highest point on the upper margine of radial capitulum) was measured while the subject was standing in a relaxed position with the arm hanging by the sides.

Instrument used- Anthropometer (first segment)

3. Length of the *Manibandh kurparantaranter*:-

It is measured from the radiale to the stylion while Subject standing in relaxes position with the arm hanging by the sides.

Instrument used- Anthropometer (first segment)

4. Length of the *Hasta*-

It was measured from the radiale(r) to dactylion(III) while the subject was in standing position with the arm hanging by sides as in anatomical position.

Instrument used- Anthropometer (first segment)

5. Length of the *Hasta* –

It was measured from the Olecranon process to proximal end of nail of middle finger while the subject was in standing position with the arm hanging by sides as in anatomical position

Instrument used- Anthropometer (first segment)

6. *Hasta tala* Length:-

The subject was in sitting position. The hand was kept on flat surface in supine position. With the help of Vernier's calliper measurement was taken from the proximal Skin crease of wrist joint to skin crease of Metacarpo-phalangeal joint of middle finger.

Instrument used- Vernier's calliper

7. *Hasta tala* Breadth :-

The subject was in sitting position. The hand was kept on flat surface in supine position and with the help of Vernier's calliper measurement has been

taken along the line joining between lowest part of Metacarpophalangeal joint of little finger and index finger.

Instrument used- Vernier's calliper

8. Length of the *MadhyamAnguli* :-

The subject was in sitting position the hand kept on flat on surface in prone position. The length of the middle finger has been taken from straight distance between the phalangion (the point on the proximal end of the basal phalange) and the proximal end of the nail of middle finger.

Precaution-This measurement was taken with the hand stretched to the maximum. Arched hands give inaccurate measurements.

Instrument used- Vernier's calliper

9. Length of the *Pradeshini*:-

The measurement has been taken as straight distance between the phalangion (the point on the proximal end of the basal phalange of Index finger) to the proximal end of the nail of Index finger.

This measurement should be taken with the hand stretched to the maximum.

Instrument used- Vernier's calliper

10. Length of the *Anamika*-

Straight distance between the phalangion (the point on the proximal end of the basal phalange of Ring finger) to the proximal end of the nail of ring finger was measured.

Instrument used- Vernier's calliper

This measurement should be taken with maximum stretched hand.

11. Length of the *Kanishtika*

The measurement has been taken as straight distance from the phalangion (the point on the proximal end of the basal phalange of Little finger) to the proximal end of the Little finger.

Instrument used- Vernier's caliper

This measurement should be taken with the hand stretched to the maximum.

12. Length of the *Angustha*-

The measurement has been taken as straight distance from the phalangion the point on the proximal end of the basal phalange of thumb to the proximal end of the nail of Thumb.

Instrument used- Vernier's caliper

This measurement should be taken with the hand stretched to the maximum.

13. *Manibandh Parinaha* :-

The measurement has been taken as the Circumference at the level of wrist joint.

Instrument used – measuring tape

Observations And Results

Anthropometric measurements for unit measurement of *Anguli*, five parameters

1. Width of the palm at the level of metacarpo-phalangeal joints (2nd -5th) and dividing it by four.- (BH-1) of right hand is varies from 1.5 to 2.3 cm with mean 1.88 cm and SD 0.15 cm and of left hand is varies from 1.41 to 2.14 cm with mean 1.82 cm and SD 0.15 cm.
2. Width of line joining the level of proximal inter phalangeal joint of Index finger and distal inter phalangeal joint of little finger and dividing it by four.-(BH-2) of right hand is varies from 1.43 to 1.76 cm with mean 1.73 cm and SD 0.13 cm and of left hand is varies from 1.4 cm to 1.69 cm with mean 1.62 and SD 0.12 cm.
3. Width of line join between Proximal phalangeal joint of Index finger and distal phalangeal joint of little finger and dividing it by four.- (BH-3) of right hand is varies from 1.5 to 2.25 cm with mean 1.83 cm and SD 0.13 cm and of left hand is varies from 1.47 to 2.05 cm with mean 1.79 cm and SD 0.13 cm.
4. Width of inter phalangeal joint of thumb (*Angustha*).-(BT) of right hand is varies from 1.52 to 2.33 cm with mean 2 cm and SD 0.15 cm and of left hand is varies from 1.5 to 2.3 cm with mean 1.88 and SD 0.15 cm is varies from 1.51 cm to 2.21 cm with mean 1.92 and SD 0.18 cm.

5. Width of *Madhyama Parva* of *MadhyamaAnguli* or Width of proximal Inter phalangeal joint of middle finger.-(BMF) is varies from 1.35 to 2.16 cm with mean 1.83 cm and SD 0.16 cm and left hand is varies from 1.35 to 2.16 cm with mean 1.78 and SD 0.18 cm.

Table no 1:- Showing Comparison of mean and Standard Deviation (SD) of 100 individuals with *Samhita* value (Right side measurements)

Samhita	**Parameter**										
Pramana		**BH-1**		**BH-2**		**BH-3**		**BMF**		**BT**	
	***Samhita* Value**	**Sample mean**	**S.D.**	**Sample mean**	**S.D.**	**Sample mean**	**S.D.**	**Sample mean**	**S.D.**	**Sample mean**	**S.D.**
Bhuja Length	32	30.98	2.38	33.49	2.35	31.67	2.11	31.69	2.62	29.12	2.75
***Amsa Peetha* Kurparanter Length**	16	17.16	1.50	18.55	1.47	17.54	1.28	17.55	1.61	16.13	1.67
***Manibandh* Kurparanter Length**	16	13.86	1.13	14.98	1.18	14.17	1.12	14.17	1.23	13.02	1.28
***Hasta*-1 Length**	24	23.31	1.51	25.22	1.69	23.85	1.55	23.85	1.76	21.90	1.79
***Hasta*-2 Length**	24	23.55	1.61	25.47	1.72	24.09	1.50	24.10	1.90	22.14	1.98
***Hasta Tala* Length**	6	5.52	0.47	5.97	0.46	5.64	0.41	5.65	0.53	5.19	0.55
Hasta Tala Breadth	4	4.35	0.18	4.71	0.26	4.46	0.23	4.46	0.27	4.09	0.30
***Madhyamaugali* Length**	5	4.83	0.42	5.23	0.45	4.94	0.39	4.95	0.46	4.54	0.47
Pradeshini Length	4.5	4.27	0.38	4.62	0.40	4.37	0.35	4.37	0.41	4.02	0.43
Anamika Length	4.5	4.36	0.41	4.72	0.44	4.46	0.38	4.46	0.46	4.10	0.48
Kanistika Length	3.5	3.62	0.29	3.91	0.31	3.70	0.28	3.70	0.33	3.40	0.35
Angushtha Length	3.5	2.76	0.23	2.99	0.24	2.82	0.22	2.82	0.24	2.59	0.24
Manibandh *Parinaha*	12	8.81	0.45	9.52	0.43	9.01	0.40	9.01	0.55	8.28	0.59

Table no 2 - Showing Comparison of mean and Standard Deviation (SD) of 100 individuals with *Samhita* value (left side measurement)

Samhita	**Parameter**										
Pramana		**BH-1**		**BH-2**		**BH-3**		**BMF**		**BT**	
	***Samhita* Value**	**Sample mean**	**S.D.**	**Sample mean**	**S.D.**	**Sample mean**	**S.D.**	**Sample mean**	**S.D.**	**Sample mean**	**S.D.**
Bhuja Length	32	31.68	2.28	34.52	2.27	32.26	2.09	32.64	2.44	30.09	2.45
Amsa Peetha Kurparanter Lngth.	16	17.59	1.44	19.16	1.39	17.90	1.27	18.12	1.53	16.71	1.57
Manibandh Kurparanter Lngth.	16	14.16	1.14	15.43	1.26	14.43	1.18	14.58	1.15	13.44	1.11
Hasta-1 Length	24	23.85	1.59	26.00	1.73	24.30	1.59	24.57	1.74	22.65	1.62
Hasta-2 Lenght	24	24.18	1.68	26.35	1.71	24.63	1.57	24.91	1.83	22.96	1.77
Hasta Tala Lngth	6	5.68	0.47	6.19	0.44	5.78	0.42	5.85	0.51	5.40	0.51
Hasta Tala Breadth	4	4.36	0.13	4.75	0.22	4.44	0.19	4.49	0.24	4.14	0.24
Madhyamaugali Length	5	4.93	0.39	5.37	0.40	5.02	0.37	5.08	0.42	4.68	0.42
Pradeshini Length	4.5	4.41	0.35	4.80	0.34	4.49	0.32	4.54	0.37	4.19	0.38
Anamika Length	4.5	4.53	0.39	4.93	0.39	4.61	0.37	4.66	0.43	4.30	0.43
Kanistica length	3.5	3.72	0.29	4.06	0.31	3.79	0.28	3.84	0.32	3.54	0.32
Angushtha length	3.5	2.88	0.23	3.14	0.24	2.94	0.22	2.97	0.24	2.74	0.21
Manibandh Parinah Circumference	12	9.02	0.48	9.82	0.45	9.18	0.42	9.29	0.52	8.56	0.52

Discussion-

S*wa-Angula* as a unit measurement seems to be more natural and scientific method. *Ayurveda* has given importance to individualistic approach rather than a generalized one.

Many hypotheses regarding *Anguli Pramana* are found in *Samhitas*. All these are hypothesis needs to be reassessed and prove on modern parlance with the help of scientific observation, parameters and experiments.

There are different opinions of *Acharyas* for measuring *Aayam* and *Vistar*. According to *Acharya Charak* and *Vagbhata* the height of an individual is 84 *Angula*. *Chakrapani* while commenting on it has given the criterion to measure the stature as "it should be taken from *Padatala* to *Shirahparyanta*" and according to *Acharya Susruta* it is 120 *Angula* while *Dalhana* commenting on this has stated that the height of the individual should be measured when he is standing on the toes with raised arms above the head. If we compare measurement of *Pratyang* given by C*haraka* and S*usruta* there are minute differences. As *Acharya Charaka* gave the *Aayam* of *Parshni, Jangha. Janu, Uru, Vastisira, Udar, Ura, Griva, Aanan, Shir* 4, 18, 4, 18, 10, 12, 12, 4, 12, 6 *Angula* respectively and according to *Susruta Pada, Jangha, Janu, Uru, Nabhi Haradayanter*, *Hradayagrivaanter Amsapethakurparanterter*, *Manibandhkar-parantrter*, H*asta tala*, *Pradeshini* are 14, 18, 4, 18, 12, 12, 16, 16, 6, 5 *Angula* respectively. If we try to add all these measurements to calculate the height of the individual it should be 84 *Angula* and 120

Angula respectively as described by *Acharya Charak* and *Sushruta*. But as a matter of fact it doesn't concide with the reference to the *Samhita* this may be due to consideration of some same landmarks of measurements in adjoining organ.

Various terms have been used to describe the measurements related to upper limb by different Acharyas. These *include Bhuja, Prabahu, Prapani, Hasta* etc. Charaka has used more simple terms whereas *Sushruta* has used terms like *Amsapeethakurparantara, Manibandhakur-parantara* etc. According to *Acharya Charaka Ayama* and *Vistara* of *Hasta* is 12 and 4 *Angula* respectively, Whereas *Sushruta* explained the *Ayama* of *Hasta* as 24 *Angula* ((*Dalhana*-distance between *Kurpara* to the tip of *Madhyam Anguli* but this is the distance between *kurpara Sandhi* to the tip of the finger whereas according to *Caraka Samhita* it is the distance between *Manibhanda Sandhi* to tip of finger. According to *Acharya Sushruta*, length of *Manibandha-kurparantar* and *Amsapeetha-kurparantar* are 16 *Angula*, means the lengths of the arm and forearm are equal i.e.16 *Angula*. *Acharya Charaka* and *Vagbhata* describes *Prabahu* and *Prapani* to be respectively 16 and 15 *Angula*, which are almost similar descriptions to that of *Sushruta*. *Prabahu* is clearly defined by *Cakrapani* to be the part between the *Amsa* and *Kurpara*. He also defines *Prapani* as the part distal to the *Kurpara* not specifying the inclusion of hand which seems unlikely. Thus it needs to be assumed that the measurements described by *Sushruta* and *Caraka* in this case are also the same. Thus there is only a mild divergence of opinion in case of length of forearm with just 1 *Angula* deviation between measurements given by the two *Acharya*. *Acharya Sushruta* describes the length of *Bhuja* to be 32 *Angula* which must be the combined length of the above two measures, i.e. the total length of the upper limb excluding the hand. *Haranachandra* describes *Bhuja* as synonymous with *Bahu* and defines it as the distance from *kaksha* to tip of *MadhyamAnguli*, thus constituting the length of the entire upper limb, this may occurs as at that time there was not a common platform for equivalent terminology. The Length and breadth of the *Hasta Tala* (palm) have been described by *Sushruta* as 6 and 4 *Angula* respectively.other measures related to the upper limb are those of the digits *Madhyam Anguli* (middle finger), *Pradeshini*(Index finger), *Anamika* (Ring Finger), *Kanishtika*(Little Finger), *Angustha* (Thumb) which diminish as we move away from the *Madhyam Anguli* which is the longest at 5 *Angula*. The ones just lateral to it are *Predeshini* and *Anamika* equal to one another at four and half *Angula* and the ones further away, i.e. *Angushtha* And *Kanishtika* are equal in length at three and a half *Angula*, No landmarks have been mentioned, neither by the authors nor by the commentators so the modern anthropometric procedure and technique were used for this study.

The *Circumference* of *Manibandha* and *Prakoshta* are described as 12 *Angula*. Manibandha is defined as '*Panimoola'*, meaning root of the palm of the hand by *Dalhana*. The word *Prakoshta* has few descriptions in *Ayurveda Samhitas*. It has been clearly defined as the part which is 4 *Angula* proximal to the *Manibandha* which is also called '*Kalavika'* in common language. *Haranachandra* further describes that even though generally *Prakoshta* is the region below the elbow joint, in this context is is it to be taken as 5 *Angula* above the wrist joint.

The present survey study is focused on Anthropometric measurements of upper limb in reference to the subjects own *Anguli Praman*. All individuals taken were of same age group to avoid variations in measurements due to age factor.

To confirm Unit of measurement for Anthropometric measurements of *Anguli*, five-parameter has been taken and all the reading has been taken in centimetre. An important task in this study was to decide the landmarks for the measurements as they were not described by any *Acharya* or their commentators. So to solve the above problem and minimise the variables, modern anthropometric landmarks has been considered. Most of these landmarks are bony as their position is almost fixed and didn't vary with position or weight of that individual.

For measuring the *Anguli Pramana*, breadth of hand and fingers has been taken at five different levels. By all these five measurements the length of arm, forearm and palm was calculated. All this exercise was done to know the exact linear measurement of different sub part of upper limb.

All these measurements were considered in cm or mm to get exact data Most of the measurements which were taken by BH-3 and BMF were nearer to *Samhita's* reference value because simply if we use fingers to measure any length, we mostly use the middle point of our all four fingers together.

In case of BH-I the results were not close to the reference given in *Samhita*. This may be due to site of consideration may not falls under subpart counted under fingers or it may be a part of *Hasta Tala* itself.

In case of measurement taken BH-2, the results were not close to the reference given in *Samhita*. This may be due to selection of breadth of distal inter-phalangeal joint instead of proximal inter-phalangeal joint of little finger while using as a part of parameter.

In case of BH-I and dividing it by four) the results were not close to the reference given in *Samhita*.

If we see the data found in this study they are different as given in *Samhita*, this variable may be due to following region :-

1. Even in *Samhitas* it is given that these *Angula Pramana* are the Parameter of Perfection (or *Sama Purusha*) If the Person Shows different Value in that case it will known as *Madhyam* or *Heen Pramana* A while show The quality of longevity of that individuals.
2. As these *Samhitas* are written in different time Period so in this long time Periods, so in this Long time span of evolution measurement may vary.
3. We have taken modern Anthropometric landmark for measurement It is also possible that *Acharya* may have taken some other landmark for the same.

Conclusion:-

On the basis of data observed in survey study, following conclusion can be drawn

1. Concept of measurement is as old as the *Samhita* period, ancient scholars gave the basic concept of measuring various types of parameters like weight, length and volume
2. Concept of Anthropometery is originally given in *Ayurveda* classics
3. Even though when there were no specific instruments (like calliper, Anthropometer) and techniques present for measurement, our classics gave the unique concept to measure the various body part in a very exact and scientific manner by individual's own fingers.
4. If we see the development of modern Anthropometry it helps in various fields of Science, Art and Business, but the concepts of *Ayurveda* are unique as on the basis of these *Pramana* one can know not only about the prognosis diagnosis of diseases but also about the longevity of an individual.
5. In ancient Anthropometery the overall measurements were done in *Swa-Angula Pramana*. This technique can be useful even in modern jurisprudence. It is more helpful for developed country where specific identification data of each and every individual is present.
6. The measurements of *Bhuja , Hasta , Hasta Tala, Madhyam Anguli, Pradeshini ,Anamika* are nearer to *Praman* mention in *Susrut Samhita* by using BH-3 Parameter.
7. The measurements of *Bhuja , Hasta , Hasta Tala, MadhyamAnguli, Pradeshini ,Anamika* are quite similar to *Praman* mention in *Sushrut Samhita* by using BMF Parameter.
8. The measurements of *Amsa Peetha Kurparantera, Manibandh Kurparanterter, Angustha,* and *Manibandh Parinaha* are not found nearer or similar as mention in classical references for *Sama Pramana Purush*.
9. The variation in the measurements of present study and those mentioned by our *Acharya* may be due to the evolutionary changes in human anatomy or probably the different landmarks used in the present study.
10. In present survey study 100 healthy volunteer were involved and the results obtained are quite satisfactory which proves the viability of the concept of *Swa-Angula Pramana*.

Thus it can be concluded that BH-3 and BMF can be used as more accurate & effective Parameters for the measurement of *Pramana* of different body parts.

Suggestions for Further Study:

1. There is a big scope to evaluate each and every measurement of *Anga-Pratyanga Pramana* described in *Ayurveda*.
2. Demographic profile of specific population can be prepared which can be of help to improve specific healthcare schemes run by Government.
3. Charts based on this type of study can be used to determine the *Manas Prakriti* (Psychological trait) of individual.

References:-

1. Sarangadhara. Pandit Parasurama Sastri, editor. Sarangadhara Samhita with Adhamalla's Dipika and Kasirama's Gudhartha dipika commentary. First edition. Varanasi: Choukhamba Subharati Prakashan; 2006 pg.135
2. Sushruta. Prof. K.R. Srikantha Murthy, Translator. Susruta Samhita with English translation, notes, appendices and index. Varanasi: Chaukhambha Orientalia; third edition 2006 pg.203
3. Sushruta. Vaidya Jadavji Trikamji Acharya and Narayan Ram Acharya Kavyatirtha, editors. Sushruta Samhita with Nibandhasamgraha Commentary of Sri Dalhanacharya and the Nyayachandrika Panjika of Sri Gayadasacharya on Nidanasthana in Sanskrit. Varanasi: Chaukhambha Orientalia; 1999, pg 375.
4. Sarangadhara. Pandit Parasurama Sastri, editor. Sarangadhara Samhita with Adhamalla's Dipika and Kasirama's Gudhartha dipika commentary. First edition. Varanasi: Choukhamba Subharati Prakashan,2006 pg.135
5. Sushruta. Vaidya Jadavji Trikamji Acharya and Narayan Ram Acharya Kavyatirtha, editors. Sushruta Samhita with Nibandhasamgraha Commentary of Sri Dalhanacharya and the Nyayachandrika Panjika of Sri Gayadasacharya on Nidanasthana in Sanskrit. Varanasi: Chaukhambha Orientalia; 1999 pg 596.
6. Agnivesha. Vaidya Jadavji Trikamji Acharya, editor. Caraka Samhita revised by Caraka and Dridhabala with *Ayurveda*dipika Commentary of Sri Cakrapanidatta in Sanskrit. Varanasi: Chowkhamba Krishnadas Academy; 2006 pg 239
7. Agnivesha. Kaviraja Shree Narendranath Sengupta and Kaviraja Shree Balaichandra Sengupta, editors. Caraka Samhita revised by Maharshi Caraka and Dridhavala with *Ayurveda*dipika Commentary of Srimat Cakrapanidatta and Jalpakalpataru explanatory notes and annotations of Mahamahopadhyaya Sri Gangadhar Kariratna Kaviraja in Sanskrit. New Delhi: Rashtriya Sanskrit Sansthan; 2011 pg. 478
8. Sushruta. Vaidya Jadavaji Trikamaji Acharya and Pt. Nandakishor Sharma Bhishagacharya, editors. Sushrut Sanhita Sutra Sthan with Bhanumati Commentary by Cakrapani Datta in Sanskrit. Jaipur: Shri Swami Lakshmi Ram Trust Series No. I; 1939, pg 150.
9. Vagbhata. Prof. K.R. Srikantha Murthy, Translator. Ashtang sangrah vol.2 with text, English translation, notes, appendices and index. Varanasi: Chaukhambha Orientalia; first edition 1996, pg 106.
10. Sushruta. Kaviraj ambikadatta shastri , editor. Susruta Samhita of Maharshi Sushruta with ayrved tatava sandipika kasha sanskrita grantaha mala. Series 156 reprint 2007 pg 638
11. Indera P Singh and M.K. Bhasin. Anthropometry. Delhi: Kamala Raj Enterprises; 1989 pg 145
12. Indera P Singh and M.K. Bhasin. Anthropometry. Delhi: Kamala Raj Enterprises; 1989 pg 17

Pharmaceutical Study

Standardization of Pharmaceutical Methods of *Ropya Raj Rasa*

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Abstract

Ayurveda is the ancient science of medicine with number of unique formulations in its armory. *Ropya Raj Rasa* is one of the formulations which have ambiguity regarding its ingredients, pharmaceutical procedure and the final product. At the same time it has been mentioned highly effective in *Bhagandara*. Hence with an objective to find out answers to this ambiguity regarding pharmaceutical procedure of *Ropya Raj Rasa*, the present study was conducted where all available meanings for "*Rasendra*" and "*Mlechhakshara*", one of the ingredients were considered and used for preparation. Totally six different combinations were formulated for "*Rasendra*" and "*Mlechhakshara*" meaning. At the end of the study, the optimum temperature required for the formulation, the accurate combination of "*Rasendra*" and "*Mlechhakshara*", and the drugs to be taken in the name of "*Rasendra*" and "*Mlechhakshara*" were concluded as a part of pharmaceutical standardization. Out of six combinations, one with the *Hingula* and *Navasadara* demonstrated the signs of completion "*Bhramati Taravata* on *Dhamana*" as mentioned in the text. Samples containing *Somala* did not demonstrate the sign of completion.

Key Words – *Ropya Raj Rasa, Rasendra, Mlechhakshara*

सारांश–

आयुर्वेद प्राचीनतम चिकित्सा विज्ञान है, आयुर्वेदीय वाङ्मय में अद्वितीय योगों के अन्तर्गत भगन्दर अधिकार में वर्णित रौप्य राज रस के घटक द्रव्य, निर्माण विधि एवं अन्तिम उत्पाद के संदर्भ में अद्यावधि निश्चितिकरण नहीं हुआ है। अतः इस योग के निर्माणात्मक प्रसंस्करण को निश्चित करने हेतु यह अध्ययन किया गया है। प्रस्तुत शोध में कुल छः प्रयोगों द्वारा रौप्य राज रस में पठित 'रसेन्द्र' एवं 'म्लेच्छक्षार' तथा पुट एवं धमन हेतु आवश्यक तापमान के मानकीकरण का प्रयास किया गया है। छः प्रयोगों में से हिंगुल एवं नवसादर युक्त प्रतिदर्श में शास्त्र वर्णित सिद्धि लक्षण भ्रमति तारवत् प्राप्त हुआ तथा सोमल युक्त प्रतिदर्श में यह सिद्धि लक्षण प्राप्त नहीं हुआ। अतः प्रस्तुत शोध के आधार पर रसेन्द्र से हिंगुल एवं म्लेच्छक्षार से नवसादर का ग्रहण करना उचित प्रतीत होता है।

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Pharmaceutical Study

Standardization of Pharmaceutical Methods of *Ropya Raj Rasa*

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Introduction

Ayurveda is the first systemic science ever evolved throughout the world in field of medicine. It has been serving to remove sufferings of the mankind since time immemorial. It prolongs life span, maintains positive health and cures diseases.

Ayurvedic texts comprise of thousands of formulations of which many formulations are prepared and practiced traditionally whose efficacy and potency are well established but there are still many more that are not prepared abundantly. The *Ropya Raj Rasa* is one of such formulation mentioned in various texts among which some are available and others are unavailable today. *Rogadhikar* of *Ropya Raj Rasa* is universally accepted as *Bhagandara* but its SOP (Standard Operating Procedure) and efficacy still need to be validated.

The unavailable *Granthas* are -Rasayana Sangraha – Krishna Shastri Bhatvadekar, Chikitsa Ratnabharnama– Sadanand Dadhich, Rasa Kaumudi – Shakti Vallabha.

Available *Granthas* are – *Rasa Yoga Sagara*[1], *Bharat Bhaishajya Ratnakara*[2], *Yoga Tarangini*[3], *Vrihat Yoga Tarangini*[4], *Vaidya Rahasya*[5], *Todarananda*[6], *Rasa Kalpa Lata* and *Rasa kamdhenu*[7]. In all the *Rasa granthas, Ropya Raj Rasa* is named as *Roop Raj Rasa* except Rasa Yoga Sagar.

Aims and Objectives

1. To collect various formulations with nomenclature *Ropya Raj Rasa in classics.*
2. To decide ingredients of *Ropya Raj Rasa*
3. To decide SOP for the preparation of *Ropya Raj Rasa.*
4. To prepare *Ropya Raj Rasa* by different references.

Material & Methods

Ropya Raj Rasa was prepared in departmental laboratory of *Rasa Shastra evam Bhaishajya Kalpana,* NIA Jaipur.

Ropya Raj Rasa is described in many of the *Ayurvedic* texts as[8]:.

रसेन्द्रभागद्वितयं म्लेच्छक्षारचतुष्टयम् ॥ 8 ॥
काकजंघारसैर्मर्द्यं खल्वे दिवसपंचकम् ।
ताम्रस्य संपुटे रूद्धा सच्छिद्रे हण्डिकान्तरे ॥ 9 ॥
निवेश्य बालुकां दत्त्वा देयोऽग्निः प्रहराष्टकम् ।
स्वांगशीतं समुद्धृत्य मधुटंकणसंयुतम् ॥ 10 ॥
धमेन्मूषागतं तावद्यावद्भ्रमति तारवत् ।
रूपराजरसः सोध्यं भगन्दरविनाशनः ॥ 11 ॥
वल्लमात्रमिमं खादेत्त्रिफलामनुपाययेत् ।
मुक्तः स्वल्पैरहोभिः स्याद्भगन्दरमहागदात् ॥ 12 ॥

Ingredients: *Rasendra*, *Mlechhakshara*, *Kakajangha, Tamrapatra, Madhu, Tankan.*

Equipments: Muffle furnace, *Mrittika Sarava*, Cloth, *Mrittika*, *Musha* (Crucible).

Procedure: *Rasendra* (2 Part) and *Mlechhakshara* (4 part) was triturated with *Kakajangha swarasa* for 5 days. This mixture was kept in two copper *sarava* and sealed. Copper *sarava samputa* kept in a *mritika sarava samputa*. This *sarava* kept in Muffle furnace and heat was given 24 hours. It was left for self cooling; *Tankan* and *Madhu* was added to this and kept in *musha*. *Musha* was kept for *Dhamana* process. The formed material was *Ropya Raj Rasa.*

Nomenclature of the formulation: The nomenclature of *Ropya Raj Rasa* is unique. This formulation does not contain *Ropya* or Silver as its ingredient but, it indicates completion sign '*Bhramati Taravata*' which means at the end of the *Dhamana* process it moves in circular motion like silver.

Indication: *Bhagandar* (fistula-in-ano)

Anupana: *Madhu* with *Triphala kwatha*

Dose: 1 valla (375 mg)

The meaning of *Rasendra* and *Mlechhakshara* varies in different classics.

Table No. 1 The meaning of *Rasendra* and *Mlechhakshara* as per different classics

S.N.	Book	*Rasendra*	*Mlechhakshara*
1.	*Rasa Yoga Sagara*	*Parad*	*Sangaraska*
2.	*Bharat Bhaishajya Ratnakara*	*Rasa sindoora*	*Tamra bhasma*
3.	*Yoga Tarangini*	*Parad*	*Somal khara*
4.	*Vrihat Yoga Tarangini*	*Parad*	*Somal khara*
5.	*Vaidya Rahasya*	*Parad*	*Sambula khara*
6.	*Rasa Kamadhenu*	*Rasa sindoora*	*Tamrhasma*
7.	*Todarananda*	*Parad*	*Gandhak*
8.	*Rasa Kalpa Lata*	*Parad*	*Navsadara*

Rasendra[9] is described in *rasa granthas* as type of *Parada*. *Mlechhakshara* is not mentioned in text other than *Ropya Raj Rasa*. And clear meaning of *Mlechhakshara* is not available. In *rasa granthas* the term *Mlechha* is available for synonym of *Hingula* and type of *Tamra*[10].

Meaning of *Sangarask* is *Jarita Tamra*. *Sambula khara* and *Somala Khara* is designated as *Somala*.

Though there is uniformity in the SOP described in the classics; the ambiguity lies in the interpretation of the contents and *siddhi lakshana* i.e. sign of completion. Considering the variations in the interpretation of the contents six samples were prepared as shown in Table 2.

Table No. 2 Ingredients taken for *Rasendra* and *Mlechhakshara*.

Formulation No.	Sample Name	Rasendra	Mlechchhakshara
1.	*RRR1*	*Parada*	*Navasadara*
2.	*RRR2*	*Parada*	*Somala*
3.	*RRR3*	*Hingula*	*Navasadara*
4.	*RRR4*	*Hingula*	*Somala*
5.	*RRR5*	*Rasa sindura*	*Navasadara*
6.	*RRR6*	*Rasa sindura*	*Somala*

When *siddhi lakshana* was not found, further samples were prepared with modified SOP as given in Table no. 3

Table No. 3 Samples prepared by improvisation in the procedure

Sample Name	Improvised Sample
RRR1	RRR12
	RRR13
	RRR14
	RRR15
RRR2	RRR22
	RRR23
	RRR24
RRR3	RRR32
RRR4	RRR42
RRR5	
RRR6	

Thus in all fifteen samples were prepared till *siddhi lakshan* was found.

Pharmaceutical Procedure

The Procedure for the preparation of the sample was done in two steps viz. *Marana* and *Dhamana*

***Marana*:** Sample RRR1: *Parada* (50 gm) and *Navasadara*(100 gm) were triturated well with *Kakajangha Swarasa* for 5 days. *Tankana* and *Madhu* were added to this mixture and mixed well. *Tamra* patra was taken and two *Sarava* was made by them. *Tamra Sarava* was taken and mixture of *Parada* and *Navasadara* was poured in it. *Tamra Sarava* was covered by another Tamra Sarava. *Tamra Sarava samputa* was kept in *mrittika Sarava samputa* and *kapadmitti* was done. After drying, *mrittika Sarava samputa* was kept in Muffle furnace for 24 hrs. Temperature was increased consistently from 200°C to 750°C in 24 hrs. After switching off furnace *Sarava samputa* was left for self cooling. *Kapadamitti* of *Sarava* was removed and material was observed.

Dhamana: The material obtained after *Marana* process was not appropriate so *Dhamana* was not done.

Precautions

- *Kapadamitti* of *Sarava* had been done properly.
- To avoid inhalation of *Parada* fumes mask was used.
- Temperature had been regulated properly.
- Timely supervision of setup was done to avoid any unwanted changes.
- *Sarava samputa* had been removed after cooling.

Rest of the samples were prepared by same procedure. Variation in the temperature , duration of heat given and final product of various samples is entabulated in Table no. 4.

Table No.4 Details of Pharmaceutical procedure of various samples

Sample Name	Initial Weight	Final Weight	Loss in Weight	% Loss in Weight	Maximum Temp. given	Time
RRR1	180 gm	1 gm	179 gm	99.44	750°C	24hr
RRR12	140 gm	120 gm	20 gm	14.28	250°C	12hr
RRR13	120 gm	104 gm	16 gm	13.33	450°C	12 hr
RRR14	80 gm	17 gm	63 gm	78.75	450°C	24 hr
RRR15	100 gm	59 gm	41 gm	41.00	450°C	12 hr
RRR2	150 gm	51 gm	99 gm	66.00	450°C	24 hr
RRR22	101 gm	78 gm	23 gm	22.77	350°C	24 hr
RRR23	80 gm	61 gm	19 gm	23.75	200°C	48 hr

RRR24	61 gm	33 gm	28 gm	45.90	250°C	72 hr
RRR3	120 gm	102 gm	18 gm	15.00	450°C	24 hr
RRR32	100 gm	73 gm	27 gm	27.00	450°C	24 hr
RRR4	90 gm	87 gm	3 gm	33.33	200°C	24 hr
RRR42	87 gm	63 gm	24 gm	27.58	250°C	24 hr
RRR5	120 gm	77 gm	43 gm	35.83	450°C	24 hr
RRR6	120 gm	107 gm	13 gm	10.83	250°C	24 hr

Only three samples viz. RRR14, RRR3 and RRR5 were taken for *Dhamana* as rest of the samples was not appropriate for *Dhamana*.

Dhamana: The process of *Dhamana* was done for three samples RRR14, RRR3 and RRR5

The sample was taken in crucible and heated till 1000°C on the blower used by black smith till the sample gets melted and moves in circular motion. After completion of *Dhamana* process, material of *Musha* was shifted to *Sarava*.

Observation:

RRR14: 15 gm material was used and after *Dhamana* no change observed.

RRR3: 30 gm of material was used for *Dhamana*. During boiling slag was formed. After cooling material become hard. When hard material converted into powder, colour of the powder was greyish green.

RRR5: 40 gm of material was used for *Dhamana*. Hard material when converted into powder, colour of the powder was greyish black.

Table No. 5 Showing Observation of *Dhamana*

Sample	Weight after *Dhamana*	Weight after *Dhamana*	Loss in weight	% loss	Temperature given
RRR14	15 gm	9 gm	6gm	40%	1000°C
RRR3	30 gm	16gm	14 gm	46.6%	1000°C
RRR5	40 gm	22 gm	18 gm	45%	1000°C

Analyticaltical study

In the present study three samples of *Ropya Raj Rasa* (Sample RRR14, RRR3 & RRR5) were taken for analysis. Following tests were done:

- Determination of Loss on Drying (LOD)
- Determination of Acid Insoluble Ash (AIA)
- Determination of Water Soluble Ash (WSA)
- Atomic Absorption Spectrometry (AAS)

Table No. 6 Showing finding of analytical tests

S.No.	Tests	RRR14		RRR3		RRR5	
1.	Loss on drying (LOD)	0.040w/w		0.270w/w		0.114w/w	
2.	Acid Insoluble Ash (AIA)	0.154w/w		5.0176w/w		4.978w/w	
3.	Water Soluble Ash (WSA)	6.922 w/w		1.776 w/w		1.200 w/w	
4.	AAS	Cu%	Hg(ppm)	Cu%	Hg(ppm)	Cu%	Hg(ppm)
		78.33	17.30	57.50	124.93	33.25	464.94

Discussion

Ropya Raj Rasa is very uncommon drug. The *Ropya Raj Rasa* is not mentioned in leading books of *Ayurveda Rasashastra*. The drug is mentioned in very few books out of which 3 are unavailable and 8 are available. In all the available books *Ropya Raj rasa* mentioned as *Roop Raj Rasa* except Rasa Yoga Sagar.

In the drug the *Ropya* word does not indicates its content but indicates completion sign '*Bhramati Taravata*' which means at the end of the pharmaceutical process the drug should move in circular motion.

Textual differences are not seen in any of the available references. There are two main ingredients one is *Rasendra* and other one is *Mlechhakshara*. In all the available references the meaning of *Rasendra* and *Mlechhakshara* has been taken differently.

Sangarask and *Tamra Bhasma* were not taken in this study because *Tamra samputa* already mentioned in the SOP.

For the sample (RRR1) *Tamra sarava* was made with the help of bowl. The temperature pattern is *Kramagni*. Maximum temperature given was 750°C because melting point of *Tamra* was 1063°C which was reduced in presence of *Vida (Navasadar)*. Melting point of *Navasadara* is 338°C. At around 250°C white fumes evolved which is of *Navasadara*. After completion of incineration process when material was observed it is found that all the material burn out and material obtained was 1 gm. At the mouth of furnace white material is found which is *Navasadara*. The glass wool colour changed from white to blue. This colour was due to copper.

In the previous sample RRR1 as all material burned out so in the next sample (RRR12) the maximum temperature given was reduced by 250°C for 12 hrs, and *Tamra katori* is used instead of *Tamra patra*. In this very little fumes were evolved and no change appears in sample. The mixture of *Parada* and *Navasadara* remained in powder form due to which reaction between *Navasadara* and *Tamra* could not take place.

In the third sample (RRR13) the maximum temperature was increased to 450°C for 12 hrs. This time reaction occurred and mixture was converted into hard material. This material when kept for some time in *sarava* converted into green colour due to reaction of *Tamra* with air.

Process was repeated in next sample (RRR14). This time *Tamra sarava* was used in place of *Tamra katori* and maximum temperature given was 450°C for 24 hrs. The material obtained was observed but again the weight of *Tamra* was reduced. The obtained material was 17 gm (initial weight 80 gm). Formed material was very soft and *Tamra patra* converted into fine powder. This drug was *varitara*, the former drug further used for next step i.e. *Dhamana*. In the *Dhamana* process nothing happened and the material remain as such. The temperature given for *Dhamana* was 1000°C. This can be due to *Tamra* became *Niruttha*.

In next sample (RRR15), *kanchkupi* was used in place of *sarava samputa*. By this method loss in weight of *Tamra* was reduced. Mixture of *Navasadara* and *Parada* evaporated and very little reaction occurred with *Tamra*.

In sample (RRR2), *Parada* and *Somala* was used and *kanchkupi* was used for procedure. Here, pieces of *Tamra* cuttings were used.. *Tamra* cuttings

were kept in *Kachakupi* and mixture of *Parada* and *Somala* was poured in it. The *kupi* was kept in muffle furnace and maximum temperature set was 450°C for 24 hrs. At around 200°C white fumes appeared from the mouth of *kupi* and the fumes evolved vigourously as the temperature increased. At around 350°C fumes subsides. After completion of incineration process material was observed. All the mixture of *Parada* and *Somala* evaporated and *Tamra* has no change except increased shining of *Tamra patra*. 450°C temperature was used because Melting point of *Somala* is 312.2°C.

In the next sample (RRR22) maximum temperature set is 350°C and *sarava samputa* was used in place of *Kachakupi*. In this sample reaction occurred between *Tamra* and mixture of *Parada* and *Somala* because by lowering temperature we increased reaction time. The fumes of *parada* and *Somala* remained for more time in *samputa*. The *Tamra patra* colour changed in to millet green colour but again maximum mixture of *Parada* and *Somala* evaporated.

By previous sample it was clear that reaction time should be increased and temperature should be lower. In sample (RRR23) mixture of *Parada* and *Somala* was kept in *Tamra sarava*. The maximum temperature given was 200°C for 48 hrs. During incineration process very little fumes appeared and colour of mixture of *Parada* and *Somala* changed into creamish colour. There was loss in mixture of *Parada* and *Somala* by 19 gm and weight of T*amra sarava* remain unchaned.

In sample (RRR24) temperature is slightly increased to increase reaction. For this sample previously obtained material was used. This time maximum temperature given is 250°C for 72 hrs. Here temperature and reaction time both were increased. In this sample fumes were more and mixture converted into yellow coloured mixture and slight change in *Tamra patra* colour and weight was noticed.

In the 3rd sample and rest of the samples *Tamra churna* was used in place of *Tamra Patra*. Mixture of *Hingula* and *Navasadara* was triturate with *Tamra churna* and mixture was kept in *sarava samputa*. In sample (RRR3) the maximum temperature given was 450°C for 24 hrs but the temperature was increased slowly. The material obtained after incineration process was the colour of *Tuttha*. The material is hard in a single mass. The obtained material was used for *Dhamana* process. During *Dhamana* process the material melted and boiling started. During boiling silvery shine appeared and material started moving in circular motion. It can be said as "*Bhramati Taravata" mentioned as siddhi lakshana* . After that material was poured in a *sarava*. Obtained material was powdered. The material is *varitara* but *amla pariksha* was negative. The material has a metallic test.

The procedure was repeated for next sample (RRR32). There was minor difference in temperature pattern. Rest of the conditions were kept same. This time obtained material was reddish brown in colour.

In sample (RRR4) mixture of *Hingula* and *Somala* was used. In this sample the maximum temperature given was 200°C for 24 hr and in sample (RRR42) the maximum temperature given was 250°C for 24 hr. In both the sample no marked changes appeared in material.

In sample (RRR5) mixture of *Rasa Sindura* and *Navasadara* was used. The sample formed was hard and metallic in lusture. When *Dhamana* process was done for this sample, the condition of *Bhramati Taravata* was found. Obtained material was powdered and test for *varitara* and *amla pariksha* was done. The material was *varitara* but found negative for *amla pariksha*. The taste was metallic.

In sample (RRR6) mixture of *Rasa Sindura* and *Somala* was used but no change appeared. The material remained in the powder form.

Conclusion

The following points can be derived as conclusion at the end of this study:

1. Textual references of *Ropya Raj Rasa* or *Roop Raj Rasa* are available in 11 *Granthas* out of which only 8 *Granthas* are available today and the text written in these 8 *Granthas* are same.
2. Ingredients of this formulation are "*Rasendra*" and "*Mlechchhakshara*" which have different meanings in different texts. Based on the textual literary review, the most nearest meaning were decided as "*Parada*", "*Hingula*" and "*Rasa*

Sindura" for "*Rasendra*" and "*Navasadara*", "*Somala*" for "*Mlechchhakshara*".

3. *Ropya Raj Rasa* was prepared successfully using *Parada*, *Hingula* and *Rasa Sindura* in combination with *Navasadara*. But comparatively, the sample prepared with *Hingula* and *Navasadara* yielded the final product having sign of completion nearer to the textual reference i.e. *Bhramati Taravata*.

4. The sample prepared with *Parada*, *Hingula* and *Rasa Sindura* in combination with *Somala* didn't yield the final product with the desired *lakshanas*. Hence it can be concluded that *Navasadara* is to be taken for *Mlechchhakshara* instead of *Somala*.

5. The optimum temperature for the preparation of *Ropya Raj Rasa* was 450°C for 24 hours in the pattern of *Kramagni*. Hence the range of temperature can be fixed as 430°C to 470°C.

6. In the S.O.P. of *Ropya Raj Rasa*, *Tamra Samputa* was mentioned for which *Tamra patra* and *Tamra churna* were tried and it was seen that *Tamra churna* gave desired results.

References

1. Shri Hari Prapanna Sharma, Rasayoga Sagar Part 2nd, Yoga No. 209, Page no. 280, Shree Bhaskar Aushadalya, Bombay, 1962.
2. Vaidya Nagin Das Chhaganlal Shah, Bharat Bhaishajya Ratnakar Part 4th , Yoga No. 6157, Page no. 453, Jain Publisher.
3. Shrimat Trimallabhatta Yoga Tarangini, Commentary by Shri Dutta Ram Mathur by C.B. Jha, Taranga 61/8-12, Page no. 242, Chaukhambha Vidya Bhawan.
4. Shrimat Trimallabhatta, Vrihat Yoga Tarangini, Taranga 116, Chaukhambha Vidya Bhawan.
5. Shri Vidyapati, Vaidya Rahasya, Commentary by Dattaram chaubey, Bhagandara Chikitsa 11-15, Page no. 194, Khemaraj Shri Krishna Das.
6. Todarananda, Ayurved Saukha, English Commentry by Bhagwan Das Lalitesh Kashyapa, Bhagandara chikitsa, 39-42, Concept Publishing Company, New Delhi, 1991.
7. Chudamani Misra, Rasa Kamdhenu, Edited by Yadavji Trikamji, Part 4, Chapter49/6-9, Page no. 330, Ayurvedic Granthamala No. 16, 1925.
8. Shrimat Trimallabhatta Yoga Tarangini, Commentary by Shri Dutta Ram Mathur by C.B. Jha, Taranga 61/8-12, Chaukhambha Vidya Bhawan.
9. Rasa Vagbhatta, Rasa Ratna Samuchchaya, Commentry by Dharmanand Sharma, Chapter 1/67, Page no. 11, Motilal Banarasidas, New Delhi, 1996.
10. Rasa Vagbhatta, Rasa Ratna Samuchchaya, Commentry by Dharmanand Sharma, Chapter 5/42, Page no. 81, Motilal Banarasidas, New Delhi, 1996.

Physiological Study

Efficacy of *Kalpit Triphaladi Ghana Vati* on *Medodhatu Vriddhi*

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Abstract:

In *Ayurveda,* health has been defined as equilibrium of *Dosha, Agni, Dhatu & Mala*, including well being at the level of *Mana* and *Atma*. The living body can function normally only when it's *Dosha, Dhatu,* and *Mala*are in a state of equilibrium. *Meda* is the main *Dushya* and *Kapha*is the main *Dosha*of *Medodhatu Vriddhi*. *Medodhatu Vriddhi* is a *Dushya* dominant *Vyadhi* Therefore, it was expected that proposed drug *KalpitTriphaladi Ghana Vati*, check the pathogenesis of *Medodhatu Vriddhi* and act on the basic root cause of the disease and arrest the progress of the disease *Medodhatu Vriddhi* effectively.

Key Words: *Dosha, Dhatu, Mala, Medodhatu Vriddhi, Dushya, Kapha,*

सारांश–

आयुर्वेद मतानुसार दोष, धातु, मल एवं अग्नि की साम्यावस्था के साथ–साथ आत्मा, इन्द्रिय एवं मन की प्रसन्नता को स्वास्थ्य कहा जाता है। जीवित शरीर तभी सामान्य रुप से कार्य कर सकता है जब उसके दोष, धातु और मल सामान्य अवस्था मे रहे। मेदो धातु वृद्धि अर्थात मोटापा मे मेद मुख्य दूष्य एवं कफ़ मुख्य दोष होता है। मेदो धातु वृद्धि एक दूष्य प्रधान व्याधि है, इसलिए यह अपेक्षित किया गया था, कि प्रस्तावित औषधि कल्पित त्रिफलादि घन वटी मेदोधातुवृद्धि के आधारभूत कारण का शमन कर व्याधि के सम्प्राप्ति विघटन मे मुख्य रूप से सहायक होगी ।

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Physiological Study

Efficacy of *Kalpit Triphaladi Ghana Vati* on *Medodhatu Vriddhi*

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Introduction

In this modern era of science and technology, man has become more and more physically inactive along with this dietary habits has changed towards unhealthy food like fast foods, cold drinks, liquors, smoking etc.and hence now a days the code and conduct narrated in the ancient texts of *Ayurveda* have been ignored. By exposing on self to all these factors human beings unknowingly invited number of diseases, out of which obesity is one which disturbs physical, mental as well as social health of individual.

According to the surveys, obesity has reached epidemic proportions in India in the 21st century, affecting about 120 million of the country's urban population. India ranks amongst top ten obese nations, with morbid obesity affecting 5% of the country's population.According toNational Family Health Survey 2007 in India12.1% male was obese and their world wide ranking 14 and female have 15 ranking and the obese percentage of female is 16%.[1]

The following figures and many other studies show that Obesity has been not only in India while around the World increasingly cited as a major health issue in recent decades. Overweight and obesity are the fifth leading risk for global deaths.

Abnormal accumulation of *Meda Dhatu* in body is known as *Medodhatu Vriddhi*. The disease *MedodhatuVriddhi* i.e. *Sthaulya* is a well recognized disease from the *Samhita* period. It has been mentioned by *AcharyaCharaka*in *Ashtaunindita Purushadhyaya*.[2] As we see the *Samprapti* of *Sthaulya*, due to *Meda-Dhatwagni Mandya* there is excessive accumulation of *Meda* that leads to obstruction of *Medovaha Strotasa*. Due to this, there is *Vimargagamana* of *Vata Dosha*. The *Vimargaga Vayu* in *Koshta* ultimately increases the *Jatharagni* leading to an increase in appetite. This cycle goes on and on. Due to obstruction created by *Medovaha Strotasa*, all other *Dhatu* remains malnourished and only *Meda Dhatu* increases[3].

Many theories have been put forward with new hypotheses describing this disorder in *Ayurveda* as well as in other systems of medical sciences; still there is enough scope to work out on management aspect of the *Sthaulya*. Therefore, Present Research work has been undertaken with the following Aims and Objectives-

- To study Aetiopathogenesis of *Medodhatu Vriddhi* i.e. Obesity and work out their probable modern / Ayurvedic correlations.
- To evaluate clinical efficacy of *Kalpit Triphaladi Ghana Vati* in the management of *Medodhatu Vriddhi* w.s.r. to Obesity.

Material And Methodology

A) Selection Of Patients- For the clinical trial 52 Patients has been selected from the OPD & IPD Arogyashala of National Institute of Ayurveda & Seth SurajmalBombaiwala Hospital, Jaipur. Six patients were dropped out.

B) Inclusion Criteria-

1. Age between 16-70 yr.
2. Sex Either.
3. Patient having clinical sign and symptoms of *Medodhatu Vriddhi* as per classical *Ayurvedic* literature.
4. B.M.I. criteria were also followed for selection of patient.

C) Exclusion Criteria-

1. Patient suffering from obesity due to hereditary indisposition.
2. Patients with Hypothyroidism.
3. Patients suffering from drug induced Obesity.

4. Patients with evidence of Renal, Hepatic and Cardiac involvement.
5. Patients with Diabetes Mellitus.
6. Pregnant and Lactating women.

D) Withdrawal Criteria-

1. Patients developing any threatening complication during this trial. If any adverse effects will be found then it will be withdrawn from the study and informed to nearby Pharmacovigilance cell.
2. Any other acute illness.

Trial Drug -

Table No. 1 Contents of *Kalpit Triphaladi Ghana Vati*[4]

Sr. No.	Drug Name	Latin Name	Family	Part used	Proportion
1	*Haritaki*	*Terminaliachebula*	Combretaceae	*Phala*	1 Part
2	*Vibhitaki*	*Terminaliabellirica*	Combretaceae	*Phala*	1 Part
3	*Amalaki*	*Emblicaofficinale*	Combretaceae	*Phala*	1 Part
4	*Palash*	*Buteamonosperma*	Fabaceae	*Beeja*	1 Part
5	*Dhava*	*Anogeissuslatifolia*	Combretaceae	*Kastha*	1 Part
6	*Chitraka*	*Plumbagozeylanica*	Plumbaginacee	*Moola*	1 Part
7	*Kutaja*	*Holarrhenaantidysenterica*	Apocynaceae	*Twaka*	1 Part
8	Shinshpa	*Dalbergiasissoo*	Fabaceae	Kastha	1 Part

Method Of Preparation:-

Useful part of all the above ingredient herbs were taken as *YavakutaChurna* in same ratio and boiled in water toprepare *Kwatha.(Sha. Sam MadhyamKhanda 2/1)* Filtrate of this *Kwatha* was again boiled to prepare *GhanaSatva* then which was dried and tablets weighing 500mg each were prepared and packed well in air tight container. This formulation was done in *Rasashala*, i.e. Pharmacy National Institute of Ayurveda, Jaipur.

Drug Doses: *Kalpit Triphaladi Ghana Vati* 500mg twice a day before meal.

Anupana : Luke warm water

Time Period of Clinical Trial: Duration of medication completed at leastfor 60 days and according to condition of patient.

Follow Up: Total four (every 15 day) follow ups were recorded during 60 days of treatment period.

Pathyapathya: Patient has been made to follow *Pathyapathya* While taking medication.

Parameters Of Evaluation: The effect of trial drug will be assessed in terms of Subjective, Anthropometry parameters.

A. Subjective parameters: All the patients were registered for clinical trial and were looked for any changes, in their clinical manifestations. For subjective parameters following symptoms will be assessed *Angachalatva, Atiksudha, Atipipasa, Javoprodh, Daurgandhya, Swedadhikya, Daurbalya, Nidradhikya, Krichchavyavayta, Gaurava, Kshudraswasa, Angasada, Krathana,* and*Snigdhangata*[5].Gradingwas done for all symptoms& clinical trial was conducted by making a special research Proforma.

B. Anthropometry Measurements: Following measurements were done; Height**,** Weight, BMI, Hip circumference, Waist circumference, Midthigh circumference, Midarm circumference.

Observation:

All the 52 patients have been studied by noting down their demographic profile including their age, sex, address, occupation, socio-economic status, marital status, dietary habits etc. Observation & results obtained were computed statistically and various conclusions were drawn accordingly.

- Majority of patients belong to age group 21-30 years (53.84%)

- Majority of 36 patients were female (84.62 %)
- Maximum patients were Hindu (91.17%) followed by Muslim (9.61%).
- Maximum patients were Student (44.23%) followed by Housewife (36.54%).
- In the present study maximum no. of patients i.e. 38 patients (73.08%) were Unmarried whereas 14 patients (26.92%) were unmarried
- In the present study maximum number of patients i.e. 31 patients (59.61%) were of middle socioeconomic status.
- In the present study maximum number of patients i.e. 25 patients (48.01%) were Higher Secondary Educated followed with 21 patients (40.38%) were Graduate.
- Maximum 30 patients (57.69%) had Vegetarian diet followed with 22 patients (42.31%) with mixed diet.
- Maximum 30 patients i.e. 57.69% were of *KruraKoshtha*.
- Majority of patients i.e. 27 patients (51.92%) were having *Vishamagni*, whereas 13patients (25%) were having *Samagni*, 8 patients (15.38%) were having *Mandagni*.

Results - Results were divided into twosteps:

Table No. 2

Effect Of Therapy In 46 Patients Of *medodhatu Vriddhi* (Subjective Parameters) (Wilcoxon matched paired single ranked test is used)

S. No.	Symptoms	Mean Score			% Relief	SD (±)	SE (±)	Sum of all signed Ranks	't'	'P'
		BT	AT	Dif.						
1	***Cala Sphik - Udara –Stana***	2.37	1.87	0.5	21.1	0.50	0.07	276	.001	**HS**
2	***Krichhavyavayta***	0.56	0.52	0.04	7.14	0.20	0.03	3	.500	**NS**
3	***Angagandha***	1.30	1.19	0.10	7.69	0.31	0.04	15	.062	**NS**
4	***Swedadhikya***	2.04	2.13	-0.09	-4.41	0.81	0.12	-54	.530	**NS**
5	***Kshudhadhikya***	1.28	1.52	-0.24	-18.75	0.82	0.12	-187	.057	**NS**
6	***Pipasadhikya***	1.20	0.89	0.30	25	0.55	0.08	133	.02	**S**
7	***Kshudrashwasa***	2.04	1.30	0.74	36.27	0.49	0.07	561	.001	**HS**
8	***Gaurava***	1.93	1.11	0.83	43	0.52	0.07	630	.001	**HS**
9	***Daurbalya***	1.67	0.98	0.69	41.32	0.55	0.08	465	.001	**HS**
10	***Javoprodh***	1.15	0.65	0.50	43.48	0.69	0.10	171	.001	**HS**
11	***Krathana***	1.09	0.89	0.19	17.43	0.40	0.06	45	.03	**S**
12	***Snigdhangata***	1.72	1.80	-0.87	-50.58	0.66	0.10	-42	.452	**NS**
13	***Nidradhikya***	0.86	0.54	0.33	38.37	0.47	0.07	120	.001	**HS**
14	***Angasada***	1.46	0.98	0.48	32.88	0.62	0.09	190	.001	**HS**

Table No. 3

Effect Of Therapy In 46 Patients Of *medodhatu Vriddhi* (Physical Parameters)
(For Parametric Data **Paired 't' Test** is used)

S. No.	Parameters	Mean Score			% Relief	SD (±)	SE (±)	't'	'P'	S
		BT	AT	Dif.						
1	**Body Weight (kg)**	74.36	69.91	4.45	5.98	1.61	0.24	18.77	0.001	**HS**
2	**B.M.I. (kg/m²)**	29.92	28.11	1.81	6.05	0.66	0.10	18.62	0.001	**HS**
3	**Mid arm (cm) Circumference**	32.39	31.72	0.67	2.06	0.84	0.12	5.41	0.001	**HS**
4	**Mid thigh (cm) Circumference**	59.08	57.80	1.27	2.16	1.28	0.19	6.71	0.001	**HS**
5	**Waist (cm) Circumference**	100.83	96.04	4.78	4.74	2.58	0.38	12.57	0.001	**HS**
6	**Hip (Cm) Circumference**	108.93	105.38	3.55	3.26	2.20	0.32	10.94	0.001	**HS**
7	**Waist Hip Ratio**	0.93	2.83	-1.90	-204.3	12.99	1.91	0.99	0.326	**NS**

Discusion

Table No.4.-Comparative Pharmacodynamic properties of the *Kalpita Triphaladi Ghana Vati*

Rasa	**Total**	**%**	**Guna**	**Total**	**%**	***Veerya***	**Total**	**%**
Kashaya,	7/8	87.5	*Ruksha*	8/8	100	*Ushna*	5/8	62.5
Katu	5/8	62.5	*Laghu*	6/8	75	*Sheeta*	3/8	37.5
Tikta	5/8	62.5	*Tikshna*	1/8	12.5	***Vipaka***	**Total**	**%**
Madhura	3/8	37.5	*Sheeta*	1/8	12.5	*Katu*	5/8	62.5
Amla	2/8	25		*Madhura*	3/8	37.5		

Dohsakarma	**Total**	**%**
Tridoshashamaka,	4/8	50
Kaphapittashamaka	3/8	37.5
Kaphavatashamaka, Pittavardhaka	1/8	12.5

Probable Mode of Action of Drug:

Above Pharmecodynemic Study of *Kalpit Triphaladi Ghana Vati* reveals that it have dominance of *Kashaya, Katu & Tikta Rasa; Ruksha, Laghu Guna; Ushna Veerya; Katu Vipaka* & *Tridoshashamaka* specially *Kapha pitta shamaka Karma* are present in Maximum *Dravyas.*These drugs have*Medoghna Prabhava* thereby pacifying the *Dosha*& thereby relieves the symptoms in *Medodhatu Vriddhi.*The effect of the study drugs can be attributed to the above mentioned properties of its ingredients.

Effect Of Trial Drugs On Subjective Parameters

1. Effect on *ChalaSphik - Udara –Stana:*

The percentage relief on *Chala Sphik - Udara –Stana*symptom was **21.1%** which is statistically **Highly significant** (p‹0.001)

This might be due to *Sphik - Udara –Stana*are the main site of excess *Medo* deposition and maximum contents of *KalpitTriphaladi Ghana Vati* have *Medohara* and *Srotoshodhaka* properties which lead to reduction of excess *MedoDhatu* from these sites. Along with this *Kashaya Rasa* of the drug causes *Sthambhana*i.e. increases the tone of these sites.

2. Effect on *Krichhavyavayta* :

The percentage relief on *Krichhavyavayta* symptom was **7.14%** which is statistically Insignificant(p‹0.500).

This might be due to maximum of patients were unmarried (73.08%) and were not indulged in sexual life.

3. Effect on *Swedadhikya:*

The percentage relief on *Swedadhikya* symptom was **-4.41%** which is statistically Insignificant(p‹0.530).

Sweda is stated as *Mala* of *Meda*. The trial drugs have properties like *Ushnaveerya*, *Strotoshodhan- Pachana* etc. *Pachana* of *Sara Dhatu* Produces *UtarottaraDhatu* and *Mala,* so *Pachana* of excessive *Medodhatu* produces *Utarottara Asthi Dhatu* and *Sweda*. which enhances the above symptom.

4. Effect on *Kshudhadhikya:*

The percentage relief on *Kshudhadhikya* symptom was **-18.75%** which is statistically Insignificant(p‹0.057).

This might be due to maximum content of trial drug have *Dipana Pachana* Properties with *Kashaya,Katu*and *Tikta Rasa*. These are *Kapha Shamaka* and *Ama Pachaka*, as a result *Jatharagni* and *Dhatvagni* are normalized. By virtue of *Jatharagni* appetite got raised while *Dhatvagni* enhances *Medopachana*.

5. Effect on *Pipasadhikya :*

The percentage relief on *Pipasadhikya* symptom was **25%** which is statistically **significant** (p‹0.02).

This might be due to, as in patients of obesity *Pipasadhikya*is because of *AmaDodha (Amaj Trishna),* the trial drug has *AmaPachana* properties the symptom got reduced.

6. Effect on *Kshudrashwasa :*

The percentage relief on *Kshudrashwasa* symptom was **36.27%** which is statistically **Highly significant** (p‹0.001).

Increased *Medodhatu* in the body increases the weight of the person, along with this in obese person lean body mass are reduced and sedentary habits remaining muscles are also not trained to bear the load of physical activities. All these are the prime cause for *Kshudra Shwasa*. This is evidenced in classics as well as observed in previous studies. Modern science has also accepts obesity as one of the causes for dyspnoea.

The *Medohara, Strotoshodhak & Amapachaka* property of trial drugs may have helped in minimizing this symptom.

7. Effect on *Gaurava :*

The percentage relief on *Gaurava* symptom was **43%** which is statistically **Highly significant** (p‹0.001).

In Obesity main vitiated *Dhatu* is *Meda* which is *Prathivi* and *AapMahabhutaPradhana*. Increase in *MedoDhatus* will increase the *Guru, Snigdha*and *SheetaGunas*leading to the *Gauravta*. Moreover *Medodhatu*produced in *Sthaulya* condition is in *Amavastha*which causes *Angagaurava*.

The trail drug is *Laghu, RukshaGuna* and *Ushna Virya* Pradhna along with *Ama Pachaka & Strotoshodhak* property which might helped in minimizing this symptom.

8. Effect on *Daurbalya :*

The percentage relief on *Daurbalya* symptom was **41.32%** which is statistically **Highly significant** (p‹0.001).

Due to *Srotorodha*of different (*Rasa & Meda*) *Srotas*by *Ama,* nourishment of rest of *Dhatu* are diminished, thus it will not transport nutrient to *Uttar Dhatu*. Hence, it causes *Dhatu Kshaya* which results in to *Daurbalya.*

The trail drug has*Dipana, Pachana, &Strotoshodhak* property which causes *AmaPachana* by virtue of which *Uttar Dhatu* got nourishment.

9. Effect on*Javoprodha :*

The percentage relief on *Javoprodha* symptom was **43.48%** which is statistically **Highly significant** (p‹0.001).

The *Shaithilya*(flabbiness), *Saukumarya* (delicacy) and *Guruta* properties of *Meda Dhatu* causes *Javoparodh along* withraised *Alasya* because of vitiated *Kapha*. Thus these persons are slow to initiate the work.

Due to *Ama Pachana Kapha Nashaka* and *Medohara* effect of trial drughelped in minimizing this symptom.

10. Effect on *Snigdhangata:*

The percentage relief on *Snigdhangata* symptom was-50.58% which is statistically Insignificant (p‹0.452).

The trial drugs have properties like *Ushnaveerya*, *Strotoshodhan-Pachana* etc. leads to the *Pachana* of excessive *Medodhatu* which enhances the *Sweda,* because of which skin is more moist then previousthis is the reason behind raised *Snigdhangata.*

11. Effect on *Nidradhikya :*

The percentage relief on *Nidradhikya* symptom was **38.37%** which is statistically **Highly significant** (p‹0.001).

In etiology of Obesity *Kapha, Meda* & *Ama Dosha* plays important role, these all leads to *Nidradhikya*. The trial drugs have properties of *Kapha Shamak*, *Medohara* & *Ama Pachana* which might helped in minimizing this symptom.

12. Effect on *Angasada:*

The percentage relief on *Angasada* symptom was **32.88%** which is statistically **Highly significant** (p‹0.001).

In obese person incomplete metabolic process leads to accumulation of lactic acid in body tissue this may cause *Angasada*. In other way incomplete digestion of *Ahara Rasa* leads to *Ama Rasa Utpatti* which causes *Angasada*.

The trial drugs have properties like *Ushnaveerya*, *Strotoshodhan-Pachana*etc which leads to completion of metabolic process i.e. complete digestion of *Aahara Rasa,* which might helped in minimizing this symptom.

Conclusion

Orally *Kalpit Triphaladi Ghana Vati* in the dose of 500mg twice a day before meals with the *Anupana Ushnodaka* can be used as safe and main 'Therapeutic Agent' in the management of Obesity.

References

1. Global status report on noncommunicable diseases 2010, World Health Organization 2011, Library Cataloguing-in-Publication Data, Page No 145.

2. CharakaSamhita With Vidhyotini Hindi Commentary By Pt. Kashinath Panday, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 Sutraasthana 21/3 Page no 407.

3. CharakaSamhita With Vidhyotini Hindi Commentary By Pt. Kashinath Panday, Chaukhambha Sanskrit Sansthan, Varanasi, 2004 Sutraasthana 21/3Page no 411.

4. SushrutaSamhita With "Ayurveda Tattva Sandipika" Commentary By Kaviraj Ambika dutta Shastri Part 1, Chaukhambha Sanskrit Sansthan, Varanasi, 2010 Sutrasthana 38/20-21 Page no 184

Conceptual Study

Protocol for Diagnosis and Management of *Dushee Visha* in Current Era

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Abstract

Dushi Visha is cumulative poisons which retains and accumulate within the tissues of human beings due to exposure seems prolonged period persistently. It may be originated from inanimate, animate or artificial source of poisons. These have less potent capsulated within lipophilic tissue and produce cumulative toxicity when it reaches more than permissible limit in human tissue. Metals and its compound, food additive like coloring agent, sweeteners and preservatives, pesticides, medicine like folic acid and vitamin A, Rodenticide like strychnous.These are some toxic substance which have similar etiology for *Dushi visha*. The patient of *Dushi visha* along with currently etiological factors will be diagnosed by talking positive history of direct exposure, clinical manifestations or current etiological substance of *Dushi visha* and *trividha parikshan*. The diagnosis will be confirmed by various laboratory findings of presence of toxic accumulated substance or its metabolites within the human tissue. After confirmation of the diagnosis of *Dushi visha* the patients should be subjected for either induce emesis or induce purgation or both after interval of 15 days. *Peti seved* should be used before the *Sanshodhan karma* and *Samsarjan karma* will be followed after *pradhana karma* as per scheduled. Essence of *Lagenaria Siceraria* (Bitter bottle gourd) and Milky Juice of *Euphoria nerrifolia* (*Snuhi Ksheera*) will be beneficial for emesis and purgation respectively. *Dushi Vishari Agad* and *Kashyopokta Virechak* to suppress the remaining effect of *Dushi vishas*. The symptomatic management of *Dushi vishas* will be done by using *Tuth bhasm, Shrang Bhasm,Svarnmalini basant ras, Panchnimbadi Churanam, Lakshmivilas ras. Kalyan ghrit, Tripuro sundar ras and basant kusumakar ras* respectively. Thus *Ayurveda* may play a major role the morbidity of *Dushi vishas* caused by various etiological factors in current era.

Key Word - *Dushi Visha*, Cumulative Toxicity, Bioaccumulation, Bio purification.

सांराश –

दूषी विष एक संचयमान विष है जो लम्बे समय तक निरन्तर (सतत) सम्पर्क में आने के कारण शरीर में रुककर संचित हो जाता है। इसकी उत्पत्ति स्थावर, जागंम, कृत्रिम विष से होती है। ये विष वसारागी में अल्पप्रबल अवस्था में रहता है और जब ये शरीर में अधिकतम स्तर को पार कर देता है तो विषाक्तता उत्पन्न कर देता है। धातु ओर अधातु के यौगिक खाद्य प्रदार्थों में प्रयुक्त होने वाले सहायक जैसे रंजक पदार्थ मधुरकर (स्वीटनर) और संरक्षक प्रदार्थ (प्रिजरवेटिव), कीटनाशक औषधि फोलिक एसिड, विटामिन–ए एवं चूहेनाशक दवाई जैसे स्टिकनस ये दूषीविष उत्पन्न करने वाले निदानात्मक प्रदार्थो से समानता रखते है। दूषीविष के रुग्ण का निदान त्रिविध परीक्षा, सकारात्मक इतिवृति लक्षणों से किया जाता है। रोग का निश्चयात्मक निर्णय विभिन्न प्रयोगात्मक परीक्षाओं द्वारा शरीर में एकत्र विषाक्त तत्वों की उपस्थिति से करते है। दूषीविष के निश्चयात्मक निदान के पश्चात् रोगी को दिन के अन्तराल पर वमन या विरेचन अथवा दोनो कराते हैं। संशोधन कर्म से पूर्व पेटीस्वेद और प्रधान कर्म के प्रश्चात् संसर्जन कर्म कराऐगें। वमन एवं विरेचन के लिए क्रमशः इक्ष्वाकुसार एंव स्नुहीक्षीर का उपयोग लाभकारी होगा। दूषीविषारि अगद एवं काश्योपक्त विरेचक शेष दूषीविष प्रभाव को कम करेगा। लक्षणात्मक चिकित्सा जैसे–तुत्थभस्म, श्रृंगभस्म, स्वर्णमालिनी वसन्तरस, पञ्चनिम्बादि चूर्ण, लक्ष्मीविलास रस, कल्याणघृत, त्रिपुरोसुन्दर रस और वसन्तकुसुमाकर रस से की जाएगी। अतः वर्तमान काल में विभिन्न निदानात्मक कारणों से उत्पन्न दूषीविष की चिकित्सा में आयुर्वद एक महत्वपूर्ण भूमिका या कार्य कर सकता है।

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Conceptual Study

Protocol for Diagnosis and Management of *Dushee Visha* in Current Era

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1. Introduction

Dushi visha is one of the type of chronic toxicity due to accumulation of either Inanimate or animate or artificial poisons which exposed since prolonged period continuously due to less potency and capsulations within lipophilic tissue it remains in the living body for prolonged periods and produced chronic serious /non serious complications, when suitable factor influenced. In current era there are so many poisonous materials has been available which have such a nature of accumulations within the body for prolonged periods. Metals and metallic compounds, Pesticides and some food additives have found a nature of accumulations within the living body when it exposed since prolonged period persistent. Over one billion human has been exposed to elevated levels of toxic metals and metalloids in the environment.[1] Currently there are so many food additives like colorings agents, preservatives, sweeteners, soft drinks , and additives milk adulterant has been used by peoples persistently in the form of junk foods/ food additives since prolong times. The Indian food industry stood around US$39.03 billion in 2013 and is expected to grow at a rate of 11% to touch US $ 64.31 billion by 2018.[2] Worldwide, approximately five billion pounds of pesticide are consumed annually.[3] The toxicogenesis of *Dushi visha* and chronic toxicity of metallic compounds, food additives and pesticides are somewhat similar, hence chronic toxicity of these accumulated poison should be managed clinically by using basic *chikitsa sutra* (principal) of management of *Dushi visha*. This is an original conceptual fundamental research in which etiological factors of *Dushi visha*/Diagnostic protocols and management of *Dushi visha* has been evaluated, elaborated and discuss in detail as per current era.

2. Aim And Objectives

- ✓ To evaluate, elaborate and discuss the etiological factors of *Dushi visha* as per current aspect.
- ✓ To evaluate, elaborate develop and discuss the diagnostic protocol of *Dushi visha* (Cumulative poison) as per current aspect.
- ✓ To evaluate, elaborate develop and discuss the management of *Dushi visha* as per current aspect.

3. Material And Method

This article is based on personal experiences & textual review. Material related to Cumulative Toxicity with special references of *Dushi Visha* was collected. All the *Brihatrayi, Laghutrayi* and available commentaries of those have been reviewed. Modern Texts & various websites to collect information on the relevant topics were referred.

4. Conceptual Study

4.1. Mode of Toxico-genesis of *Dushi Visha*-

Acharya Sushruta has stated that a part of *Sthavar* (Inanimate), *Jangam* (Animate) or *Kritrim* (Artificial) poison, which accumulated and cannot be excreted from body completely due to its chronic and cumulative nature or becomes less potent after digestion or counter action of antidotes & stays in the body for a prolong period and vitiating the body slowly is called *Dushi Visha*.[4] The *Veerya* of *Dushi Visha* being less, it does not show any immediate fatality. On the other hand, it becomes *avritta* by *kapha* (Lipophilic Binding) & stays in that state for years. Bioaccumulation refers to the accumulation of substances, such as pesticides, or other organic chemicals in an organism. Bioaccumulation occurs when an organism absorbs a toxic substance at a rate greater than that at which the substance is lost. Thus, the longer the biological half-life of the substance the greater the risk of chronic poisoning, even if environmental levels of the toxin are not very high. Many bio accumulative chemicals are fat-soluble so that they tend to reside primarily in fat deposits or in the fatty substances in blood. This explains why

fat-soluble bio accumulative chemicals are often found at elevated levels in fat-rich breast milk. But bio accumulative substances may also be deposited elsewhere, including bone, muscle, or the brain.

4.2 *Dushi Visha* in Current Era

The part of Poisons remains within the body and which cannot excrete completely from human beings due to prolonged persistent, continuous exposure and biological half life time is called as cumulative poison which is similar to *Dushi visha*. On the basis of sources of poisons accumulated within the body the *Dushi visha* can be subcategorized into the *Sthavar Dushi visha, Jangam and Kritrim visha*. The part of poisonous material accumulated from *Sthavar* (Inanimate) may be called as a *Sthavar Dushi visha* and the part of poisonous material accumulated from *Jangam* (animate) called as a *Jangam Dushi visha*. By using this concept of *Dushi visha* and bioaccumulation of cumulative poisons there are some etiological factors play a role as a *Dushi visha* which may be summarized in the following table as per sub category.

Table.No.1 Etiological factor of *Dushi Visha*

S.r.	Etiological factor	*Sthavar Visha*	*Jangam Visha*	*Kritrim Visha*
1.	Arsenic and its compound	✓	-	-
2.	Mercury and its compound	✓	-	-
3.	Lead and its compound	✓	-	-
4.	Cadmium and its compound	✓	-	-
5.	Copper and its compound	✓	-	-
5.	Strychnine	✓	-	-
6.	FCA- Tartrazine	-	-	✓
7.	FCA-Quinoline	-	-	✓
8.	FCA-Carmosine	-	-	✓
9.	FCA-Ponceau 4R	-	-	✓
10.	FCA-Amranth	✓	-	-
11.	F.P-Sodium Benzoate	-	-	✓
12	F.P-Sulphur di oxide	-	-	✓
13.	F.P-Sodium meta bi sulphite	-	-	✓
14.	F.P-ButylatedHydroxyanisole	-	-	✓
15.	F.P-Benzoic acid	-	-	✓
16.	F.P.S–Asparteme	-	-	✓
17.	F.P.S–Saccharine	-	-	✓
18.	F.P.S–Fructose	-	-	✓
19.	PesticidesOrganophosphates	-	-	✓
20.	Pesticide-Carbamates	-	-	✓
21.	Pesticide-Organochlorine	-	-	✓

22.	Pesticide-Pentachlorophenol	-	-	✓
23.	Pesticides-Arsenical	-	-	✓
24.	Pesticides-Methyl Bromide	-	-	✓
25.	Pesticides-Halo Carbons	-	-	✓
26.	Pesticides-Carbon di sulphide	-	-	✓
27.	Pesticides Phosphine	-	-	✓
28.	Pesticides-Sulphuryl fluoride	-	-	✓
29.	Pesticides-Phenyl mercuric salts	-	-	✓
30.	Ethylene glycol	-	-	✓
31.	*Luta visha*	-	✓	-
32.	*Kita visha*	-	✓	-
33.	*Musakvisha*	-	✓	-
34	Folic acid	-	-	✓
35	Vit A	-	-	✓

FCA- Food coloring agent, FP-Food Preservatives, F.P.S-Food Flavoring and Sweeteners

Accumulation of Arsenic: - Arsenic compounds are well absorbed within 24 hours and redistributed to the liver, lungs, intestinal wall and spleen, where they bind to the sulfhydryl groups of tissue proteins. Arsenic also replaces phosphorus in the bone where it may remain for years. Hence, the effects of chronic poisoning can still be seen years after exposure has stopped.[6]

Accumulation of Mercury: - The principal sites of deposition are the kidney and brain after exposure to inorganic mercury salts. Organic mercury compounds are readily absorbed by all routes. Industrial mercurialism produces features such as inflammation of the mouth, muscular tremors (hatters' shakes), psychic irritation, and a nephritic syndrome characterized by proteinuria.

Accumulation of Lead: Once lead has been absorbed into the bloodstream, it is distributed between the bones and teeth, the soft tissues (kidneys, brain, and liver) and the blood, and in part excreted in the urine and in bile. Lead can cross the placenta and be transmitted in the breast milk. The body does not distinguish between lead and calcium, and so the majority of lead which is absorbed is stored in the bones and teeth.

Accumulation of Cadmium: - Cadmium can accumulate in lung tissue, causing lung diseases such as cancer. Non-smokers ingest cadmium mainly through foods such as mushrooms, shellfish, fish, and seaweed. Cadmium moves from the digestive system to the liver and then to the kidneys. The half-life of cadmium in the kidneys and in bone tissue is 30 years. Cadmium exposure can lead to infertility and damage to the central nervous system, immune system, and

DNA.

Accumulation of copper- Copper is a critical element for major neuronal functions, and the central nervous system is a major target of disorders of copper metabolism. Both the accumulation of copper and copper deficiency is associated with brain dysfunction.[7]

Accumulation of Food Colouring Agent-Synthetic colouring agent of food like- Carmosine, Ponceau 4 R, Quinoline yellow, Tartrazine and Amaranth has found significant level of accumulations which is more than permeable limit in human body.

Accumulation of Food Preservatives- Same as colouring agent food preservatives accumulated in the human bings. These are- Benzoic acid, Sodium benzoate and Butylatedhydroxy has found significant level of accumulations which is more than permeable limit in human body.

Accumulation of Food Flavouring Agent-Some food Flavouring agent accumulated in the human beings and produce long term hazard in the human body.

5. Protocol for Diagnosis of *Dushi Visha* in Current Era

5.1 History of Exposure

Positive history of direct exposure of etiological factor of *Dushi visha* have major role in the diagnosis of *Dushi visha*. The history of prolonged *Ayurvedic* medications of compound containing arsenic, lead, cadmium etc may causes, accumulation and ultimately clinical manifestation of *Dushi visha*. The industrial workers working in the industries including metallic compounds, pesticides these also farmers and gardeners who have history of prolonged persistent spraying of pesticides on plants more chance of accumulation of pesticides which produce *Dushi visha*. The person who have prolonged history of eating of junk foods like kurkure, chips etc. Containing food additives like preservatives, coloring agent, flavorings agent may cause *Dushi visha*.

5.2 Clinical Manifestations

Table no.2 General Clinical Features of *Dushi Visha* as per Various *Acharya*

Sr.	Feature	SK[8]	CC[9]	AS[10]	AH[11]	YR[12]	BP[13]	VS[14]
1	Inebriant (*Annamada*)	✓	-	-	-	✓	✓	✓
2	Indigestion (*Vipaka*)	✓	-	-	-	✓	✓	✓
3	Loss of Taste (*Arochak*)	✓	-	-	-	✓	✓	✓
4	Patches & Rashes on Skin (*Mandal-Kotha)*	✓	✓	✓	✓	✓	✓	✓
5	Delusion (*Moha*)	✓	-	-	-	-	-	-
6	Wasting of Tissue (*Dhatukshaya)*	✓	-	-	-	✓	✓	✓
7	Edema of Feet & Hand (*Pada-KarasyaShoph)*	✓	-	-	-	✓	✓	✓
8	Ascites (*Dusyodar*)	✓	-	✓	✓	-	-	-
9	Vomiting (*Chhardi*)	✓	-	✓	✓	✓	✓	✓
10	Loose Motion (*Atisar*)	✓	-	✓	✓	✓	✓	✓
11	Discoloration of Body (*Vaivarnya*)	✓	-	✓	✓	-	-	-
12	Unconsiousness (*Murchha*)	✓	-	✓	✓	✓	✓	✓
13	Fever (*VishamJwar)*	✓	-	-	-	✓	✓	✓
14	Profound Thirst (*Trishna)*	✓	-	✓	-	✓	✓	✓
15	Insanity *(Unmad*)	✓	-	-	-	-	✓	-
16	Flatulence (*Anaha)*	✓	-	-	-	-	✓	-
17	Aspermatogenesis (*ShukraKshaya*)	✓	-	-	-	-	✓	-

18	Stammering Speech (*SwarVikriti*)	✓	-	✓	✓	✓	✓	-
19	Bad Smell of Mouth (*VaigandhaMukh*)	✓	-	-	-	✓	-	✓
20	Bad Taste of Mouth (*VairasyaMukh*)	✓	-	-	-	✓	-	✓
21	Giddiness (*Bhram*)	✓	-	-	-	✓	-	✓
22	Abnormal Activity (*Vicheshta)*	✓	-	-	-	✓	-	✓
23	Dyspnea (*Shwas*)	✓	-	✓	✓	✓	✓	✓

SK- *Sushrut kalp Sthan*,CC-*Charak Chikitsa Sthan*,As-*Astang Sangrah*, AH-*Ashtang Hrudaya*,YR-*Yog ratnakar*,BH-*Bhav prakash*,-VS-*Vangsen*

Table no.3 Long Term Effect of Irritant Metallic Poison

Sr. No.	Etiological Factor	Clinical feature (Modern Medicine)[15]	Clinical feature (Ayurveda)
1.	Arsenic and its compound	**GIT** – Loss of Appetite & Weight, Malaise, Salivation, Colicky Pain, Constipation or Diarrhea, **Skin**–Erythematous Hyperkerotic skin, Patchy Pigmentation, Anemia & Leucopenia & Thrombocytopenia, Peripheral Neuropathy	*Avipaka, Atisar, Vaivarnya*
2.	Lead	Facial Pallor, Anemia, Lead Line, Retinal Stippling, Colic &Constipation, Lead Palsy-Wrist drop & Foot drop, Lead Encephalopathy, Lead Osteopathy, Reproductive system- Female (Menstrual irregularities) & Male(Sterility)	*Vaivarya*
3.	Cadmium	Infertility and damage to the central nervous system, immune system, and DNA. Lung diseases such as cancer.	-
4.	Mercury	Mercurial lentis, Danbury tremor & Hatter Shake, mercurial Erythrism & Mad as a Hatter, Anorexia, Insomnia, sweating, Lassitude & Headache.	*Arochak*
5.	Cooper	Metallic Fume Fever, Vineyard Sprayer's Lung Disease (VSLD), Green Hair Discoloration, Wilson's Disease	*Jwar, Vaivarnya*

Table no 4 Long Term Effects of Food Preservatives

S.r.	Etiological Factor	Clinical feature (Modern Medicine)[16]	Clinical feature (Ay.)
1.	Sodium Benzoate	Asthma, Cancer, fetal abnormalities.	*Shwas*
2.	Sulphur Di Oxide	Skin rashes, fetala bnormalities.	*Mandal-Kotha*
3.	Sodium meta Bisulphite	Life threatening asthma	*Shwas*
4.	ButylatedHydroxy anisole	Cancer	-
5.	Benzoic acid	Asthma	*Shwas*

Table No.5 Long Term Effects of Accumulated Food Sweeteners in Human Being

S.r.	Etiological Factor	Clinical feature (Modern Medicine)[16]
1.	Aspartame	Neurological damage, Hodgkin's Lymphoma, Obesity.
2.	Saccharine	Cancer of the bladder, uterus, ovaries, and skin, Obesity.
3.	Fructose	Obesity, Diabetes mellitus Chronic diarrhea Irritable bowel syndrome

Table no.6 Long Term Effects of Pesticide on the Human Body

S.r.	Etiological Factor	Clinical feature (Modern Medicine)[17]	Clinical feature (Ay.)
1.	Organo- phosphates	Loss of appetite, weakness, weight loss, and general feeling of sickness	Jwar,Avipaka
2.	Carbamates	Loss of appetite, weakness, weight loss and general feeling of sickness	*Jwar.Avipaka*
3.	Organochlorines (Chlorinated Hydrocarbons)	Some buildup in the fat tissues. May cause nervousness, weakness, and shaking	-
4.	Pentachlorophenol	Weight loss, weakness, anemia	-
5.	Arsenical Pesticides	Accumulates in body. Chronic headaches, dizziness, stomach-aches, salivation, low fever, garlic breath	*Jwar,murcha*
6.	Methyl Bromide, Ethylene Oxide and Propylene Oxide	Lack of coordination	*Moha, murcha*
7.	Halocarbons ethylene	Liver damage, weight loss, and jaundice	-
8.	Carbon disulfide	Pain, tingling and weakness of arms and legs; loss of mental functions	-
9.	Phosphine	Pain in eyes and nose; nosebleeds; abdominal pain	-
10.	Sulfuryl Flouride	Injury to kidneys and lungs	-
11.	Phenyl mercuric Salts	Weakness and lack of coordination in arms and legs; difficulty in talking and swallowing	*Swarvikriti*

5.3 Physical Examination[18]

Trividha Pariksha

Ayurveda has suggested *trividha pariksha* having *darsan* (Inspection), *sparsan* (Palpitation), *prashan* (Questioning). Which is unique and it will play major roll to diagnose disease. ***Darshan* (Inspection)**- The *darshan pariksha* is included in the inspection which is done by *darshan indriya* (eyes) of physician. It is nothing but visible signs of patients in *Dushi visha* are Patches & Rashes on Skin (*Mandal-Kotha*), Edema of Feet & Hand (*Pada-Karasya Shoph*), Discoloration of Body (*Vaivarya*) are major signs which is found in *Dushi visha* .which will be evaluate by inspection. ***Sparshan* (Palpitation)**—It have major role and included in palpitation of liver and palpation of the abdomen to detect any organomegaly (liver/kidney) ascites,

swelling etc. ***Parshan* (Questioning)**-it is done by questionings about symptoms which is found in patient in *Dushi Visha* Loss of Taste (*Arochak*), Vomiting (*Chhardi*), Loose Motion (*Atisar*), Profound Thirst (*Trishna*), Giddiness (*Bhram*) etc.

5.4 Laboratory Finding[19]

Arsenic may be detected in the hair and nails for prolonged time after exposure which analyzed by using more sensitive analytical technique like atomic absorption spectrometer. **Lead**-In chronic lead poisonings lead level more than 80-100µg/dl in urine considers chronic exposure. The concentration of amino lavunilic acid in the urine is widely used as a major of chronic lead toxicity in worker who is exposed occupationally. **Mercury**-It is important to investigate for chronic mercury poisoning of any worker, who excretes more than 0.3 mg of mercury per liter in the urine. **Copper**-In chronic poisoning, blood and liver copper concentrations are increased during the hemolytic period. Blood concentrations often rise to 5–20 mcg/mL, as compared with normal levels of ~1 mcg/mL. Liver concentrations >150 ppm (wet wt.) are significant in Human. The concentration of copper in the tissue must be determined to eliminate other causes of hemolytic disease. Molybdenum tissue concentrations should be evaluated to determine whether the syndrome is due to primary or secondary chronic copper poisoning. **Cadmium**-Cadmium can be qualified by spectroscopic techniques like AAS, ICP-MS (limit of detection in 0.15 µg/l) **Pesticides**- The pesticides in blood, serum, milk, or adipose tissue should be detected by using gas chromatography. The sample residue found chronic occupational exposed worker taken and run on chromatography which gives qualitative and quantitative measurement of pesticide. Even trace of pesticides found in human sample should be considered chronic exposure. **Food Additives**- The qualitative and quantitative traces of food additives like coloring agent, preservatives and sweeteners which have a nature of accumulation in the human beings due to prolonged persistent continuous exposure may be major to find out the concern metabolites in human samples (blood, urine, serum) by using gas chromatography and mass spectrometry.

6. Protocol for Management of *Dushi Visha* in Current Era

In *Ayurveda* Cumulative effect of weak poison on human health describes under the heading of *Dushi Visha*. These poisons not eliminated completely & remain as residue in tissues for year & produce toxic hazards. As the toxicogenesis of cumulative toxin is similar to *Dushi Visha*, the concept of management of *Dushi Visha* can be applied to treat the chronic hazards of Cumulative Toxin.

6.1 *Sanshodhan* (Bio purification)

In *Ayurveda* Cumulative effect of weak poison on human health describes under the heading of *Dushi Visha*. These poisons not eliminated completely & remain as residue in tissues for year & produce toxic hazards. As the toxicogenesis of cumulative toxin is similar to *Dushi Visha*, the concept of management of *Dushi Visha* can be applied to treat the chronic hazards of Cumulative Toxin. *Acharya Sushuruta* has suggested the sudation, induced emesis and induced purgation to remove the accumulated *Dushi visha* and *Dushivish janya dosha* from the body.

6.1.1. Protocol for induced Emesis

Routine Investigations like E.C.G and X-Ray should be done to rule out contra indication. After proper physical examinations patient is ask to complete *shauch vidhi* before the procedure of *vaman* will started in the early morning.

Sudation-The *Peti Seveda* which is the type of *Sarvang Sveda* should be given early in the morning before the process of induce emesis for few min with the hell by using *Dashmool decoction*. **Induced Emesis**-. After adequate sudation (*Samayak Savedan*) patient should be subjected for process of *vaman karma* (induced emesis).Patient should be asked to sit on *vaman* chair and *vamnopag drava* like *yashthi Madhu* (Glycyrriza glabra) phant should be given up to 3-4 litres.[20] Then *vamak drav –Ishavaku phalaa siddha kshir(Phala swaras musthi praman* in 200 ml milk.) should be given.The *vaman vega* and quantity of vomitus should be observed and major. Patient also observes for any complication (*vyapad*) of induce emesis and then advice the *Sansargen Karma*. As per schedule mention in *Ayurveda*.

Table No.7. Schedule of Induced Emesis (Self-created)

Sr.	Procedure/ Drug	Dose/Route of Administration & Duration of Procedure or Drug
1	Internal Oleation *(Snehana)* by *Grihadhumadi Ghrita*	50 ml at first day & increased by 25 ml every day + 150 ml Milk, till the adequate clinical sign of Oleation will be found
2	Box Sudation (*Swedana)*	Just before the procedure of Induced Emesis, all over body below neck till the adequate sign of sweating will be found.
3	Induced Emesis (*Vamana*)	At the day of Induced Emesis, own juice or essence of *Lagenaria Siceraria* (Bitter bottle gourd) root 20 ml with Goat Milk- 3 liter. Once in Early Morning.
4	Conciliating step (*Samsarjana Krama*)	Green Gram (*Mungdal)* water at afternoon & Evening after adequate appetite in 1st day, Green Gram (*Mungdal*) *Khichad*i at Lunch & Dinner after adequate appetite in 2nd day & Same as 2nd day in 3rd day

6.1.2. Protocol for induced Purgation

After proper examination of the patient the procedure of *virechan* started early in the morning. *Virechano pag drava like Terminalia Chebula, Rock Salt, Piper Longum, & Piper Nigram* powder in equal part gives relief from *Dushi Visha* and after then patient gives up *virechan* drugs like Milky Juice of *Euphorbion* can be given mixed with *Yusha*, Meat Sup or Ghee for Induced Purgation.

Table no.8.Schedule of Induced Purgation (Self-created)

Sr.	Procedure/ Drug	Dose/Route of Administration & Duration of Procedure or Drug
1	Internal Oleation (*Snehana)*	As per mentioned in Schedule of Induced Emesis for Management of Cumulative Toxicity.
2	Box Sudation (*Swedana)*	As per mentioned in Schedule of Induced Emesis for Management of Cumulative Toxicity.
3	Induced Purgation (*Virechana*)	At the day of Induced Purgation, Milky Juice of *Euphoria nerrifolia (Snuhi Ksheera*) 125 ml dried in Rock Salt (*Saindhava)* & mixed with *Triphala* Decoction 500 ml, Once in Early Morning.
4	conciliating step	As per mentioned in Schedule of Induced Emesis for Management of Cumulative Toxicity.

6.2 Suitable Diet & Transposition (*Pathya*)- *Rakta Shali*, Sathi Rice, Kodo Grain, Green Gramdal, *Sesamum Indicum* Seed Oil, Brijal, , *Ameranthus Spinossus*, *Phyllanthus Embilca*, Rock Salt.[21]

6.3 Unsuitable Diet & Transposition (*Apathya*) -Incompatible Food, Eating too soon after meal, Anger, Laborious Work, Sexual Intercourse, Day Sleep.[22]

6.4. *Sansaman Chikitsa*-

Sansaman chikitsa play an important role in *jirn visha chikitsa (Dushi visha*). The drug used for *Sansaman chikitsa* may sub categorized in to General and specific .5 gm. *Dushi Vishari Agad* and 5 gm. *Kashyopokta Virechak* should be given twice a day to suppress the *Dushi Visha.*

Specific drug

S.r.	Symptoms	Drug	Dose	Frequency
1.	*Jwar* (fever)	*Tuth Bhasm*[23]	375-750mg, along with ghrat	Twice a day
2.	*Swas* (Asthma)	*Shrang Bhasm*[23]	125-250 mg, along with Mishri	Twice a day
3.	*Mandagani* (looss of Appetite)	*Suvaran Malini Basant ras*[23]	125-250mg, along with Honey	Twice a day
4.	*Kustha* (Skin Disease)	*Panchnimbadi Churnam Brahtam*	2-5 gm, along with Honey	Twice a day
5.	*Kamala*(Jaundice)	*Laksmi Vilas (Naradeya) Ras*[23]	1-2 tablet along with Honey	Twice a day
6.	*Swarbhed* (Difficulty in talking)	*Kalyan Ghrit*[23]	6-12gm.	Twice a day
7.	*Dorbalya* (Weakness)	*Tripuro Sundar Ras*[24]	125 mg.	Twice a day
8.	*Premaha* (Diabetes)	*Vasnt Kusumakar ras*[24]	250 mg.	Twice a day
9.	*Pandu* (Anaemia)	*Kalayan Ghrit*[23]	6-12 gm.	Twice a day

7. Discussion-

Dushi visha is a part of either inanimate/ animate or artificial Poisons which is not excreted completely and remains within the body for prolonged periods due to continuous exposure and produce chronic illness or complications. When it cross the minimum limit in the tissues. *Acharya Sushuruta* has categorized the *Dushi visha* into Inanimate,animate,and artificial *Visha* on the basis of source of Poison from which it originated currently *Strchnousnux vomica*, its alkaloids and medicinal drugs repair from nux vomica and Amaranthus the food coloring agent has the property of accumulation and retain within the body. *Acharya charak has* stated that the animate toxin like insect and spider venom has also retain within the body and produce long term hazards in human body.[25] Today the chemically composed coloring agent, preservatives and sweeteners, has been highly used in the food industries as a food additives out of which have some property of accumulation to produce chronic hazards. After the green revolution the utilization of pesticides has been increase all over the world including India. Most of pesticides retain and accumulate within the body in various body tissues when exposed since prolonged periods persistently to the pharma labor and worker working in agero-chemical industry the accumulated pesticides when crosses the minimum limits within the body tissues produces the hazards. The patient of *Dushi visha* should be diagnosed on the basis of exposure of etiological factor of *Dushi visha* which having a nature of accumulation/lipophilic bounding/less potency and chronic retention. The *trividha pariksha* which is mention in Ayurveda should be played a major role to diagnose the *Dushi visha*. Laboratory investigation will be helped to confirm the presence of accumulated toxins or its metabolites. *Acharya Sushruta* has recommended the induce emesis or induce purgation along with specific nonspecific medicine. The patient of *Dushi visha* has examined observed and decides whether emesis or purgation should be induced first. The patient of *Dushi visha* should be subjected to *petisved* before the bio purification which help to excrete the accumulated toxins and its metabolites from intracellular to extracellular compartment by loosening the lipophilic bone. The bio purification will help to remove the toxins or its metabolites from human body along with vitiated doshas.*Dushi vishari Agad* help to avoid the reoccurrence of *Dushi visha* by its antitoxic effect and *Kashyopokta Virechana* yoga help to excrete the accumulate toxins or its metabolites which is not removed by bio purification —which compounds should be help to cure *Tuth bhasm, Shrang Bhasm, Svarnmalini basant ras,*

Panchnimbadi Churanam, Lakshmi vilas ras. Kalyan ghrit, Tripuro sundar ras and *basant kusumakar ras* etc.

8. Conclusion - Patient of *Dushi visha* will be diagnosed by means of history of etiological factors, its clinical manifestations, and *trividha pariksha* and laboratory findings By using the protocol of induced emesis and purgation and specific and nonspecific medicine will managed the patient of *Dushi visha*. Thus the Ayurveda play a major role to cure the accumulation of toxins which is found hazardous to human being currently.

9. References

1. M. HUTTON. Human Health Concerns of Lead, Mercury, Cadmium and Arsenic.Published by John Wiley & Sons Ltd, 1987).
2. AshleshaDatar and Nancy Nicisia 2013 Junk food in schools and childhood obesity, HHS Public Access. http://www.nim-nih-gov/pmc/articles/PMC3667628.
3. Pesticide MarketEstimates: 2006–2007.Available online: http://www.epa.gov/pesticides/pestsales/07pestsales/table_of_contents2007.htm (accessed on 15 November 2013).
4. Sushrit, SushritSamhita, Kalpsthan 2/25-26 Hindi Commentary by KavirajAmbikadattaShastri, Sanskrit Sansthan Publication Varanashi, Reprinted in 2007, Page no-32.
5. Friberg, L, G Nordberg, and V Voulk. 1986. Handbook on the Toxicology of Metals. Vol. II. Amsterdam: Elsevier Science.
6. Abbvie,Allergen et all.Chronic Arsenic poisioning. Dermnet.www.dermnetz.org,downloaded on 13/05/2016.
7. Mario Mento,Abnormal copper homeostasis mechanism,toxics journal,Belgium,ISSN-2305-6304,www.mdpi.com,downloaded on 29/04/2016.
8. Sushrit, SushritSamhita, Kalpsthan 2/27 & 30-31 Hindi Commentary by KavirajAmbikadattaShastri, Sanskrit Sansthan Publication Varanashi, Reprinted in 2007, Page 25 & 26.
9. Agnivesha, Charak, CharakSamhita, Chikitsasthan 23/31 Hindi Commentary by Pandit Kashinath Shastri, Dr. GorakhnathChaturvedi, Chaukhambha Orientalia Publication Varanashi, 14th edition in 1987, Page 630
10. Vagbhat, AshtangSangrahaUttarsthan 40/42 English Commentary by Prof.K.R. Srikanth Murthy, ChaukhambhaOrientalia Publication Varanashi, 1st edition in 1997, Page 357.
11. Vagbhat, AstangHrudaya, Uttarsthan 35/34-35 English Commentary by Prof.K.R. Srikanth Murthy, Krishnadas Academy Publication Varanashi, 1st edition in 1995, Page 333.
12. Yogratnakar Uttarardha Vishanidan Dushee Visha Rupamaha 1-2, Hindi Commentary by LakshmipatiShashtri, Chaukhambha Sanskrit Sansthan Publication Varanashi, Reprinted in 2005, Page 463.
13. Bhavmishra, BhavprakashUttarardha, Visha Adhikar 67/38 & 43 Hindi Commentary by Shrihari Prasad Pandeyen, Chaukhambha Sanskrit Sansthan Publication Varanashi, 5th Edition in 2005, Page743 & 144
14. VangsenSamhita (ChikitsasarSangraha), Visharoga Adhikar 48 & 52 Hindi Commentary by Dr. Ramkumar Ray, 1st edition, Prachya Publication Varanashi, in 1983, Page 714 & 715.
15. KrishanVij,Text book of forensic medicine and toxicology,6thedition,published by Reed Elsevier India private limited.
16. R. M. Pandey and S. K. Upadhyay, Food additives, Division of Genetics, Plant breeding & Agrotechnology, National Botanical Research Institute, Lucknow, India
17. Downloadedon11/07/14 http://psep.cce.cornell.edu/Tutorials/coretutorial/module09/index.aspx.
18. ProffesorBanwarilal Gaur, 2007 Asthanghradhya. Sutra sthan (1/21), Reprint edition Chaukhambha Orientalia;12
19. KrishanVij,Text book of forensic medicine and toxicology,6thedition,published by Reed Elsevier India private limited.
20. Panditkashinath shastri2011 Charaksamhita sutra sthan (4\23) edition re print Chaukhambha publication varansi ; 85
21. YogratnakarUttarardhaVishaChikitsaPathya 1-2, Hindi Commentary by LakshmipatiShashtri, ChaukhambhaSanskritSansthan Publication Varanashi, Reprinted in 2005, Page 470.
22. Yogratnakar Uttarardha Visha Chikitsa Apathya-3, Hindi Commentary by Lakshmipati Shashtri, Chaukhambha Sanskrit Sansthan Publication Varanashi, Reprinted in 2005, Page 470.
23. Rastantrasar, part-1, Hindi Commentry by Krishan Gopal. PublicationKrishanGopak Ayurveda Bhavan, 23rd edition.
24. Bhaisajya Ratnavali of Kaviraj Govind Das Sen Edited by Prof. Siddhi Nandan Mishra. Reprint edition Chaukhambha Surbharati Prakashan 2005.
25. Agnivesha, Charak, Charak Samhita, Kalpsthan Hindi Commentary by Pandit Kashinath Shastri, Dr. Gorakhnath Chaturvedi, Chaukhambha Orientalia Publication Varanashi, 14th edition in 1987.

Conceptual Study

Skin realation to *Doshaja Prakriti*-An Ayurvedic review

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Abstract:

Skin is the largest covering of the body. According to *Ayurveda*, *Twacha* is originated from *Matruja bhavas* (maternal factor) and formed like the butter forming on the boiling milk (*ksheerasyeva santhanikaa)*[1] on the developing embryo. The colour of *Twacha* varies according to *Prakriti* of individuals. The predominance of *Panchabhoutika* components also determines the colour of the skin. The normal colour of the skin is *Gaura, Krishna, Krishna shyama, Gaura shyama*[2]. The *Vatika prakriti* has *Krishna varna, Pittika prakriti* has *Pingala,Gaura varna*, and *Kaphaja prakriti* has *Sukumara, Avadata* colour. Skin protects the body from external elements like foreign organisms, dust particles, heat, cold and etc. According to *Prakriti* and *Twacha* individuals are advised to change their life style to avoid the skin diseases.

Key words: Skin, *Prakriti, Twacha.*

सारांश:

त्वचा शरीर का बाहरी आवरण है, इसका निर्माण मातृजभाव से हुआ है। त्वचा की उत्पति शुक्र–शोणित संयोग से ठीक उसी प्रकार होती है, जिस प्रकार दूध के परिपाक से उपर मलाई आ जाती है। यह शरीर की बाहरी क्षतिकारक पदार्थो से रक्षा करती है। प्रकृति के अनुसार त्वचा का वर्ण प्रत्येक व्यक्ति में भिन्न–भिन्न निर्धारित होता है। पंचमहाभूतो की प्रधानता के अनुसार भी त्वचा का वर्ण निर्धारित होता है। त्वचा का प्राकृत वर्ण गौर, कृष्ण, कृष्णश्याम एवं गौरश्याम है। वातिक प्रकृति पुरुष का कृष्ण वर्ण होता है। पैत्तिक प्रकृति पुरुष गौर पिंगल वर्ण होता है एवं कफज प्रकृति पुरुष सुकुमार, अवदात वर्ण वाला होता है। प्रकृति एवं त्वचा निर्धारत होने पर व्यक्ति की जीवन पद्धति में परिवर्तन लाया जा सकता है और उनकी त्वक् विकारों से रक्षा की जाती है।

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Conceptual Study

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Introduction:

Ayurveda advocates a holistic approach to human health care i.e. balance between the physical, mental, and spiritual function of the body. It is a way of life, a culture, a complete health science and moreover a cross section of scientific thoughts of many generations. Current scientific world is eagerly trying to understand the *Ayurveda* which holds its strong place in the main stream. It covers all spheres of life as it is clear from the following definition of *Swastha*[3]. A healthy person is one, who has equilibrium state of three *Doshas (Sama dosha)*, normal digesation and metabolism (*Sama agni*), normal condition of tissue *(Sama dhatu)* and excretory system *(Mala)*. Soul (Atma) is free from bondage and whose are clear and bright *(Prasanna Atma Indriya Manah*). This definition *Swastha* included the *Sparshenendriya (Twacha)* of individuals.

According to *Ayurveda* and modern sciences skin is largest external covering of the body. The skin is regarded as the mirror of an individual's inner health and it reflects one's emotional state of the body. It is the seat of sense organs (*Gnanendriya)* and the sense of touch, pain, temperature, and pressure are felt by it. Also beauty of the body primarily depends on the health of skin. Prettiness of an individual's not only lies on complexion and construction of the body, but also on the physical condition of the skin that makes the body surface shining and attractive. An unhealthy skin imparts poor appearance to the body therefore health of skin is real wealth of the being. Improper care and negligence of skin leads to premature aging, dullness of blemishes. Any change in the skin either good or bad has tremendous impact on person's daily life so now a days "skin" became most voluble organ of body.

In *Ayurveda* classics, different aspects of *Twacha* are described in *Prakriti Parikshan*[4]. The first examination for the evolution of *Bala* and ultimately the evolution of health is "*Prakriti Parikshan"*. *Chakrapani* has explained *Prakriti* as *Swabhava* which is eternal. We cannot change *Prakriti* of a person. *Prakriti* is one of the fundamental concepts of *Ayurveda*. It is organised in accordance to attributes of predominant *Dosha* at the time of *Shukra- Sonita Samyoga* (conception)[5]. There are many characters mentioned in *Samhita*. Skin is one of the important criterions for assessment of *Prakriti*. The features of *Twacha*, which are mentioned in *Prakriti parikshan* are *Varna* (colour and texture), *Sparsha* (rough or soft), spots (*Tila, Pipalu, Vyanga*), *Sweda Pradurbhava* etc.

Aims and objectives:

1. To review ancient literature available on *Prakriti* in Ayurvedic texts.
2. To review ancient literature available on *Twacha* in *Ayrvedic* texts.
3. To correlate the *Twacha* with *Doshaja Prakriti*.

Methodology:

- Available literature in *Ayurvedic* classics and commentaries,
- Modern texts,
- Journal and research articles,
- Internet.

Conceptual study:

Prakriti Vivechana*:* The word *Prakriti* is formed by the combination of two words *pra+Kriti*[6]. Here *"Pra"* means *Prakrushta Vachaka* i.e. beginning or commencement or source of origin and *"Kriti"* means *Shrushti* i.e to form or to perform. Put together, *Prakriti* means "natural form" or original form or original source. Sperms (*Shukra*), ovum (*Arthava*), diet (*Ahara*), and behaviour (*Vihara*) of pregnant women are responsible for predominance of *dosha*. Due to such predominance seven types of *Prakriti*[7] observed in human beings. Three types with predominance of single *dosha (Vatika, Pittika, Kaphaja)*, three types with predominance of any two *doshas (Dwandwaja Prakriti)*, and one with *Samata* of all *Tri Doshas (Sama Prakriti)*. People of *Sama*

Prakriti remaining always healthy. *Eka Doshaja* and *Dwandwaja Doshaja* people usually exhibit some sort of minor or major aliment and they need to observe regime for every day and every season regularly. According to both *Vahbhatas (Vridda and Laghu*) with *Sama prakriti* is excellent, while mixed *Prakriti* is condemnable, the person with predominance of *Vata, Pitta and Kapha* are inferior, mediocre and good respectively.

***Twacha Vivechana*:** the word *Twacha* derived from "*Twacha Samvarane"*[8] *Dhatu* along with *"Tap" Pratyaya* belongs to feminine gender, which means covering the body.

Twacha is a part of the body which completely covers the *Meda, Shonita* and other *Dhatus* of the body and spreading upon the body. *Twacha* also the site of *Sparhanendriya, Swedavaha Srotas,* and *Romakupa.*

Twacha is broadly classified into two types:

1. *Bahir twak* (epidermis)
2. *Antah twak* (dermis)

Bahir twak is Tanu (thin) and reflect *Krishna-Gauravadi Varna.*

Antah Twacha is thick, protect the body and this is the main seat of *Sparshanendriya* and root of hair follicles.

Relation between *Twacha* and *Prakriti:*

Different characteristics and attributes of *Twacha* are described by *Acharyas* while describing *Prakriti.*

Varna:

***Vata prakriti*:** " **यःकृष्णवर्णश्च** " (Ha.sam.pra.sth.5/17-18)

***Pitta prakriti*:** "**पित्तप्रकृतिरुष्णगौरगात्र**" (A.Sa.sha.8/11)[9]

"**गौरोष्णांग**" (A.H.sha.3/90-95)[10]

"**गौरतिपिङ्गः सुकुमारमूति**" (Ha.sam.pra.sth.5/19-20)

Sparsha:

***Vata prakriti*:** "**वातला रुक्षापचिताल्पशरीरा** " (Cha.Vi.8/98)

"**वातप्रकृतिस्तनुरुक्षस्तब्धाल्पाङ्गः**" (A.Sa.sha.8/10)

"**अल्पकेशःकृशोरुक्षो**" (Sha,sam.pu.kha.6/63)

"**अतिसुक्ष्मः केशाल्परुक्षो**" (Ha.sam.pra.sth.5/17-18)

***Pitta prakriti*:**"**उष्णामुखाः,सुकुमारावदातगात्राः**" (Cha.Vi.8/97)

"**पित्तप्रकृतिरुष्णगौरगात्रा** " (A.Sa.sha.8/11)

"**गौरोष्णांग**" (A.H.sha.3/90-95)

"**सुकुमारमूर्ति**" (Ha.sam.pra.sth.5/19-20)

"**मृदुर्गात्रलोमकं**" (Ha.sam.pra.sth.5/19-20)

Kapha prakriti: "**स्निग्धांगाः**" (Cha.Vi.8/96)

"**सुकुमारावदातगात्रा** " (Cha.Vi.8/96)

"**स्निग्धच्छवि** " (Su.sha.4/72-76)

"**स्निग्धस्थिरसुकुमार**" (A.Sa.sha.8/10

"**सुस्निग्धः श्लक्ष्णबद्धङ्गः**" (Bhe.sam.Vi.4/22-25)[11]

Loma:

Vata Prakriti: "**परुषकेशश्मश्रुरोम**" (Cha.Vi.8/98)

***Pitta Prakriti*:** "**प्रायोमृदुअल्पकपिलश्मश्रुलोमकेशा** " (Cha.Vi.8/97)

"**मृदुकेशरोमा**" (A.S.sha.8/11)

"**अल्परोमा** " (A.H.sha.3/90-95)

"**मृदुर्गात्रमलोमकं** " (Ha.sam.pra.sth.5/19-20)

Kapha prakriti: "**रोमदन्तनखैः केशैःबहुलैर्थ** " (Bhe.sam.Vi.4/22-25)

"**दीर्घरोमा**" (Ha.sam.pra.sth.5/21-22)

Tilakalak, Piplu, and Vyanga:

Pitta Prakriti: "**प्रभूतपिप्लुव्यङ्गःतिलापिडकाः**" (Cha.Vi.8/97)

"**शीघ्रवलिखलितपलितपिप्लुव्यङ्गः** " (A.S.sha.8/11)

Vali:

Pitta prakriti: "**क्षिप्रवालीपलितखलित्य दोषाः** " (Cha.Vi.8/97)

"**वलिपलितखलित्यज्युष्टौ**" (Su.sha.4/72-76)

"**शीघ्रवलिखलितपलितपिप्लुव्यङ्गः** " (A.S.sha.8/11)

"**वलिपलितखालित्यः** " (Bhe.sam.Vi.4/18-21)

***Sweda pradhurbhava*:**

Pitta prakriti: "**प्रभूतसृष्टस्वेदमूत्रपुरीषाश्च**" (Cha.Vi.8/97)

"**शरीरगंधा** " (Cha.Vi.8/97)

"**पित्तप्रकृतिस्तु स्वेदनो दुर्गन्धः**" (Su.sha.4/72-76)

"**घर्मव्देषी स्वेदनः पुतिगंधिर्भूर्य्यूच्चार** " (A.S.sha.8/11)

"**घर्मव्देषी स्वेदनः पूतिगन्धी**" (A.H.sha.3/90-95)

Discussion:

Each system of science has its own method of evolution. When it followed gives the correct direction for the research work and it is responsible for the progress of the science. Hence in this study the fundamental *Prakriti* is included and theory of *Samhita* was taken into consideration. *Ayurveda* lays great emphasis on the examination of the *Prakriti* which is natural state o f an individual. This is very important because only after understanding the original state of the body function one can understand the possible derangement in the functioning. The primary aim of *Ayurveda*[11] is to maintain health of healthy person and hence knowledge of *Prakriti* is imperative. Depending on the *Dosha* that is predominant in the *Shukra* and *Shonita* at time of union, the food and activities of the pregnant women, uterus, and season determine the *Prakriti* which is seven types.

In *Prakriti* some characters of *Twacha* is mentioned. So this topic is selected to assess the relationship between *prakriti* and Twacha, because skin is mirror of the body. It reflects the healthy physiological as well as psychological status of the body. According to *Samhitas* the person of *Vata prakriti* has *Krishna* (black) complexion and *Pitta prakriti* person has *Gaura* (fair) complexion. The *Sparsha* of *Vata prakriti* person has *Ruksha* (rough); *Pitta prakriti* person has *Ushna* (hot), *Mridu*(soft), and *Kapha prakriti* person has *Snigdha sparsha*. The *Vata prakriti* person has *Parusha* (rough) *Loma*; *Pitta prakriti* person has *Mridu, Alpa, Kapila loma* and *Kapha prakriti* person has *Deerga loma*. The *Pitta prakriti* person has excessive moles and they also got affected with wrinkles *(Vali*), voiding of sweat *(Sweda pradurbhava)* in large quantity with smell. When we know the *Prakriti* of an individual, we also identify the skin of that individual.

Conclusion:

The review of *Ayurvedic* literature revels that the skin of the human being is influenced by the *Prakriti*. Knowing the *Prakriti* of individual we examine the characters of *Twacha* like – *Varna, Sparsha, Loma, Tilkalka, Piplu, Vyanga, Vali* and *Sweda pradurbhav*. Because *Acharya's* has mentioned the some features for that, which are examine through simply *Trividha pariksha* like- *Darshana, Sparshana,* and *Prashna*. Now a days, due to change in life style and increased stressful life, majority of population are facing problems related to skin disease. The depth of knowledge related to features of skin provides easy diagnostic methods for various kinds of skin diseases.

Refrences:

1. Kaviraj Dr Ambikadutt Shastri, Ayurveda Tattva Sandipika, Hindi Vyakya, Susuruta Sharera Sthana, Volume I, chapter 4/5, Varanasi, Chaukambha Sanskrit Samsthan, Edition 13, 2002, Page no 28.
2. Kaviraj Dr Ambikadutt Shastri, Ayurveda Tattva Sandipika, Hindi Vyakya, Susuruta Sharera sthana, Volume I, chapter 2/37, Varanasi, Chaukambha Sanskrit Samsthan, Edition 13, 2002, Page no 15.
3. Kaviraj Dr Ambikadutt Shastri, Ayurveda Tattva Sandipika, Hindi Vyakya, Susuruta Sutra Sthan, Volume I, chapter 15/48, Varanasi, Chaukambha Sanskrit Samsthan, Edition 13, 2002, Page no 64.
4. Pandit Kashinath Pandey, Vidyotini Tika, Hindi commentary, Charaka Vimana Sthana 8/97, Volume I, Varanasi , Chowkambha Bharati Academy, Edition 2003, Page no 773.
5. Pandit Kashinath Pandey, Vidyotini Tika, Hindi commentary, Charaka Viman Sthan 8/95, volume I, Varanasi , Chowkambha Bharati Academy, Edition 2003, Page no 771.
6. Shabda kalpa druma, Varanasi, Chaukambha Sanskrit series, Third edition 1961.
7. Kaviraj Dr Ambikadutt Shastri, Ayurveda Tattva Sandipika, hindi Vyakya, Susuruta Sharera Sthana, Volume I, Chapter 4/61, Varanasi, Chaukambha Sanskrit Samsthan, Edition 13, 2002, Page no 37.
8. Shabda kalpa druma, Varanasi, Chaukambha Sanskrit series, Third edition 1961.
9. Acarya Priyavat Sharma, Subhodini Hindi Vyakya, Astanaga Sangraha Sarira Sthana,Chapter 8/11, Varanasi, Chaukambha Orienalia, Edition 1978, Page no 167.
10. Dr. Brahmananda Tripathi, Nirmala hindi vyakya, Astanga hridaya Sarira Sthana, Chapter 3/90-95, Delhi, Chaukambha Sanskrit Pratisthan, Edition 2003, Page no382.
11. Dr.K.H.Krishnamurthy, English Commentary, Bhel Samhita, Viman Sthana 4/22-25,Varanasi, Chowkambha Viswabharati, Edition 2008, Page no184.

Literary Review

Contribution of *Sushruta* To Urology

Sherkhane Rahul Nagnath

Abstract

Sushruta, the great sage surgeon, philosopher and teacher of ancient India, practiced around 1000 B.C. He is renowned all over the world for his contribution to surgery in general and plastic surgery in particular. But his contribution to urology is not well known to the medical world. His contribution to urology is reviewed here. Literature survey is the basis of this study. SushrutaSamhita, the treatise compiled by Sushruta, various commentaries on it by different authors and other related literature are used as primary sources.

Key Words : *Mutraroga*, Urology, *Ayurveda*, *Basti*

सारांश–

सुश्रुत लगभग 1000 ईसा पूर्व प्राचीन भारत के महान दार्शनिक, शिक्षक और शल्य चिकित्सक थे। वह सामान्य (जनरल) और प्लास्टिक सर्जरी में शल्य चिकित्सा के लिए अपने योगदान के लिए विशेष रूप से पूरे विश्व में प्रसिद्ध है। लेकिन मूत्र रोग विज्ञान के लिए उनका योगदान अच्छी तरह से चिकित्सा जगत में ज्ञात नहीं है। यूरोलॉजी के लिए उनके योगदान की यहाँ समीक्षा की गई है। साहित्य सर्वेक्षण इस अध्ययन का आधार है। सुश्रुतसंहिता, विभिन्न लेखकों, अन्य संहिता, विभिन्न टिप्पणियों द्वारा संकलित ग्रंथ से संबंधित साहित्य प्राथमिक स्त्रोत के रूप में इस्तेमाल किए गये हैं।

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Literary Review

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Sherkhane Rahul Nagnath

Introduction:-

Ayurveda is one of the most ancient medical sciences of the world. Its antiquity in India can be traced as far back as the Vedic period but the major works belong to *Samhita* period. *Charaksamhita* and *Sushrutasamhita* are the earliest and the most authentic Ayurvedic texts. It is difficult to specify the period in which these books were written, but it is believed that they are contemporary and date as far back as 1000 BC or even earlier.[1] *Charak Samhita* deals with medical diseases where *Sushruta Samhita's* most part is devoted to surgery that is Shalyatantra. This compendium stands out as testimony to the high standards of surgery. Major contribution of Sushruta is description of anatomy,[2] instruments and appliances[3], surgical techniques, practical training and experimental surgery[4], wound management, operative procedures (*Asthavidhashastrakarm*[5], Orthopedics (*Bhagna-Chiksta*),[6] Trauma Surgery,[7] para-surgicalmeasures (Kshar,[8] Jalouka[9], Agni[10]), plastic surgery and important surgical operations.

Beside above remarkable contribution in various fields of surgery his achievements in urology cannot be neglected. Numerous references related to urology are present in Sushrutasamhita but these are in scatterd form.

Anatomical aspect review:

The concept of anatomy in this Samhita is certainly inadequate from modern perspective, but we must applaud the painstaking perseverance of Sushruta in trying to learn anatomy by allowing the corpse to decompose in the river and then scrubbing layer by layer to decipher the structural details.[11] Although the inadequacy and inaccuracy of his concepts are evident now, but even in limited sources present then, knowledge related to various genitor-urinary organs is noteworthy.[12]

Information regarding major organs related to urology like kidney, ureter, urethera, urinary bladder was known at that time. Various organs related to urology have been described in Ayurvedic texts have been discussed here with possible modern correlation:

Vrikka : *Vrikka* are two rounded muscular organs situated in *Kukshi*, one in *Vamaparshwa* and another one in *Dakshinaparshva*.[13] Role of kidney in urine formation was not known to them then but anatomical and embryological aspects according to Ayurvedic principles are available. On the basis of anatomical description vrikka can be correlated with kidney.

Gavini: Description of *Gavini* is available in Atharveda but in Ayurvedic texts, description of paired structure joining kidney and bladder is missing. It seems really irrational that these prominently visible structures were not noticed even by *Acharya Sushruta* who is known for describing minute structural details of human body. Basti was used as a medium for giving medicated enema and for this purpose; it was isolated from the bodies of animals.[14] Without cutting these paired structures, it is not possible to take out Basti from the body. Sushruta has described that Bastiyantra is prepared by joining tube to one end and cauterizing the two openings.[15] These openings can be related with openings of ureter. It is practically impossible that they had not noticed similar structures in the human. Either the description of ureters might be lost with the passage of time or they had not described it intentionally as functions of these structures were not known to them and so they have not given due importance to them.

Basti: *Basti* has been described as thin walled gourd shaped organ[16] directed downwards[17] and is situated in the pelvic cavity. It is surrounded by various structures like umbilicus, back, loin, scrotum, anal canal, groin, penis, urethra, prostate, testis and rectum and is considered as reservoir of urine.[18] These details almost match with that of urinary bladder. On the basis of relations, structural and functional details, Basti can be accepted as

synonym of urinary bladder.

Mutra Praseka: *Dalhana* while commenting on *Sushruta* has mentioned that *Mutrapraseka* originates from the lower end of Basti and releases the flow of urine.[19] In male length of urethra is approximately six angula.[20] In female, it is of two angula and only one angula in kanya.[21] Considering the course of Praseka, its length and functional aspects, it is clear that Mutrapraseka resemble urethra.

Various diseases considered under Urology

Sushruta discussed various urological ailments with conjectures about their pathogenesis followed by detailed management. Numbers of urological disorder are described. If we critically analyze pathological conditions related to genito-urinary system then on the basis of their cardinal features they can be broadly classified in various groups-

- Obstruction in passage of urine is one of the main presenting symptoms in genitor urinary disorders. Sushruta has clubbed all the conditions with obstruction in urine as cardinal features under *Mutraghata*.[22] Under this group, diseases like *vataasthila, mutrajathar, mutrasanga, mutrouksada* etc. have been described.
- Another group comprises of urinary disorders where dysuria, urgency, frequency are the prominent clinical features & such conditions are dealt in detail under *Mutrakricchra*.[23]
- Urolithiasis refers to condition where urinary calculi are formed or located anywhere in the urinary system and such conditions forms third group which are described as *Ashmari* by *Sushruta*.[24]
- Next group of urinary disorders are characterized by change in constituents of urine and excessive urination and twenty such clinical conditions have been given included under *Prameha*.[25]
- Disorders related to changes in quality and quantity of semen (*Shukradosha*), penile sores and various erectile dysfunctions are described in several chapters by *Sushruta*.[26] Vivid description of localized pathological conditions related to male genital organs is also present such as *Mutraj Vriddhi*[27] (Hydrocele), Updansa,[28] *Sukaroga*[29] (Sexually Transmitted diseases) etc.
- Details of traumatic injuries to genito urinary system with management are described by Sushruta which forms the last group.[30]

Among above groups ashmari, localized pathological disorders and traumatic conditions are the most important from surgical point of view.

Instruments

Sushrutaprovided minute details of the manufacture and maintenance of 20 sharp[31] and 101 blunt surgical instruments.[32] These instruments included a number of urethral probes, dilators and irrigating syringes for instillation of medications which were used for different surgical and para-surgical procedures. He gave precise measurements and recommended the metal too be used. Among these instruments few were specially designed for treating urological ailments such as Mutravriddhi-nadiyantra[33] for fluid tapping in hydrocele, *Mutramargavishodhanishalakayantra*,[34] *Niruddha-prakashyantra* for urethral dilation,[35] *Uttarabasti yantra* for instillation of drugs in bladder etc.

Treatment aspect:

Certain specific surgical procedures related to urology are discussed below:

I. Perineal Lithotomy:[37]

Susruta has given critical description of perinealvesicolithotomy. The patient should be appropriately prepared and arrangements for operation should be done before surgery. The upper part of patient's body should be placed on the lap of assisstant. The patient's waist should rest on a cloth cushion. His knees and elbows should be flexed and tied together with strips of cloth or rope. The hypogastric region should be rubbed well with oil and strong pressure applied with the closed fist on the left side of the hypogastrium to make the stone descend. The surgeon should examine per rectum. With the fingers in the midline (of the rectum) the stone should be pulled down with careful pressure to present as an elevated swelling between the rectum and the penis. *Sushruta* recommends right sided incision of appropriate length. Care should be

taken to see that the stone is not broken or crushed while the incision is being made. If even a small piece is retained recurrence can occur. All stones should therefore be extracted with an instrument with are curved tip (*Agrabakrayantra*). Postoperative measures have also been mentioned.

In women the incision should not be too deep as a urinary fistula may result. Wounds of the bladder caused by other causes than lithotomy, or two incisions made into the bladder for removal of stones, do not heal. A bladder incision for lithotomy heals if post operative measures are properly carried out and if the quantity of urine is increased. Sushruta also described management ofpostoperative urinary fistula, he suggested-"The wound should be cauterized in the event of urine not flowing through its natural passage after the lapse of seven days". This procedure was described in western countries was described much later whereas Sushruta described it several centuries earlier.

II. Removal of Stones from urethra[38]

These should be extracted through the normal passage. If this is not possible, the urethra is to be incised and the stoneremoved with a hook-shaped instrument Badishayantra. For a year after the complete healing of the wound, the follow in activities are to be avoided — riding on horses or elephants, lifting heavy weights, swimming, climbing moutains, sexual intercourse and heavy lifting.

III. UretheralDilatation:[39]

Sushruta had described dilation in case of *Niruddhaprakasha* bya tube open at both ends (made of iron, wood or laksha) which should be lubricated with ghee and gently introduced into the urethra. Thicker and thicker tubes should be duly introduced every 3rd day. The urethra passage should be made to dilate in this manner and emollient food should be given to the patient. As an alternative, an incision should be made into the lower part of the penis avoiding the sevani (raphe) and it should be treated as an incidental ulcer.

IV. Circumcision[40]:

If dilation does not work in *Niruddha Prakash*, the circumcision is told. In phimosis circumcision is choice of treatment till now.

V. Manual reduction of Paraphimosis:[41]

The causes, clinical features and management of paraphimosis (Parivartika) are exactly similar even today as described by Sushruta.

VI. Tapping:[42]

In Mutraja Vriddhi treatment it has been told that scrotum at the lower part on side of the raphe should be punctured with trocar and fluid should be drained out by using canula with double opening. After removing canula, stump bandage over the wound.

VII. Scrotal Repair:[43]

Scrotal repair has been described in case of traumatic injury. It has been told that in case of extrusion of testicles, feet & eyes should be sprinkled with water and testicles should be pushed back. Then it should be sutured with continuous stitch and bandaged with *Gophanika Bandha* (Triangular banadage) which is tied in waist after encircling it. It can be compared to a kind of scrotoplasty.

Conclusion

Sushruta conceptions of anatomy, physiopathology and therapeutic strategies were of unparalleled brilliance even in the age when primitive technologies were present. From the above references it can be inferred that urological surgery was in practice during the period of *Sushruta*. He has not only contributed number of urological procedures but he has covered almost all aspects of surgery namely pre-operative preparation, counseling of patient, intra operative care, post complications, treatment and care etc. It can be concluded that Sushruta who is known for his inventions, innovations and advances both in theoretical and practical surgery has covered a large field in urological surgery also. Many principles laid by him in urology is still followed. He is pioneer in introducing vesical lithotomy to the world and so we are indebted to him for his valuable contribution in the field of urology.

References

1. Sharma PV, Ayurveda KaVaigyanikaItihaas, Chaukhambha Sanskrit Samsthan,Varanasi, Reprint edition2008, Page no. 63
2. Sushruta, SushrutaSamhita,edited by Acharya Vaidya

Yadavji Trikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, SharirSthana, 338-395

3. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, Sutra Sthanach. 7, Page no. 30-35

4. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, Sutra Sthanach. 9, Page no.41-42

5. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, Sutra Sthanach. 5, Page no.18-22

6. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthanach. 3, Page no. 415-420

7. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthanach. 2, Page no.408-415

8. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, Sutra Sthanach. 11, Page no .45-50

9. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, Sutra Sthanach. 12, Page no. 50-55

10. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, Sutra Sthanach. 13, Page no.55-58

11. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ShariraSthanach. 5/49, Page no. 369

12. Das S. Urology in ancient India. Indian J Urol 2007;23:2-5

13. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa,Dalhanateeka,9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, NidanaSthanach. 9/17, Page no. 303

14. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthanach. 35/13, Page no. 526

15. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthanach. 35/16, Page no. 526

16. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, NidanaSthanach. 3/18-20, Page no. 279

17. Sushruta, SushrutaSamhita,edited by Achary, Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, NidanaSthanach. 3/20, Page no. 279

18. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, NidanaSthanach. 3/18-20, Page no.279

19. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa,Dalhanateeka,9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthanach. 7/36, Page no. 437

20. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthanach. 37/111, Page no. 537

21. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa,Dalhanateeka,9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthanach. 37/105, Page no. 538

22. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, UttaraTantra, ch. 58/3-4, Page no. 787

23. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa,Dalhanateeka, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, UttaraTantra, ch. 59/1, Page no. 792

24. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, NidanaSthana, ch. 3, Page no. 276-280

25. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, NidanaSthana, ch. 6/6, Page no. 290

26. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ShariraSthana, ch.2, Page no. 344-350

27. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, NidanaSthana, ch. 12/6, Page no.316

28. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, NidanaSthana, ch. 12/6, Page no.316

29. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, NidanaSthana, ch. 14/3, Page no.325

30. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthana, ch. 2/66-67, Page no.412

31. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, Sutra Sthana, ch. 8/3, Page no.36

32. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, Sutra Sthana, ch. 7/3, Page no.30

33. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, Sutra Sthana, ch. 7/13, Page no.32

34. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, Sutra Sthana, ch. 7/14, Page no.34

35. Sushruta, Sushruta Samhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, Sutra Sthana, ch. 7/13, Page no.32

36. Sushruta, Sushruta Samhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, Sutra Sthana, ch. 7/13, Page no.32

37. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthana, ch. 7/30, Page no. 436

38. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthana, ch. 7/30, Page no. 436

39. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthana, ch. 20/35, Page no.480

40. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthana, ch. 20/46-47, Page no.480

41. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthana, ch. 20/42, Page no.480

42. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthana, ch. 19/18-20, Page no. 476

43. Sushruta, SushrutaSamhita,edited by Acharya Vaidya YadavjiTrikamji, with Nibhandasangraha commentary of Dalhanacharya and Nyayapanjika commentary of Gayadasa, 9th edition, 2007, Chokambha Sanskrit Samsthana, Varanasi, ChikitsaSthana, ch. 2/66-67, Page no.412

Literary Review

Refine flour (*Maida*) as a hidden cause of Diabetes mellitus

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Abstract:

Diabetes is on the rise, yet most cases are preventable and some can even be reversed. Diabetes mellitus is one of the diseases where diet restrictions are more effective than the conventional treatment. But in the present life style people prefer to go for the treatment side rather to have diet restriction or the healthy diet. Taking steps to prevent and control diabetes doesn't mean you are living in deprivation, it means eating a tasty and balanced diet that will also boost your energy and improve your mind. Most of the patients avoid sugar, sugar products, tubers etc but hardly change the flour they are eating, out of the several flours available in the market Maida is having most high glycemic index, whose usage has been increasing continuously in the form of tradional Indian snacks like samosa, bada pav, banana fry, fast foods like burger, pizza, chowmins and also it is major ingredient of bakery items. Maida is made up of wheat but while processing there are chemicals like Alloxan and several other bleaching agents are used. Alloxan is a toxic glucose analogue, which selectively destroys insulin-producing cells in the pancreas, when administered to rodents and many other animal species. This causes an insulin-dependent diabetes mellitus (called "Alloxan Diabetes") in these animals, with characteristics similar to type 1 diabetes in humans. The present paper highlights on the effects of maida and its fatal link to diabetes mellitus.

Key Words: *Maida*, Diabetes mellitus, Alloxan

सारांश–

मधुमेह व्याधि लगातार बढ़ती जा रही है, ज्यादातर मामले सही हो रहे है, परन्तु कुछ में इससे विपरीत हो रहा है। डायबीटिज़ मेलाइटस एक ऐसी व्याधि है जिसमें आहार पर प्रतिबन्ध चिकित्सा की अपेक्षा ज्यादा कारगर है। परन्तु वर्तमान जीवन–शैली में लोग आहार पर प्रतिबन्ध अथवा स्वस्थ आहार की अपेक्षा चिकित्सा को ज्यादा पसन्द कर रहे है। डायबिटीज़ के रोकथाम एवं नियन्त्रण हेतु कदम उठाने का मतलब यह कतई नहीं है कि आप अभावपूर्ण जीवन जी रहे है। इसका मतलब यह हैं कि आप स्वादपूर्ण एवं नियन्त्रित इस प्रकार का आहार कर रहें है, जो कि आपकी ऊर्जा वृद्धि के साथ–साथ बुद्धि वर्धक भी होगा। मधुमेह व्याधि के ज्यादातर रोगी चीनी, चीनी–उत्पाद, कन्द आदि का सेवन नहीं करते है, परन्तु वह आटे का सेवन करते रहते है। बाजार में अधिकांशतया जो आटा उपलब्ध होता है उसमें मैदा का ग्लाइसेमिक सूचकांक सर्वोच्च होता है। जिसका प्रयोग भारतीय पारम्परिक स्नैक्स जैसे – समोसा, बड़ापाव, केला चिप्स, बर्गर चाऊमीन, पिज्जा आदि बेकरी निर्मित उत्पादों में किया जाता है। मैदा गेहूँ से निर्मित होती है परन्तु इसकी निर्माण प्रक्रिया में अनेक रासायनिक पदार्थ जैसे–अलोक्सॉन, अन्य ब्लीचिंग पदार्थ का प्रयोग किया जाता है। अलोक्सॉन एक विषाक्त ग्लूकॉज एनालौग है जो कि अग्राश्य में पायी जाने वाली इन्सुलिन स्रवति कोशिकाओं को नष्ट करता है। जब इसे चूहे व कई अन्य जानवरों की प्रजातियों पर करके देखा गया तो इस प्रकार का प्रभाव पाया गया है। तथा यह जानवरों में इन्सुलीन आधारित डायबिटिज मेलाइटस् (जिसे अलोक्सॉन डायबिटीज भी कहा जाता है) का कारण होता है, जो मानवों में टाइप–1 डायबिटीज से सादृश्य रखता है। प्रस्तुत शोधकार्य में मैदा का प्रभाव एवं इसके डायबिटीज मेलाइटस पर घातक संबंध को बताया गया है।

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Literary Review

Refine flour (*Maida*) as a hidden cause of Diabetes mellitus

Dr. Ringzin Lamo, Dr. Lalit Nagar, Dr. Sudipt Rath

Introduction:

Food is the most important part of our health and presently the most ignored part. Food has been given more importance in Ayurveda than medicines. Charak Samhita, the most authoritative text of Ayurveda says that both human and his/her diseases are outcome of his/her food. (Charak Sutra: 28/45) Ayurveda states that one must regularly take such foods which helps in maintaining and promoting health and which prevents diseases (Charak Sutra: 5/13). But presently person is so much occupied in his daily work that he hardly gets time to review what he is eating. In this hasty lifestyle every individual is working laboriously to refine himself even at the cost of their health, making his life barren. In the process of refining, individual not only making himself refined but also his food. For example refined oil, refined sugar, refined flour (Maida) etc. Now it is very difficult to live without this beautiful white colour flour called Maida the reason behind it is the kind of life we are living today, our outside eating's has increased and most of the food articles are made up of refined flour. But have we ever noticed it is a slow toxin for human beings. This beautiful white coloured flour i.e Maida is finely milled refined wheat flour, closely resembling Cake flour or plain/All-purpose flour. Maida flour (Safed Atta) is used extensively in making fast food, bakery products such as pastries and bread, varieties of sweets and in making traditional mouth watering snacks like samosa, kachori etc and traditional breads like Naan and Parotta.

Process of making Maida-

It is generally understood that refining food destroy nutrients. Maida is made from the endosperm (the starchy white part) of the grain. The bran is separated from the germ and endosperm which is then refined by passing through a sieve of 80 mesh per inch (31 mesh per centimeter).[1] Although naturally yellowish due to pigments present in wheat, Maida is typically bleached with any of a number of flour bleaching agents. Flour bleaching agent is a food additive added to flour in order to make it appear whiter (freshly milled flour has a yellowish tint) and to oxidize the surfaces of the flour grains and help with developing of gluten. Chemicals can be helpful but sometimes what makes white flour look "clean" can also make it dangerous. Usual bleaching agents are organic peroxides, namely benzoyl peroxide, calcium peroxide, nitrogen dioxide, chlorine, chlorine dioxide, azodicarbonamide. [2] But the most prominent flour bleaching agent by far is chloride oxide. When chloride oxide combines with what proteins are left in the flour after removal of the bran and germ of the wheat, it forms a substance called ***alloxan.***[3] Alloxan is an oxygenated pyrimidine derivative which is present as alloxan hydrate in aqueous solution. Alloxan was discovered by von Liebig and Wohler in 1828 and has been regarded as one of the oldest named organic compounds that exist.[4] It is a toxic glucose analogue, which selectively destroys insulin-producing cells in the pancreas, when administered to rodents and many other animal species. This causes an insulin-dependent diabetes mellitus (called "Alloxan Diabetes") in these animals, with characteristics similar to type I diabetes in humans. Alloxan-induced diabetes has been commonly employed as an experimental model of insulin dependent diabetes mellitus. Furthermore, the dose of alloxan required for inducing diabetes depends on the animal species, route of administration and nutritional status. [3] To get pure white color Benzoic peroxide is used in cloths mill industry. If you take this powder and mix with water, fumes will come out and it is dangerous to our skin. But unfortunately this chemical is one of the important intakes for Maida production.[5]

Consumers of baked goods are unaware of alloxan and its potentially fatal link to diabetes. Intake of alloxan in the body, generate free radicals, these free radicals decreases beta-cell function through oxidative stress which further impairs the

insulin production and causes diabetes mellitus.[3]

Ill effect of maida :

Maida is very fine flour which hardly contains any fiber which makes it high caloric food compare to its combatant whole Wheat flour, because it is more concentrated and food that are high in grains also tend to be high in sugar and industrialized fats. This makes it one of the major causing agents for abesity and diabetes. Fineness of Maida makes it easy to over consume because most flour based foods require little chewing and go down rather quickly. It is so much easier to over consume any food where the work of chewing or digesting or separating fiber from starch has been done for us. "Says functional nutritionist Julie Starkel, MS, MBA, RD. One of the main differences between whole Wheat flour and Miada in the difference of glycemic index. Fineness of Maida makes it digest faster, rapid fire digestion causes blood sugar to spike, which causes a rise in insulin. The result? Not only are we hungry two hours later, but we are also paving the way for insulin resistance diabetes. Also scientist has reported that the high glycemic index food shifts nutrients into fat storage. In 2004, Ludwig and his colleagues at harvard conducted a study, published in the journal Lancet, in which they fed rats diets with identical nutrients, except for the type of starch. By the end of the study, rats in both groups weighed roughly the same, but those eating a high glycemic diet had 71 percent more fat than the low- glycemic index group.

Conclusion:

Over the past 50 years, the amber waves of grain our grandparents enjoyed have been replaced with modern, high-yield dwarf strains of wheat that produce more seeds and grow faster, the result is a dietary wild card, says davis: " Agricultural geneticists never asked if these new strains of wheat were suitable for human consumption. Their safety has never been tested." One of the biggest changes in modern wheat is that it contains a modified form of gliadin, a protein found in wheat gluten. Gliadin unleashes a feel-good effect in the brain by morphing into a substance that crosses the blood brain barrier and binds onto the brain's opiate receptors. "Gliadin is a very mind-active compound that increases people's appetite," Says Davis. "People on average eat 400 more calories a day when eating wheat or Maida, thanks to the appetite stimulating effects of gliadin."[5]

There are so many discussions going on the quality of food should we eat, but have we noticed that in the present diversity in the food have lost. In the past food changes with the change in season like in winter bajra is added with wheat, in summer barley is added with the wheat and there are so many other cereals people were eating, this kind of food habits still persist in the rural areas where we can see low prevalence of diabetes mellitus cases. We should learn from our ancestor's diet and food habits that the only mantra of healthy living is healthy diet. It becomes the urgent need of the hour to create an awareness of this chemical component that could trigger the onset of the silent disease, diabetes. Even we have many medicines for curing diabetics or it related diseases, but it is better to avoid its causes as Ayurveda itself states the concept of *nidan parivarjanam* as very first line of treatment.

References:

1- https://en.wikipedia.org/wiki/Maida_flour

2- https://en.wikipedia.org/wiki/Flour_bleaching_agent

3- Shakila banu et al, Alloxan in Refined Flour, a Diabetic Concern, IJAIR, 2012.

4- https://experiencelife.com/article/the-truth-about-refined-grains/

5- http://en.wikipedia.org/wiki/Alloxan

Literary Review

The Role Of Enviromental Pollutants In Causing Infertility

*Dr. Manish kumar Patel, **Dr.N.G.Gramopadhye

Abstract:-

Infertility is the failure to naturally conceive a child even after one or more years of regular unprotected coitus or to carry a pregnancy to full term. Reasons such as weight, diet, smoking, other substance abuse, environmental pollutants, infections, medical conditions, medications, & family medical history could affect conception in couples. Infertility can arise from either of partners. In men, infertility is usually because of low numbers or poor quality of sperm & occurs in a women when she does not produce eggs regularly or because her fallopian tubes are damaged or blocked and the sperm cannot reach her eggs. The current research paper focuses on infertility due to environmental pollutant in present era.

सारांश–

एक या अधिक सालों तक लगातार असुरक्षित यौन संबन्ध के पश्चात् भी गर्भधारण करने में असमर्थ रहना तथा प्रसव काल को पूर्ण काल तक ग्रहित न कर सकने को बन्धत्व कहा जाता है। गर्भ धारण प्रक्रिया को प्रभावित करने वाले कारणों में भार, आहार, धूम्रपान तथा अन्य मादक पदार्थों का व्यसन पर्यावरणीय प्रदूषक पदार्थ, संक्रमण, व्याधियाँ औषधियों का सेवन तथा पारिवारिक इतिवृत्त आदि आते है। बंध्यता पुरुष एवं स्त्री दोनों में से किसी को भी हो सकती है। पुरुषों में मुख्यतः शुक्राणु की कम संख्या तथा उचित गुणवत्ता का न होना तथा स्त्रियों में अण्डाणु की उत्पत्ति ही नहीं होना या बीजवाहि नलिका का क्षतिग्रस्त होना, अवरोध रहना बंध्यता का कारण होता है। जिसके कारण शुक्राणु अण्डाणु तक नहीं पहुँच पाते। प्रस्तुत शोध पत्र में मुख्यतः वर्तमान में पर्यावरणीय प्रदूषकों के कारण होने वाली बंध्यता पर केन्द्रीकृत है।

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Literary Review

The Role Of Enviromental Pollutants In Causing Infertility

Dr. Manish kumar Patel, Dr. N.G. Gramopadhye

Introduction:-

According to the formal definition by the World Health Organization (WHO), health is morethan absence of illness. It is a state of complete physical, mental and social well-being. Similarly, reproductive health also represents a state of complete physical, mental and socialwell-being, and not merely the absence of reproductive disease or infirmity. This presentation will introduce you to the basics of reproductive health disorders andthe potential role that the environment may play in the development of these disorders. Disorders related to male reproductive health may developduring fetal development, childhood, adolescence, or adulthood

- Multiple causes foralterations in reproductive functioning
- Increasing evidence ofinvolvement of environmentalexposures

Ayurvedic Aspect:-

As per Ayurveda the sexual desire is included under *kama. Kama*, which is one of the four *Purusharthas.-Dharma* (spiritual spirit), *Artha* (wealth), *Kama* (Love and Sexual pleasure), and *Moksha*. *Kamasutra*, earliest surviving HOW-TO treatise on sexuality was written in the 2nd century by sage *vatsayana*. Its focus on *KAMA* and to words that end.

Aims And Objectives Of Study:-

1. To know the environmental pollutant in causing infertility.
2. To study & assess how the environmental pollutant causing infertility.

Materials And Methods:-

The literary sources of present study are collected from the classical texts of Ayurveda and published article of reputed journals and website.

Impact of Exposure to Toxins on Men and Women

Exposure	Impact on women	Impact on men
Perchloroethylene (dry cleaning fluid	Prolonged time to pregnancy 1,2; Miscarriage (conflicting data) 3,4,5,6	
Toluene (inks, coatings, gasoline,cosmetics, glues)	Reduced fecundity 7; Miscarriage	Miscarriage in female partner 9; Hormonal changes 10; Decreased sperm count 11
Phthalates (plasticizers added to plastics like polyvinyl chloride; also widely used in cosmetics)	Decreased fecundity 12; Miscarriage , Pregnancy complications like preeclampsia 13, 14	Sperm damage 15, 16
Bisphenol A (monomer used to make polycarbonate plastic and various resins)	Meiotic aneuploidy (observed only in mice; no human studies 17)	Decreased sperm count (observed only in rodents; no human studies 18)

Formaldehyde (resins for particle board, plywood, insulation, cosmetics, labs, rubber production, dyes)	Menstrual irregularities, miscarriages 3,19; reduced fecundity 20	
Glycol ethers (primarily short-chain) (electronics, deicing, inks dyes, varnish, paint, printing, cosmetics, photography, some pesticides)	Miscarriage; infertility	Decreased sperm count
Solvent mixtures	infertility 23; Reduced fecundity 2 miscarriage, menstrual disorders 24,25; lowered LH	abnormal sperm 27; Mis-carriage in female partner; infertility (conflicting data 3
Lead (paint, batteries, electronics, ceramics, jewellery, printing, ammunition	Miscarriage	Low sperm count, fertility 30,31
Chlorinated hydrocarbons (some pesticides, wood preservatives, dioxins, PCBs	Spontaneous miscarriage; infertility 32; time to pregnancy 33 Endometriosis 34; Disrupted oocyte development and decreased blastocyte formation (animal study 35)	Sperm damage
Pesticides	Spontaneous miscarriage 3 fetal death 37; low-dose preimplantation embryo damage (animal research 38)	Low sperm count (DBCP; EDB; 2,4D, alachlor, atrazine, diazinon) 39, 40,41,42; delayed time to pregnancy in partner
Cigarette smoke	Infertility, reduced fecundity	Maternal smoking reduces sons sperm count 46, pregnancy loss 47; conflicting data 48

Conciusion:-

These study shows from all above information we can conclude that environmental pollutant plays important role in causing infertility. pthalates, toulene, bisphenol & glycol ethers etc. which are the invironmental pollutant causes infertility in male & female so further study to be neededis aspect

Refrences:

1. Shree Bhaskar GovindjiGhanekar, Sushrutsamhita of maharshiSushrut, 5th Ed, 1975, Varanashi,Motilal Bansaldas prakashan, 293-295pp.
2. Acharya Brahmanand tripathi , charak samhita of agnivesha charka, Reprinted 2007Varanashi ; Choukhambha sanskrita sansthan,(vol-II) 1038-1044pp.
3. Acharya Yadavji Trikamji, charak samhita of agnivesha charka by chakradatta, reprinted 2005, Varanashi; Choukhambha surbharati prakashan, 179pp.
4. Shree Ambika Dutta shastri, Bhaishjya ratnavali of Govind das, 18th Ed, 2007 Varanashi ; Choukhambha prakashan, 821-825pp.
5. Toratora Grabowski, Principal of Anatomy and Physiology, 2004, 10th Ed,1012-1027pp.
6. Harrison's Principals of Internal Medicine (vol I) 16th Ed, McGraw hill publication,USA. 2005, 292-294 pp.
7. Davidson's Principals and Practical Medicine, 18th Ed, Churchill Livingstone UK,952 pp.8. Acharya Brahmanand tripathi,Sharang dhar samhita, Reprinted 2007,
8. www.Ayurclinic.com

Literary Review

A Conceptual & Critical Review of Occupational Health Hazards in the Race of Gender Equality – An Ayurvedic Perspective

*Dr. Konica Gera, **Dr. Nellufar, ***Dr. Baldev Kumar

Abstract :-

"Occupational Health" is very well defined by the W.H.O. as a method of Medical Science for promoting and maintaining the state of physical, mental, social and spiritual well-being in all occupations, preventing the loss of health caused by working conditions. It is a part of the responsibilities of medical science to work on the methods of prevention of health hazards caused at occupational front to allow smooth working of the employees for the contribution to the economy of the nation. "Gender Equality" is the objective of the United Nations Universal Declaration of Human Rights, which seeks to create equality in law and in social situations, such as in democratic activities and securing equal pay for equal work.

It is a fact that all women work as they perform dual roles of production and reproduction. Although women work for longer hours and contribute substantially to family income, they are not perceived as workers by either the women themselves or data collecting agencies and the government. According to International Labor Organization, 2/3rd of the working hours around the world are worked by women because of the combination of various roles in the workplace, family and society. To understand the occupational health problems faced by women & the role *Ayurveda* can play as a solution to the health hazards caused by occupational stress & strain, it was necessary to make a detailed study of the women's work in terms of the actual activity under taken, the hours of work and the extent of remuneration received. In India, most of the women are employed in the unorganized sector, which includes agricultural laborers, workers in traditional village and cottage industries, migrants to the cities in domestic service, street vendors, etc which are generally ignored in terms of occupation. Apart from these activities, they spend almost 10-12 hours per day doing household chores. *Ayurveda* understands the distinct anatomy and physiological roles played by female counterparts & *Samhitas* have devoted a separate *Sthana* i.e. *Sharira Sthana* to highlight their special needs. The detailed descriptions in relation to female health are compiled under *Balarogvigyana* of *Ashtang Ayurveda*. Distinct approach of *Ayurveda* like *Rasayan* therapy, *Panchakarma* for detoxification and as a curative tool, herbal preprations, *ahaar* and *vihar* along with the drugs, *GarbhiniParicharya*, *Sutika Paricharya* etc. can do wonders in maintaining & improving female occupational health.

Keywords: Occupational Health, Gender Equality, International Labor Organization, Worksite Health Promotion, *Ayurveda* in Occupational Health, Work and Women, Female Health

सारांश–

विश्व स्वास्थ्य संगठन के द्वारा व्यवसायिक स्वास्थ्य को चिकित्सा विज्ञान के एक क्षेत्र के रूप में, शारीरिक, मानसिक, सामाजिक एवं अध्यात्मिक स्वास्थ्य पर कार्य की परिस्थितयों की वजह से होने वाली हानि एवं उनसे बचाने के उपाय के रूप में भलि–भाँति परिभाषित किया गया है। कार्य स्थल पर स्वास्थ्य संबंधी खतरों की रोकथाम के तरीके पर कार्य करना चिकित्सा विज्ञान की जिम्मेदारी है ताकि कर्मचारी अच्छा कार्य करते हुए देश की अर्थव्यवस्था में अपना योगदान दे सके। लिंग समानता, संयुक्त राष्ट्र की मानव अधिकार सार्वभौमिक घोषणा का उद्देश्य है जो कानून में एवं सामाजिक स्थितियों में समानता पैदा करने का एक प्रयास है यथा लोकतांत्रिक गतिविधियों में एवं समान कार्य के लिए समान वेतन हासिल करना इत्यादि।

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यह एक तथ्य है किस भी महिलाओं को उत्पादन एवं प्रजनन की दोहरी भूमिका निभानी पडती है। हालांकि महिलाएँ घण्टों काम करके परिवार की आय में योगदान करती हैं तथा पि आँकडे एकत्रित करने वाली संस्थाएँ, सरकार एवं महिलाएँ स्वयं अपने आपको कमाने वालों की श्रेणी में संकलित नहीं करती। अंतर्राष्ट्रीय श्रमसंगठन के अनुसार दुनिया भर में दो-तिहाई कार्यों के घण्टे- कार्यस्थल, परिवार एवं समाज में विभिन्न भूमिकाओं में औरतों द्वारा किए जाते हैं। महिलाओं की कार्यस्थल पर स्वास्थ्य संबंधी समस्याओं को समझने हेतु एवं महिलाओं के व्यवसायिक तनाव के निर्मूलन हेतु आयुर्वेद में वर्णित विषयों की सम्य विवेचना हेतु, महिलाओं के कार्य के घण्टे, वास्तविक गतिविधि एवं काम के बदले वेतन पाने के विषय में विस्तृत अध्ययन आवश्यक है। भारत में अधिकतर महिलाओं द्वारा असंगठित क्षेत्र यथा कृषि मज़दूरी, गांव के लघु एवं कुटीर उद्योग, सडक विक्रेता आदि क्षेत्र में सेवाएँ देने के कारण उनकी गणना कार्यकारी वर्ग के अन्तर्गत नहीं हो पाती। इसके अतिरिक्त वे प्रतिदिन 10-12 घण्टे घर के काम में व्यतीत करती हैं जिसको कार्य या व्यवसाय के रूप में नहीं समझा जाता। आयुर्वेद में स्त्री शारीर रचना एवं शारीरिक क्रियाओं की विवेचना हेतु विस्तृत वर्णन पृथक से शारीरस्थान एवं अष्टांग आयुर्वेद में बालरोग विज्ञान के अन्तर्गत किया गया है। आयुर्वेद विज्ञान के विभिन्न विशिष्ट चिकित्साक्रम यथा रसायन चिकित्सा, पंचकर्म चिकित्सा, गर्भिणी परिचर्या, सूतिका परिचर्या इत्यादि स्त्रियों के स्वास्थ्य के संरक्षण एवं व्यवसाय के क्षेत्र में आवश्यक परिवर्तनों की कुंजी है।

Literary Review

A Conceptual & Critical Review of Occupational Health Hazards in the Race of Gender Equality – An Ayurvedic Perspective

Dr. Konica Gera, Dr. Nellufar, Dr. Baldev Kumar

Introduction

The science of Ayurveda believes in the attainment of complete health as the prime goal because only in a healthy body dwells a healthy soul. Health as defined by the World Health Organization (WHO) in its 1948 constitution is "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." A lot of awareness is seen among the present day generation regarding achieving the state of health and its maintenance, still a few aspects of our daily regimen are missed out and not taken due care of.

Occupation is one such front which is usually not considered as a source of illness in general while it plays a major role in the physical, mental and social wellness of a human. In the race to lead everyone is working hard and beyond their physical capacities compromising their physical wellbeing. The stress and strain of the work and pressure of targets to be achieved leaves negative impact on the mental health too. As the maximum time spent is at the workplace these days hence that only frames a major part of the social life of the individuals. Occupational health in total is capable of preventing a lot of health hazards if paid proper attention to.

Occupational health is not only limited to the male population as with the changes in the society and its needs there is a shift seen in the lifestyle of women of the present day. Now a days she is not merely the in charge of the household chores but the bread winner too. As a result of the acts & laws promoting women empowerment, female education, restricted child marriages, gender equality- there is a new conscious women emerging - mindful, hardworking, busy & responsible.She has chosen to move out of the home & extend her duties from household chores to another level.According to International Labor Organization, 2/3rd of the working hours around the world are worked by women because of the combination of various roles in the workplace, in the family and in the society.With the emergence of women into previously male dominated occupations, a greater number of women now hold jobs, resulting in a larger percentage of women being exposed to stress-related illnesses and diseases.

Women perform a dual role of production & reproduction. On her health depends the health of the family as a whole.Physical stress leads to mental strains & vice versa and Ayurveda is the first medical science to understand the importance of mental wellbeing. *Acharya* understood the distinct anatomy and physiological roles played by female counterparts & described them separately in Sharir Sthana of *Charaka Samhita*.

Materials & Methods

An attempt has been made to explore the various patterns of female occupation and kind of stress suffered at work. Evaluation of female occupation in terms of the actual activity undertaken, the hours of work and the extent of remuneration received in ratio with the stress and strain caused has been made.Classical texts of Ayurveda and available commentaries has been searched for references and thorough understanding of women health in specific and their special needs in relation to the male counterparts.An attempt has been made to explore the ways Ayurveda can help to overcome the hazards caused by this switch in female lifestyle in particular.

Observations:

Women work for longer hours & contribute substantially to family income, still they are not perceived as workers by themselves or data collecting agencies. Past research regarding occupational stress & coping has largely focused on male workersand these findings were incorrectly generalized to women. Neglecting to include gender as a variable in most stress-related research has

resulted in contradictions and perceived biases in the study of stress and coping.[1]

The pattern of female work if studied thoroughly, clearly depicts the discrimination faced by the gender at occupational front. The dataas per Census 2001, depicting the number of workers in the urban areas as well as rural areas along with the male and female employee's numbers in India is shown in figure 1.[2]

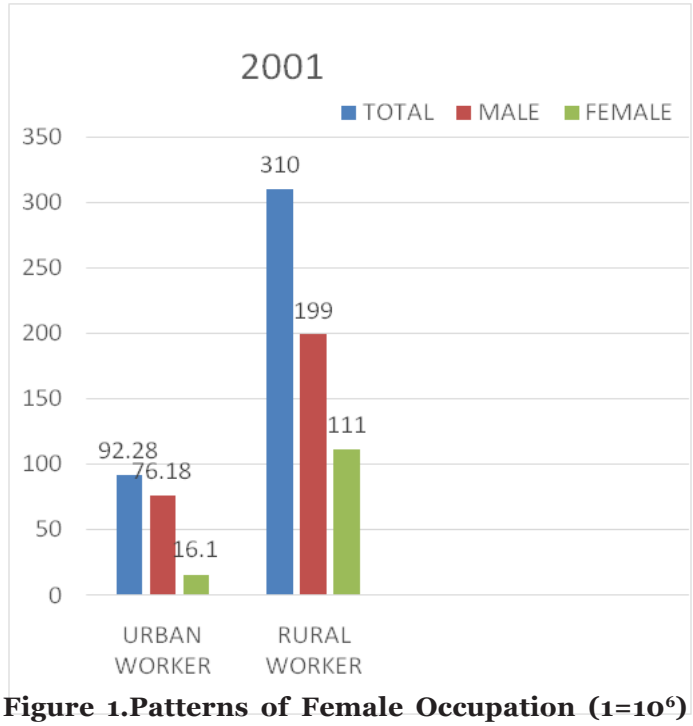

Figure 1.Patterns of Female Occupation (1=10⁶)

This not only depicts the lower percentage of females being considered and counted as employed but it also clears that the percentage of female employed in rural sector is much higher compared to that in the urban sector.

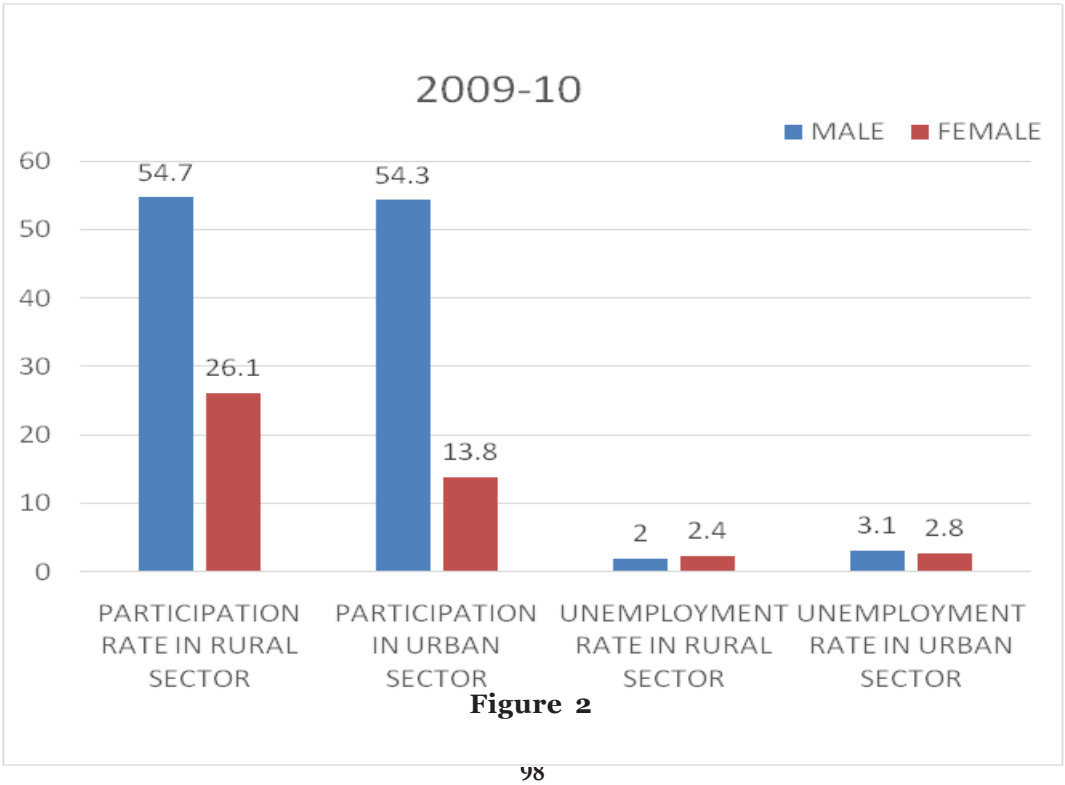

Figure 2

The statistical data depicting the workforce participation rate in rural & urban sectors by both genders in 2009-10 as shown in figure 2. clearly validates the fact there is no change in the picture even after so many years. Lower participation rate of females in urban sector in comparison to the male counterparts and to the rural sector clears the state of gender equality. Moreover higher rate of female unemployment in urban sector depicts the picture of more females being employed in rural areas compared to the urban.[3]

The employment rate in rural sector for both the genders as illustrated in figure -3 depicts low rates of salaried females compared to self-employed or casual laborers. In factthe females outscored males in these two fronts.

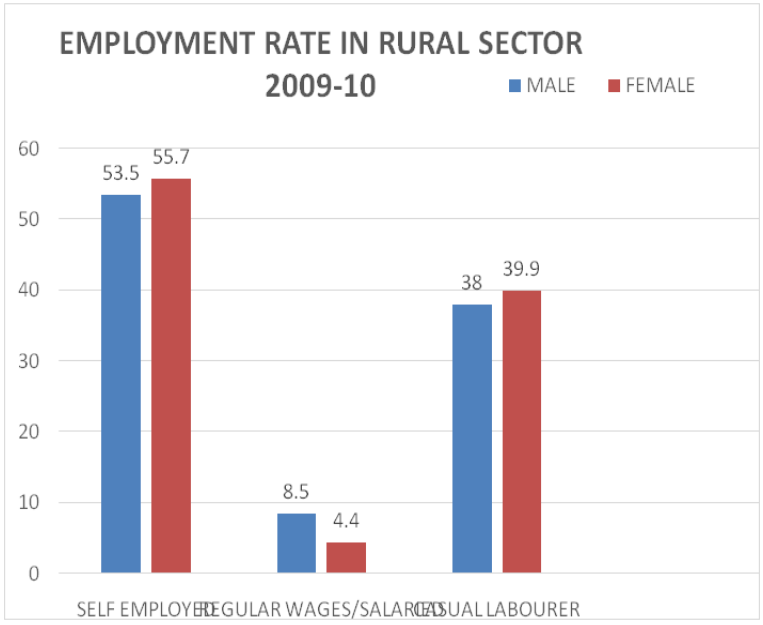

Figure 3

The difference in the wages drawn by both genders in urban & rural sectors illustrated in figure-4, shows the state of gender equality at occupational front. Though comparatively lesser females are employed in urban sector but the difference in wages is lesser in this sector compared to the rural sector.

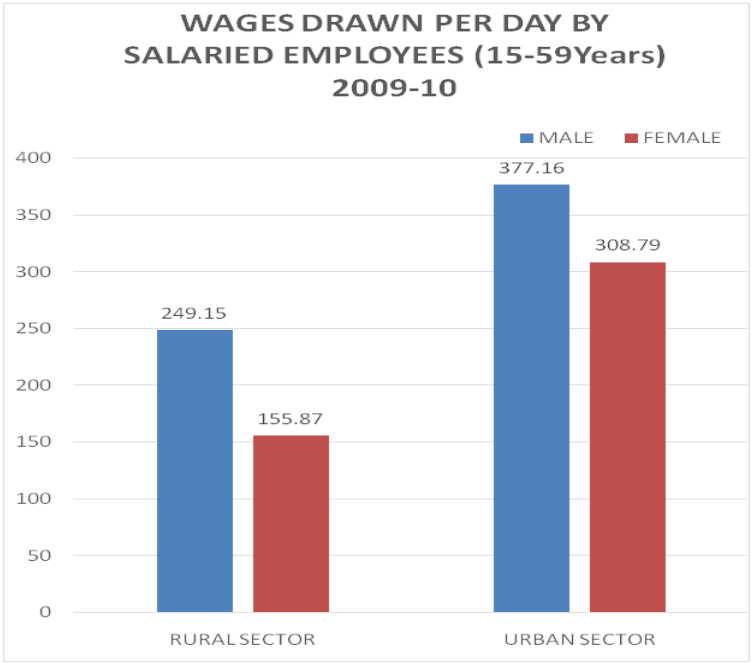

Figure 4

Results & Discussion

Health is complete equilibrium of physical, mental and social well-being and occupational health is not any exception to it. Negative aspects of the job such as disciplinary problems, co-worker's apathyand overburden of deadlines, involuntary transfer, inadequate salaries, and lack of administrative support are among the stressors that are confronted.

As a result of these stressful aspects of work, burnout among employees occurs, which is expressed in following symptoms:

- Physical (e.g. headaches, peptic ulcers, hypertension, diabetes etc.),
- Psychological (depression, anger, anxiety etc.),
- Behavioral (e.g. deterioration in work performance, absenteeism etc.)

Ayurveda as a medical science has specified treatments to these physical, psychological and behavioral disorders in detail. The beauty of the science lies in the fact that it cures the person as a whole not merely a system or a disease. Hence it has a better approach towards treating individual as a whole and each individual separately.

Although occupational stress effects both the genders negatively but females suffer more if compared as females being physically and emotionally different from male counterparts tend to suffer more.Moreover they perform household duties too making her consistently work on a double shift & when children or family members are ill, she does three shifts day after day. The data presented clearly shows the unnecessary discrimination suffered by them which is an extra burden.

Women are already more vulnerable than men as stated by *Acharyas* too. *Acharyas* have listed women along with children and aged people as sukumaras.[4] Vega-Vidharan is listed as one of the major hetus for most of the diseases.[5] Females tend to avoid their natural urges in general & the tendency further increases manifolds at the workplace leading to many diseases. As listed *vyayam, vegasandharan, anashana, abhighata, udvega, shoka, jagrana, vishama sharira nyasa* etc. are *vata prakopak hetus* and working women tend to practice more of them.[6] The vaata prakopak hetus like vyayam, anashan etc. that get exaggerated due to occupational duties actually make females suffer more as vaata prakopa is directly related to yoni vyapadas in female.Even the sadhya vyadhis of females are listed as not easily curable ones.[7]

Mansoabhitapa, ahaar-vihaardosha, bala sankshaya are listed as reasons for secondary infertility.[8] Fears and jealousy like factors are said to diminish the levels of shukra and ojas. The changes in the occupational front have led to increased number of cases of infertility in the past few years. In case of conception even there are a lot of factors related to female health to be taken care of, which might be ignored due to occupational stress. Unfulfilment of the desires expressed at the time of dauhrida leads to garbha vikruti. The surroundings of the pregnant female affects the development of the foetus.[9] Pregnant female is termed klantatama in 7th month of the pregnancy. Though they are offered maternity leaves but there is no provision for leaves at the dauhridya avastha and it's not possible to fulfil her desires at the workplace itself. No provisions of maternity leaves when she is klantatama i.e. at 7th month of pregnancy.

Ayurveda understands the female anatomy and physiological differences well and hence separate regimens are mentioned in Samhitas for different stages of female reproductive life like *ritucharya*,[10] *garbhani paricharya*,[11] *sutika paricharya*[12] etc. Female serves the dual role of production and reproduction. *"Naryamoolam Apatyanam"*- She is the kshetra for progeny and is a major factor for its development for 9 months and so on. If we achieve the goal of a healthy progeny we can easily effectuate the concept of *"Sarvebhavantu sukhina, Sarvesantu niramya"*. Hence the regimens mentioned for different stages of reproductive health of the female should be incorporated. Proper propagation of the Ayurvedic principles is necessary for its incorporation. Moreover, discriminations suffered at occupational front need to be worked on too.

In India, most of the women are employed in the unorganized sector, which includes agricultural laborers, workers in traditional village and cottage industries, migrants to the cities in domestic service, street vendors, etc. Apart from

these activities, they spend almost 10-12 hours per day doing household chores making her over burdened. A Diamond is a piece of charcoal that handled stress exceptionally well. So is the case with women. They tend to handle every stress till the edge & it is proved very well by the fact how they beautifully manage the dual roles of personal and professional life. But excess of everything has its consequences. So its need of the hour that females along with their duties start paying attention towards their well-being as they are the shaping stones of future generations.

References

1. Barnett RC, Baruch GK. Social roles, gender, and psychological distress. In: Barnett RC, Biener L, Baruch GK, editors. Gender and stress. New York: Free Press; 1987.
2. http://www.wikigender.org/wiki/women-and-men-in-india-2011/
3. Women and Men in India, 2012 (14th Issue)– A publication by the Central Statistics Office under the Ministry of Statistics and Programme Implementation, Government of India. Central Statistics Office, National Statistical Organisation (2012), "Women and Men in India", Ministry of Statistics and Programme Implementation, Government of India The highlights.
4. Gaur Banwari Lal, Nesari Manoj, Prasad V.V.: *Sanvayahindi* translation on *Caraka Samhita* with "*Eshana*" *hindi* Commentary on *Cakrapanidatta Virachita* "*Ayurvedadipika*", Vol. II, R.A.V. Publications, New Delhi, India, first Ed. August2014, *Vimanasthana*8/94
5. Gaur Banwari Lal, Nesari Manoj, Prasad V.V.: *Sanvayahindi* translation on *Caraka Samhita* with "*Eshana*" *hindi* Commentary on *Cakrapanidatta Virachita* "*Ayurvedadipika*", Vol. II, R.A.V. Publications, New Delhi, India, first Ed. August 2014, Nidanasthana 6/6
6. Gaur Banwari Lal, Nesari Manoj, Prasad V.V.: *Sanvayahindi* translation on *CarakaSamhita* with "*Eshana*" *hindi* Commentary on *Cakrapanidatta Virachita* "*Ayurvedadipika*", Vol. II, R.A.V. Publications, New Delhi, India, first Ed. August2014, Nidanasthana 1/19
7. *Shastri Ambikadatta, "Ayurvedatattvasandipika"* commentary on *Sushruta Samhita, Purvardha, Chaukhambha Sanskrita Sansthana, Varanasi*, India, Rep.2007, *Sutrasthana* 10/8
8. Gaur Banwari Lal, Nesari Manoj, Prasad V.V. : *Sanvayahindi* translation on *CarakaSamhita* with "*Eshana*" *hindi* Commentary on *Cakrapanidatta Virachita* "*Ayurvedadipika*", Vol. II, R.A.V. Publications, New Delhi, India, first Ed. August2014, *Sharirasthana* 2/7
9. Gaur Banwari Lal, Nesari Manoj, Prasad V.V. : *Sanvayahindi* translation on *CarakaSamhita* with "*Eshana*" *hindi* Commentary on *Cakrapanidatta Virachita* "*Ayurvedadipika*", Vol. II, R.A.V. Publications, New Delhi, India, first Ed. August2014, Sharirasthana 2/25 (chakra.)
10. Gaur Banwari Lal, Nesari Manoj, Prasad V.V. : *Sanvayahindi* translation on *Caraka Samhita* with "*Eshana*" *hindi* Commentary on *Cakrapanidatta Virachita* "*Ayurvedadipika*", Vol. II, R.A.V. Publications, New Delhi, India, first Ed. August2014, *Sharirasthana* 8/5.
11. Gaur Banwari Lal, Nesari Manoj, Prasad V.V. : *Sanvayahindi* translation on *CarakaSamhita* with "*Eshana*" *hindi* Commentary on *Cakrapanidatta Virachita* "*Ayurvedadipika*", Vol. II, R.A.V. Publications, New Delhi, India, first Ed. August2014, *Sharirasthana*8/32.
12. Gaur Banwari Lal, Nesari Manoj, Prasad V.V. : *Sanvayahindi* translation on *CarakaSamhita* with "*Eshana*" *hindi* Commentary on *Cakrapanidatta Virachita* "*Ayurvedadipika*", Vol. II, R.A.V. Publications, New Delhi, India, first Ed. August2014, *Sharirasthana* 8/49.

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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

1. Davidoff F for the CSE Task Force on Authorship. Who's the Author? Problems with Biomedical Authorship, and Some Possible Solutions. Science Editor. July-August 2000: Volume 23 - Number 4: 111-119.
2. Yank V, Rennie D. Disclosure of researcher contributions: a study of original research articles in The Lancet. Ann Intern Med. 1999 Apr 20;130(8):661-70.
3. Flanagin A, Fontanarosa PB, DeAngelis CD. Authorship for research groups. JAMA. 2002;288:3166-68.
4. Peer Review in Health Sciences. F Godlee, T Jefferson. London: BMJ Books, 1999.
5. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. JAMA. 2000 Dec 20;284(23):3043-5.
6. Pitkin RM, Branagan MA, Burmeister LF. Accuracy of data in abstracts of published research articles. JAMA. 1999 Mar 24-31;281(12):1110-1.
7. Patrias K. National Library of Medicine recommended formats for bibliographic citation. Bethesda (MD): The Library; 1991.

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>

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 & Internal Seminars

- National Seminar On Ayurved In Contemporary Age, organized by Shri. Gulabkunverba Ayurved Mahavidyalaya, Dhanvantari Mandir, Gujarat Ayurved University.

  Date : 1st to 03rd July, 2016.

- Summer School on Ayurveda and Integrative Medicine, organized by M S Ramaiah Indic Centre for Ayurveda and Integrative Medicine. Date : 4th July to 31st August, 2016.

- International Seminar On Kaumarbhritya Updates Scopes And Challenges, organized by Institute of Post Graduate Teaching & Research in Ayurveda.

  Date : 20th and 21st July, 2016.

- 16th Advanced Certificate Course In Health Sciences Education Technology, organized at Institute of Medical Education Technology & Teachers Training, Pune.

  Date : 10th to 16th July, 2016.

- Training Cum Exhibition Of Economically Important Medicinal And Aromatic Plants, organized by CSIR-Central Institute Of Medicinal And Aromatic Plants, Lucknow.

  Date : 7th to 9th July, 2016.

- 2nd National Symposium cum Awards on Nutraceuticals Herbals and Functional Foods Promoting Holistic Wellness, organized by Assocham India, New Delhi.

  Date : 5th July, 2016.

- National Seminar on "New Research Prospects in Globalization of Ayurveda": NIRAMAYA 2016, organized by RD Memorial Ayurvedic PG College & Hospital, Bhopal.

  Date : 29th and 30th July, 2016.

- Workshop on Nutrition & Chronic Disease Research Methods, organized by KLE University, Centre for Chronic Disese Control, Public Health Foundation of India.

  Date : 25th to 29th July, 2016.

- National Seminar On Ayurvedic Oncology: Ayur Can, organized by Ayurveda Medical Association Of India, AMA Research Foundation. Date : 30th and 31st July, 2016.

- AMRTASUTRAM 2016 Hrdayamrtam Workshop Series, organized by The Amrita School of Ayurveda.

  Date : 8th to 14th August, 2016.

- 9th NABS National Conference On New Biological Researches: Opportunities And Challenges For Sustainable Development, organized by School of Energy, Environment and Natural Resources Madurai Kamaraj University. Date : 11th and 12th August, 2016.

- Workshop On Obstetrics and Gynecology, organized at Kamaxidevi Homoeopathic Medical College & Hospital, Goa.
  Date : 28th and 29th August, 2016.

- Workshop On Alabu (Cupping) Therapy, organized by Ayush Chikista Sangh, Shajapur. Date : 7th August, 2016.

- National Seminar On Cerebro Vascular Diseases: Ayurprayaanam 2016, organized by Ayush Chikista Sangh, Shajapur. Date : 18th and 19th August, 2016.

- National Seminar On 'The Clinical and Applied Aspects of Panchkarma Treatments in Ayurveda', organized by Vaidyaratnam Oushadhasala Pvt.Ltd, Kerala.

  Date : 7th August, 2016.

*Senior Research Fellow-Journal of Ayurveda, NIA, Jaipur

- One Day Conference On 'Samskritam For Ayurveda', 'Ayurveda Through Samskritam', organized by Samskrit Promotion Foundation, Delhi.

  Date : 23rd August, 2016.

- Workshop on Recent Advances in Management of Complex Fistula in Ano, organized by Department of Shalya Tantra, Faulty of Ayurveda, Institute of Medical Sciences. Date : 30th August to 1st September, 2016.

- Smarak Vyakhyan 2016 : Making of an Ayurved Physician, organized at Ayurved Mahavidyalaya, Mumbai.

  Date : 21st August, 2016.

- Intervention of Ayurveda for Improving Nutritional Anemia, organized at Indian Institute of Petroleum, Mokhampur, Dehradun.

  Date : 28th August, 2016.

- 18th International Conference On "Ayurveda: Herbs And Minerals" (Dravya Guna & Rasa Shastra), organized at Bastyr University, Seattle, Washington, USA

  Date : 9th to 11th September, 2016.

- Botanica2016, organized at University of Sussex, Brighton, England.

  Date : 2nd to 5th September, 2016.

- Vaidya Sundarlal Joshi Smriti Puraskara Samaroha - 2016, organized by J.S.Ayurveda Mahavidyalaya and P.D.Patel Ayurveda Hospital. Date : 2nd and 3rd September, 2016.

- International Conference on Alternative Ayurvedic and Herbal Medicine for Diabetes, organized at Beijing, China.

  Date : 5th to 7th September, 2016.

- 3rd International Congress of Ayurveda, organized by International Network for Development of Research on Ayurveda. Date : 16th to 19th September, 2016.

- 18th International Ayurveda Symposium 2016, organized by The European Academy of Ayurveda, Germany.

  Date : 9th to 11th September, 2016.

- International Conference On Holistic Management Of Annavaha Srotas Vyadhis, organized by Uttarakhand Ayurved University, Uttarakhand.

  Date : 2nd and 3rd September, 2016.

- IAARHIES 26th International Conference on Physical & Life Sciences ICPLS - 2016, organized at Hotel Ramada, Govind Marg, Raja Park, Jaipur.

  Date : 11th and 12th September, 2016.

- 6 Indo-Japanese International Symposium , organized at Panaji, Goa.

  Date : 23rd and 24th September, 2016.

- 18th International Conference-Ayurveda: Herbs & Minerals (Dravya Guna & Rasa Shastra), organized by Bastyr University, USA. Date : 9th to 11th September, 2016.

- National Conference on Ayurvedic Management of Cancer, organized by Ayurveda Panchakarma Practitioners Association (APPA).

  Date : 17th and 18th September, 2016.

- 3-day Workshop on "Research Methods, Manuscript Writing and Career Opportunities in Ayurveda", organized at Dr. B.R.K.R. Govt. Ayurvedic Medical College, Hyderabad. Date : 6th to 8th September, 2016.

- CME for teachers- Swasthavritta, organized by Govt. Ayurveda College, Thiruvananthapuram. Date : 26th September to 1st October , 2016.

- Workshop On Ayurveda, Panchakarma & Beyond, organized by Ayurshaili & Lions Club Thane Central.

  Date : 25th September, 2016.

- Workshop On Anatomy And Physiology of Yogic Practices, organized by Yoga Study Circle Mumbai.

  Date : 17th September, 2016.

- Brics Wellness Workshop, organized by The Ministry of AYUSH.

  Date : 9th September, 2016.

- Symposium On Revised Draft Guidelines for GMP of Ayurvedic Drugs, organized by Banaras Hindu University, Varanasi.

  Date : 21st September, 2016.

- Basic Workshop On Ayurvedic Cosmetology, organized by Ayurved Mahavidyalaya, Mumbai and MUHS, Nashik.

  Date : 27th and 28th September, 2016.

- Symposium On Legal Aspect Of Medical Practice, organized by Datta Meghe Institute of Medical Sciences and MGACHRC, Wardha.

  Date : 23rd September, 2016.

- Regional Level Seminar on Constipation in Surgical Conditions, organized by Government Ayurveda College, Nagpur. Date : 24th September, 2016.

Indian gold spice turmeric may prevent onset of diabetes

Curcumin, present in turmeric, when combined with omega-3 fat, could potentially delay or prevent the onset of type2 diabetes, reveal researchers.

The scientists from University of Newcastle's Nutraceuticals Research Group, led by Prof. Manohar Garg, revealed that they are conducting a clinical study to find out if the Indian spice, turmeric, when combined with an omega-3 fat can actually delay the onset of type 2 diabetes or prevent its onset altogether.

Speaking on this, Garg said, the root cause of Type 2 diabetes is systemic inflammation, which impacts insulin secretion and functioning. The aim is to nip this inflammation in the budy. The study will make use of two bioactive compounds commonly found in food, curcumin and omega-3 fat, and both are very vital anti-inflammatory agents.

Derived from turmeric, curcumin forms part of ginger family, and is used as a common spice in Indian kitchen and also used for food colouration. The healing properties of turmeric are well-known in India. For centuries, turmeric has been used in healing sprains, bruises, wounds and inflammation.

But even in India, the level of intake of curcumin has significantly reduced as Indians have switched over to westernised fast foods, and hence, there has also been considerable increase in cases of type 2 diabetes. In fact, diabetes is more like an epidemic in India now, and growing to be a major health burdern, Garg said.

The randomised control trial will test both compounds, with recruitment group being segregted into four – one group with just curcumin, second with omega-3 fat only, third with curcumin and omega 3, and fourth will be the control group.

Capsules containing 200mg of curcumin and 1g of omega-3 fat respectively will be given to people who are prone to develop diabetes due to impaired glucose tolerance or impaired fasting glucose, in the age group 30 to 70 years.

The anti-inflammatory mechanism of curcumin and omega-3 fats are different, and hence it should be tested if they complement each other, and have treatment synergies beyond their individual effects. It is however, presumed that the combination is safe and free of any associated side-effects, and will prove to be as effective as the drugs used for management of diabetes, he pointed out.

Numerous therapeutic activities have been assigned to turmerice for treatment of a great variety of disease and conditions, including skin, pulmonary and gastrointenstional systems like pains, wounds,

sprains and liver disorders, since the time of Ayurveda.

Over the last half century, extensive researches have proven that most of the activities associated with turmeric are due to the presence of 'curcumin', which has shown to exhibit anti-inflammatory, anti-oxidant, antiviral, antifungal, antibacterial and anticancer, and hence has a potential against various malignant diseases, allergies, diabetes, arthritis, Alzheimer's disease and other chronic illness.

Tumeric has been used for centuries in Ayurveda, and is believed to balance the three doshas vata, pitta and kapha. Ayurvedic practioners recommend turmeric as medicine internal in the form of fresh juice, tinctures, boiled tea, or in powdered form, and also topically used in the form of lotions, pastes, creams and ointments. Moreover, now science believes that 'multitargeted' therapy is better than 'monotargeted' therapy for most diseases, for which, curcumin is ideal. Hence curcumin is also considered to be an ideal ' Spice for Life'.

Ayurvedic tips and remedies for Hyperpigmentation

The presence of excess skin pigment, called 'melanin', in certain areas of your skin, leads to a condition known as 'Hyperpigmentation'. In other words, hyperpigmentation is a skin condition, wherein dark patches appear on certain areas of the skin. Although this is not a disease by itself, it can be a detriment to one's self-esteem.

Causes

Hyperpigmentation may be the result of previous inflammatory skin conditions like medications, acne, or any diseases that affect vital organs.

Hyperpigmentation is believed to be caused due to both internal and external factors. While the internal factors may be imbalances in hormone levels particularly caused during pregnancy, menopause or use of oral contraceptive pills, external factors could be due to various reasons like excessive sun exposure, wounds, a side-effect caused by certain dermatological procedures or treatments etc. Sometimes, inflammation in any part of the body triggers melanin production, which presents itself as brown spots or patches.

Ayurvedic experts believe that every movement in a cell is governed by vata, which also play a role in migration and accumulation of the melanin pigment. As Bhrajaka Pitta governs our complexion, hyperpigmentation or hypopigmentation can occur due to imbalance in vata and pitta.

Treatment

Ayurvedic physicians usually diagnose the imbalance (whether vata or the pitta), and treat by balancing both. Plenty of water, fruits, legumes, garlic and onion are advised, as they help in managing the condition.

Some ayurvedic physicians also believe that skin pigmentation issues could be due to imbalance in layers of skin, and various water therapies help in getting rid of toxins in the body, which may otherwise contribute to hyperpigmentation. The ayurvedic practice of 'usnodaka' (drinking 6 to 8 cups of boiled water) is considered as a remedy, as drinking boiled water, helps stimulate your digestive fire, which can help the body expel toxins that harm your skin causing hyperpigmentation.

Ayurvedic medicine recommends several herbal remedies along with 'usnodaka' for hyperpigmentation. The herbal medicine to be consumed would, however, depend on your body type or dosha. People with pitta dosha are the considered to suffer the most from skin problems and hyperpigmentation. People with pitta constitution can consider adding small quantities of Indian sarsaparilla, fennel seeds, cumin, coriander and licorice to boiled water to help expel toxins which cause skin pigmentation. Alternatively, these herbs can also be added to your bath water too, in helping body to effectively release ama (toxins), which cause excess production of melanin responsible for hyperpigmentation. For hyperpigmentation caused due to acne, topical treatments like pastes made of chickpeas and water, or almond powder and goat's milk can help in keeping your skin nourished and reduce inflammation, sensitivity and spots for too much pigment.

The role of yoga also cannot be ruled out in treating hyperpigmentation, as some specific exercises can improve blood flow throughout the body, thereby delivering essential nutrients to your skin, helping to resolve skin issues like age spots or hyperpigmentation.

Home remedies from Ayurveda

To treat pigmentation on your face, apply a mix of lemon juice and honey. This acts as bleach, removing skin pigmentation. You can also apply a mixture of yogurt, honey and cucumber juice taken in equal proportions. Leave on for 15 to 20 minutes and wash off.

Pigmentation on the lips can be removed by applying ghee or castor oil regularly, as they help in balancing vata and pitta. Another option is to apply a mix of almond oil with glycerine, honey and rosewater.

Underarm pigmentation can be removed by using a pack made of yogurt, lemon juice, turmeric and gramflour. Apply and leave it on for about 20 minutes and wash off with lukewarm water. Repeat the process for several days to see results.

Applying slices of cucumber or potato and leaving it on for 15 to 20 minutes works best for mild under-eye pigmentation.

Take a teaspoon of turmeric powder and add a teaspoon of lemon juice to it, mix well and apply on affected area. Leave it for 15 minutes and wash off with cold water. Apply this at bedtime regularly.

Crush a tomato and extract its juice. Add 2 teaspoons of oatmeal to it, and add half a teaspoon of yogurt. Apply on affected area, and leave it on for 15 to 20 minutes, and wash off with lukewarm water. Do this on daily basis. Mix potato juice with fuller earth and apply on affected areas to remove pigmentation.

Squeeze out Aloevera gel from an aloevera leaf and store this in a bottle in refrigerator. Apply this gel over the affected areas for 20 minutes. It works by removing dead skin cells and regenerating the newer ones.

Tips to prevent hyperpigmentation

- Avoid exposure to direct sunlight between 9am to 4pm. Apply sunscreen every three hours, if you have to step out in the sun. Protect your eyes with good quality sunglasses, broad-rimmed hats and wear loose light coloured clothes.
- Keep yourself hydrated by drinking atleast three litres of water a day, as dehydrated skin is more prone to hyperpigmentation.
- Quit smoking, as it increases the free-radical content and adds to the pigmentation.
- Follow healthy lifestyle and preserve your natural biological rhythm, which includes yoga or exercise in some form, good diet and adequate hours of sleep.
- Skin cleansing atleast twice a day using oil is essential. Exfoliate at least thrice a week. Natural exfoliators like walnut or oatmeal or lemon juice are the best. Apply the exfoliator on affected areas in circular motions, as it helps unclog pores, prevents breakouts and reduces blemishes and pigmentation.