Journal of Ayurveda

A Peer Reviewed Journal

Vol.XI No 4 Oct-Dec 2017

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EDITORIAL

Clinical Practice on *Ayurvedic* principles.... Need of the day

Ayurveda understands each person and disease affecting him in a unique way. Two persons cannot be same and the same disease affecting two persons may not be of same nature. According to *Ayurveda* these two persons or patients may require different sets of treatment for so called same disease. In the contemporary science the treatment is given for a disease in a mechanical way without understanding the body constitution or *Prakriti* of an individual. It looks for a drug that will cure a statistically significant number of people for a specific condition or symptom such as rheumatoid arthritis. *Ayurveda* looks for a treatment that will cure an individual person of their unique presentation of the disease. Since no disease affects two people in exactly the same way, no two treatments are exactly the same.

It is well known fact that the entire *Ayurvedic* treatment and understanding of a disease is based on *Ayurvedic* principles. There is hardly any one-to-one correlate of an *Ayurvedic* disease with modern disease. So, no futile exercise should be done to translate modern disease into an *Ayurvedic* one. Prof. R.H. Singh says that modern diagnosis and *Ayurvedic* treatment is not feasible unless all the drugs and therapies of *Ayurveda* are studied for their modern pharmacology and modern pharmaceutics followed by extensive clinical trials which may take few hundred years, even then things will remain un-certain and inconclusive. Hence, instead of the costly time consuming exercise of transforming *Ayurveda* into modern medicine, it is easier and rational to use *Ayurveda* as it is. However, every effort should be made to develop an evidence based *Ayurveda* with full quality assurance, safety and efficacy of medications. Clinicians should show confidence in their own system.

Gamorising effect of modern medicine, huge modern investigation inventory, short cut treatment lines, ignorance of *Ayurveda* at political levels, poor practical trainings and mushrooming of poor quality *Ayurvedic* institutions have led to the present precarious condition of *Ayurveda* in the country. It is the fact that *Ayurveda* is the need of every individual and whole world today and whole world is looking towards India for this health care heritage. But presently our country does not seem ready to cater the need of humanity at large. So, *Ayurvedic* fraternity has to take the challenge carefully and should understand the principles of *Ayurveda*. Each individual needs to carry the principles from texts to patients, because, clinical practice on *Ayurvedic* principles is the need of the day. No short cut should be adopted in the clinical practice and at the same time it should not be driven by medical representatives or pharmaceutical houses.

Prof. Sanjeev Sharma
Director

Clinical Study

A Clinical Study of *MM 21 (Formulated Hypothetical Compound)* In The Management of *Madhumeha* (Diabetes Mellitus Type-2)

*Prof. Dr. Radhey Shyam Sharma, **Dr. Brahmanand Sharma

Abstract

The incidence of diabetes mellitus is increasing rapidly because of changes in lifestyle and dietary habits. Scientists of various fields are doing continuous research in order to achieve an effective management for diabetes mellitus. Ayurvedic research scholars on various herbal and mineral drugs to find an effective treatment for *madhumeha* have also done a great deal of work. *MM 21 (Formulated Hypothetical Compound)* has been used in for the present study. The study was conducted with an objective of evaluating the role of *MM 21 (Formulated Hypothetical Compound)* in clinically diagnosed cases of madhumeha. 200 patients of both sexes of 18 year to 70 year age group were registered for this project and all were thoroughly examined at certain intervals during entire project period. Out of that 20 patients discontinued the treatment therefore study was conducted on 180 patients that were equally divided into 2 groups; Group A (Oral Hypoglycemic Agent i.e. OHA + *MM 21 (Formulated Hypothetical Compound)*) and Group B (*MM 21 (Formulated Hypothetical Compound)*). Statistically significant improvement was observed in objective and subjective parameters in both groups after completion of the course of treatment. Based on the results, it is been concluded that, *MM 21 (Formulated Hypothetical Compound)* is an effective therapeutic regimen in the management of uncomplicated cases of *Madhumeha*.

Keywords- *Madhumeha*, Diabetes Mellitus, *MM 21 (Formulated Hypothetical Compound)*

सारांश–

वर्तमान में जीवनशैली एवं आहार संबंधी आदतो में परिवर्तन होने के कारण मधुमेह रोग एक भयंकर रूप धारण करता जा रहा है। विभिन्न क्षेत्रों के वैज्ञानिक मधुमेह की सफल चिकित्सा के लिए अनेक शोध कार्य कर रहे है। इस कार्य हेतु हमने *MM 21* (कल्पित योग) का निर्माण कर मधुमेह के रोगियों पर एक शोध कार्य किया है। इस शोध कार्य हेतु डॉ एस.आर. राजस्थान आयुर्वेद विश्वविद्यालय जोधपुर के सम्बद्ध चिकित्सालय में मधुमेह के 200 रोगियों का चुनाव किया, जिसमें से 20 रोगियों ने शोध कार्य के दौरान चिकित्सा छोड दी। इस प्रकार *MM 21* योग का चिकित्सात्मक अध्ययन 180 रोगियों में सम्पन्न हुआ। इन 180 रोगियों को 2 वर्गो में बराबर बराबर (90–90) बाटा गया। वर्ग 'अ' में मुखगत हाइपोग्लास्मिक औषध (आधुनिक) + *MM 21* योग तथा दूसरे 'ब' वर्ग में *MM 21* औषध योग दिया गया। शोध कार्य में ओषध दोनों वर्गो में 3 ग्राम की मात्रा में प्रातः व सायं दो बार दो माह तक दी गई। शोध कार्य सम्पूर्ण होने पर सांख्यिकी विश्लेषण लक्षणात्मक एवं निदानात्मक परिक्षणों के आधार पर दोनों वर्गो में प्रभावात्मक परिणाम प्राप्त हुए।

*Vice Chancellor, Dr. S.R Rajasthan Ayurved University, Jodhpur, **Assistant Professor, P.G Department of Kayachikitsa, Dr. S.R Rajasthan Ayurved University, Jodhpur Corresponding Author- *Prof. Dr. Radhey Shyam Sharma, Address- Vice Chancellor, Dr. S.R. Rajasthan Ayurved University, Karwar, Nagaur Road, Jodhpur-342037, Contact No.-0291-5153701, E-mail-vd.rssharma@gmail.com

Clinical Study

A Clinical Study of *MM 21 (Formulated Hypothetical Compound)* In The Management of *Madhumeha* (Diabetes Mellitus Type-2)

Prof. Dr. Radhey Shyam Sharma, Dr. Brahmanand Sharma

Introduction

India is undergoing the significant social, economical and demographical changes. This includes mainly rapid urbanization, increased industrialization, rising incomes, expanded education and improved health care. Diabetes Mellitus is one of the most common non-communicable diseases globally. It emer as a public health problem in India. In 2000, India (31.7 million) topped the world with the highest number of people with diabetes mellitus followed by China (20.8 million) with the United States (17.7 million) in second and third place respectively[1]. The disorder constitutes a major epidemic in the initial decades of the 21st Century. Causes of the ailment are unfavorable modification of life style (Life style can be decisive factor in determining the individual's health status and life expectancy) and dietary habits. Again sedentary lifestyle and unhealthy eating habits of the people have lead to an increased prevalence of obesity. Diabetes Mellitus now days are acquiring alarming proportion. Diabetes mellitus is a syndrome with disordered metabolism and hereditary immune mediated involvement. The changing life style, lack of exercise, fast foods and sedentary habits, stress and tension are major reasons for causing the disease in new one and enhancing in old one. As per *Charaka Samhita* also the *Nidana* of *Prameha* is as

आस्यासुखं स्वप्नसुखं दधीनि ग्राम्यौदकानूपरसाः पयांसि।
नवान्नपानं गुडवैकृतं च प्रमेहहेतुः कफकृच्च सर्वम्।।[2]

Thus it is essential need of today's era to provide positive effects to improve the overall health status of diabetic patients. There are lot of options in modern system of medicine to treat Diabetes but they have untoward effects. Therefore it is necessary to find out a solution in traditional system of medicine without any untoward effect. To keep all these things in mind an herbal compound (*MM 21 (Formulated Hypothetical Compound)*) will be prepared which has no adverse effect.

Need For The Present Study-

In modern medicine, no satisfactory effective therapy is still available to cure the diabetes mellitus. However, insulin therapy is also used for the management of diabetes mellitus, but there are several drawbacks like insulin resistance, anorexia nervosa, brain atrophy and fatty liver after chronic treatment. Many plants are claimed to possess antidiabetic and antioxidant activity. In practice, it is being increasingly recognized to be an alternative approach to modern medicine for more effective and safe. The International Diabetes Federation (IDF) estimates the total number of diabetic subjects to be around 40.9 million in India and this is further set to rise to 69.9 million by the year 2025.

Aims & Objectives-

- To establish pathogenesis of *Madhumeha* w.s.r. to NIDDM.
- To study the effect of diet & counseling in the management of *Madhumeha*.
- To study the efficacy of *MM 21 (Formulated Hypothetical Compound)* in the management of *Madhumeha*.

Clinical Study-

Materials and Methods

Design of study- Study was open randomized clinical trial.

a) Selection of Cases:

1. Source – Patients having genuine complaints of *Madhumeha* and fulfilling the criteria for inclusion were selected irrespective of caste, race and religion. An elaborative case taking Performa

was specially designed for the purpose of incorporating all aspects of the disease on Ayurvedic and Modern Parlance. The patients were selected from the O.P.D of *Kayachiktasa*, University Hospital of Ayurveda, Dr. S. R. Rajasthan Ayurved University, Jodhpur

2. Age Group – between 18 to 70 years were selected for the study.

3. Number of Cases –200 patients of both sexes were registered for this project and all were thoroughly examined at certain intervals during entire project period. Out of that 20 patients discontinue the treatment therefore study was conducted on 180 patients.

b) Grouping of Patients: -

Registered patients for this project were randomly divided into two groups of 90 patients on the basis of inclusion criteria as given below:

1. Group A – 90 patients, which were already on anti diabetic allopathic medicine were treated with *MM 21 (Formulated Hypothetical Compound)*.

2. Group B-90 patients were treated with *MM 21 (Formulated Hypothetical Compound)*.

c) Preparation of *MM 21 (Formulated Hypothetical Compound)*-

Drug was prepared in pharmacy under the department of *Rasa Shastra* of University college of Ayurved, Dr. S. R. Rajasthan Ayurved University, Jodhpur under aseptic & hygienic conditions as per GMP provisions.

d) Dose administration – 3 grams BD with water before meal.

e) *MM 21* (Formulated Hypothetical Compound) *Yoga* – *Kalpit yoga* of Dr. S R Rajasthan Ayurved University, Jodhpur for *Madhumeha* (Diabetes mellitus Type 2)

S.No.	Constituents	Latin name	Part Used
1.	*Sanaya/senna*	*Cassia angustifolia*	*Patra*
2.	*Aam/Aamra/Mango*	*Mangifera indica*	*Beej*
3.	*Jamun/Jambul/Jambu*	*Syzygium cumini*	*Beej*
4.	*Nimba/Neem*	*Azadirachta indica*	*Beej*
5.	*Gokshura*	*Tribulus terrestris*	*Kantak*
6.	*Guduchi*	*Tinospora cordifolia*	*Kanda*
7.	*Haridra*	*Curcuma longa*	*Kanda*
8.	*Tejapatta*	*Cinnamomum tamala*	*Patra*
9.	*Manjistha*	*Rubia cordifolia*	*Mool*
10.	Black Cumin/*Jeera*	*Carum bulbocastanum*	*Beej*
11.	*Dry Karela*	*Momordica charantia*	*Phala*
12.	*Gurmar*	*Gymnema sylvestre*	*Patra*
13.	*Methika*	*Trigonella foenum-graecum*	*Beej*
14.	*Bilva/Bael*	*Aegle marmelos*	*Patra*
15.	*Shunthi*	*Zingiber officinale*	*Mool*
16.	*Bala*	*Sida cordifolia*	*Mool*
17.	*Baboolphali*	*Acacia nilotica*	*Phala*

18.	*Indrayana*	*Citrullus colocynthis*	*Phala*
19.	*Udumbar/Goolar*	*Ficus racemose*	*Phala*
20.	*Paneer doda*	*Withania coagulans*	*Pushpa*
21.	*Kalonji*	*Nigella sativa*	*Beej*

f) Duration of therapy – Two months. Follow-up was done after every fifteen days.

g) Diagnostic Criteria

1. Inclusion Criteria

With due consideration of different aspects and presentation of the disease following criteria was adopted to select the patients or to include the patients for clinical contrive.

- Presenting signs and symptoms of *Prameha (Madhumeha).*
- Presenting signs related to *mutra and Mutravaha strotas Dusti.*
- Fulfilling the subjective and objective parameters decided by world Diabetic association.

2. Exclusion Criteria

- Diabetic patient having severe complications or having involvement of systemic diseases like hypertension, Paralysis, jaundice or any infectious disease.

3. Discontinuation Criteria

- Any other acute illness.
- Parents not willing to continue treatment.
- Any severe untoward effect.

4. Side-Effects Evaluation Criteria

To rule out the possible adverse effect of proposed drugs, clinical criteria was adopted and documented in Adverse Effect Evaluation Format during the course of the study.

5. Assessment Criteria

Clinical assessment

Patients were assessed on different parameters for obtaining the effect of therapies. Clinical assessment was done on the basis of grading system of the following clinical features-

(1) *Prabhuta Mutrata* (Polyuria) Frequency of urine

(2) *Pipasa* (Polydypsia) Feeling of thirst

(3) *Kshudha* (Appetite)

(4) *Abhyavaharana Shakti* (Hunger)

(5) *Kara-Pada-Tala-Daha/Supti* (Neuropathy)

(6) *Avila Mutrata* (Turbidity)

(7) *Mutramadhurya* (Glycosuria)

(8) *Dourbalya* (Weakness)

(9) *Alasya/Utsahahani* (Lethargyness)

(10) *Shula* (Joint Pain)

(11) *Pindikodveshtan* (Cramps)

h) Methods

The attendants of the patient were informed about the trial drug, mode of drug administration & its effects, duration of the study etc. On first visit a detailed history was obtained. The patients falling in inclusion criteria were thoroughly examined.

A. Detailed information was recorded in a proforma prepared on the basis of Ayurvedic & modern parameters.

B. The hematological and urine analysis investigations were done before and after the completion of the project.

C. Follow-up and monitoring - All patients were called for follow up fortnightly. Any discomfort or untoward side effects was noted in the proforma.

Observation-

Table no-I Demographic Data

S.NO.	Demographic data	Predominance in both group	Percentage
1.	Age (Year)	46 – 60	39.4
2.	Sex	Male	72.2
3.	Occupation	Business	39.4
4.	Socio-economical status	Upper	53.8
5.	Habitat	Urban	63.8
6.	Family history	Positive	66.1
7.	*Desha*	*Jangal*	68.4
8.	Chronicty	> 1 yrs	36.6
9.	Dietary habit	*Adhyasana*	67.2
10.	Type of diet	Vegetarian	60.55
11.	*Rasa* in diet	*Madhur*	49.4
12.	*Kostha*	*Krura*	46.1
13.	*Agni*	*Manda*	47.7
14.	Bowel habit	Irregular	63.3
15.	Addiction	Tea / coffee	40
16.	Emotional status	Tensive	56.1
17.	*Nidra*	Irregular	50.5
18.	*Sharirika Prakrati*	*Kapha Vata*	80.2
19.	*Manasa prakriti*	*Rajas*	61.1
20.	*Vyayama shakti*	*Avara*	52.7
21.	*Abhayavaharana shakti*	*Madhyam*	51.1
22.	*Jarana shakti*	*Madhyam*	60

Table No. II

Effect of *MM 21 (Formulated Hypothetical Compound)* on objective parameters of Group A

Symptoms	Mean		Diff.	%	SD	SE	t- test	P	Res-
	BT	AT		Relief	±	±	value		ults
Blood Sugar (Random)	255.377	125.611	129.766	50.813	35.409	20.543	20.543	< .00001	E.S.
Blood sugar (fasting)	191.377	121.977	69.400	36.263	33.477	19.666	19.666	< .00001	E.S.
Blood sugar (pp)	269.944	130.033	139.911	51.829	55.742	20.284	20.284	< .00001	E.S.
Cholesterol	185.491	112.021	73.470	39.608	24.063	13.983	13.983	< .00001	E.S.
Triglyceride	102.801	59.936	42.865	41.697	19.003	12.412	12.412	< .00001	E.S.
HDL cholesterol	49.828	65.474	-15.646	-31.400	6.8725	-21.598	-21.598	< .00001	E.S.
LDL cholesterol	102.396	65.955	36.441	35.588	13.424	16.565	16.565	< .00001	E.S.
VLDL Cholesterol	46.480	29.802	16.678	35.882	7.429	18.742	18.742	< .00001	E.S.
S.Bilirubin total	0.828	0.376	0.452	54.589	0.1669	14.311	14.311	< .00001	E.S.
S. Bilirubin Direct	0.309	0.148	0.161	52.103	0.042	18.134	18.134	< .00001	E.S.
SGOT	43.144	22.145	20.999	48.671	5.958	20.696	20.696	< .00001	E.S.
SGPT	40.807	19.742	21.065	51.621	5.0921	24.341	24.341	< .00001	E.S.
Alkaline Phosphate	85.719	57.162	28.557	33.314	13.091	17.795	17.795	< .00001	E.S.
S.Protein	7.600	5.653	1.947	25.618	0.595	15.080	15.080	< .00001	E.S.
Albumin	4.704	2.797	1.907	40.539	0.409	17.063	17.063	< .00001	E.S.

*(E.S-Extremely significant)

Table no. 2 shows that *MM 21 (Formulated Hypothetical Compound)* showed extremely significant results in Group A ($p<0.00001$), also a 15.646% increase was seen in HDL cholesterol.

Table No. III Effect of *MM 21 (Formulated Hypothetical Compound)* on objective parameters of Group B

Symptoms	Mean		Diff.	%	SD	SE	t- test	P	Res-
	BT	AT		Relief	±	±	value		ults
Blood Sugar (Random)	231.955	148.700	83.255	35.892	45.397	22.222	22.222	< .00001	E.S.
Blood sugar (fasting)	172.122	124.400	47.722	27.725	13.771	32.873	32.873	< .00001	E.S.
Blood sugar (pp)	285.566	155.777	128.966	45.161	50.457	24.248	24.248	< .00001	E.S.
Cholesterol	272.508	204.420	70.534	25.883	51.769	12.925	12.925	< .00001	E.S.
Triglyceride	165.940	125.746	40.086	24.157	45.569	8.345	8.345	< .00001	E.S.
HDL cholesterol	53.246	67.099	-13.853	-26.016	71.863	-1.828	0.07078	< 0.001	S
LDL cholesterol	129.295	93.997	35.063	27.118	18.513	17.967	17.967	< .00001	E.S.
VLDL Cholesterol	55.585	39.817	15.768	28.367	14.622	10.230	10.230	< .00001	E.S.
S.Bilirubin total	1.354	0.651	0.702	51.874	0.417	15.955	15.955	< .00001	E.S.
S. Bilirubin Direct	0.463	0.225	0.237	51.331	0.218	10.314	10.314	< .00001	E.S.
SGOT	45.059	27.931	17.127	38.011	20.326	7.993	7.993	< .00001	E.S.
SGPT	46.678	26.072	20.606	44.144	23.260	8.404	8.404	< .00001	E.S.
Alkaline Phosphate	104.794	77.083	27.711	26.443	28.573	9.200	9.200	< .00001	E.S.
S.Protein	7.722	6.548	1.173	15.190	1.615	5.947	5.947	< .00001	E.S.
Albumin	5.612	3.834	1.777	31.664	84.362	10.483	10.483	< .00001	E.S.

*(E.S-Extremely significant) (S- Significant)

Table no. 3 shows that *MM 21 (Formulated Hypothetical Compound)* showed extremely significant results ($p<0.00001$) in Group B, also a 13.853 % increase was seen in HDL cholesterol which shows a certain trend toward significance (<0.001).

Table No. IV

Effect of *MM 21 (Formulated Hypothetical Compound)* on subjective parameters of Group A

Symptoms	Mean		Diff.	% Relief	SD ±	SE ±	t- test value	P	Res-ults
	BT	AT							
Prabhuta mutrata	1.622	0.166	1.455	89.726	0.689	20.024	20.024	< .00001	E.S.
Pipasa	1.533	0.122	1.411	92.028	0.558	23.957	23.957	< .00001	E.S.
Kshudha	1.644	0.088	1.555	94.594	0.751	19.645	19.645	< .00001	E.S.
Abhyavaharan shakti	2.000	0.444	1.555	77.777	1.299	11.358	11.358	< .00001	E.S.
Kara pada tala	1.522	0.055	1.466	96.350	0.796	17.476	17.478	< .00001	E.S.
Avila mutrata	1.122	0.044	1.077	96.039	1.062	9.624	9.624	< .00001	E.S.
Mutra Madhurya	1.955	0.344	1.611	82.386	0.830	18.403	18.403	< .00001	E.S.
Dourbalya	1.488	0.100	1.388	93.283	0.665	19.806	19.806	< .00001	E.S.
Alasya/Utsah hani	1.977	0.166	1.811	91.573	0.717	23.954	23.954	< .00001	E.S.
Shoola	1.533	0.144	1.388	90.579	0.744	17.687	17.687	< .00001	E.S.
Pindikodveshtan	1.933	0.133	1.800	93.103	0.914	18.676	18.676	< .00001	E.S.

*(E.S-Extremely significant)

Table no. 4 shows that *MM 21 (Formulated Hypothetical Compound)* showed extremely significant results in Group A (p<0.00001).

Table No. V Effect of *MM 21 (Formulated Hypothetical Compound)* on subjective parameters of Group B

Symptoms	Mean		Diff.	% Relief	SD ±	SE ±	t- test value	P	Res-ults
	BT	AT							
Prabhuta mutrata	1.655	0.155	1.500	90.604	0.691	0.072	20.592	< .00001	E.S.
Pipasa	1.544	0.111	1.433	92.805	0.561	0.059	24.199	< .00001	E.S.
Kshudha	1.655	0.088	1.566	94.630	0.750	0.079	19.809	< .00001	E.S.
Abhyavaharan shakti	2.055	0.444	1.611	78.378	1.286	0.135	11.877	< .00001	E.S.
Kara pada tala	1.522	0.033	1.488	97.810	0.810	0.085	17.423	< .00001	E.S.
Avila mutrata	1.088	0.033	1.055	96.938	1.074	0.11	9.321	< .00001	E.S.
Mutra Madhurya	1.966	0.311	1.655	84.180	0.823	0.086	19.077	< .00001	E.S.
Dourbalya	1.500	0.055	1.444	96.296	0.637	0.067	21.479	< .00001	E.S.
Alasya/Utsah hani	1.966	0.13	1.833	93.220	0.691	0.072	25.168	< .00001	E.S.
Shoola	1.566	0.133	1.433	93.567	0.703	0.074	19.317	< .00001	E.S.
Pindikodveshtan	1.900	0.122	1.777	91.489	0.933	0.098	18.067	< .00001	E.S.

*(E.S-Extremely significant)

Table no. 5 shows that *MM 21 (Formulated Hypothetical Compound)* showed extremely significant results in Group B (p<0.00001).

Discussion-

Mean value of fasting blood glucose in Group A and Group B is 191.377 and 172.122. After 60 days of treatment reduced to 121.977 and 124.400 respectively. So in respect of fasting blood glucose level the study shows the extremely significant result i.e. p<0.00001 in group A in comparison to group B.

Mean value of post prandial blood glucose in Group A and Group B is 269.944 and 285.566. After 60 days of treatment reduced to 130.033 and 155.777 respectively. So in respect of post prandial blood glucose level the study shows the extremely significant result i.e. p<0.00001 in group A in comparison to group B.

The initial mean value of serum cholesterol in Group A and Group B is 185.491 and 272.508. After 60 days of treatment reduced to 112.021 and 204.420 respectively. So in respect of serum cholesterol level the study shows the extremely significant result i.e. p<0.00001 in group A in comparison to group B.

In respect of triglyceride level mean value in Group A and Group B is 102.801 and 165.940. After 60 days of treatment reduced to 59.936 and 125.746 respectively. So in respect of triglyceride level the study shows the extremely significant result i.e. p<0.00001 in group A in comparison to group B.

In respect of HDL cholesterol level mean value in Group A and Group B is 49.828 and 53.2460. After 60 days of treatment increased to 65.474 and 67.099 respectively. So in respect of HDL cholesterol level the study shows increase in good cholesterol and the result are extremely significant i.e. p<0.00001 in group A in comparison to group B.

Figure no. 1 Comparison of %Relief in Group A & Group B on objective parameters

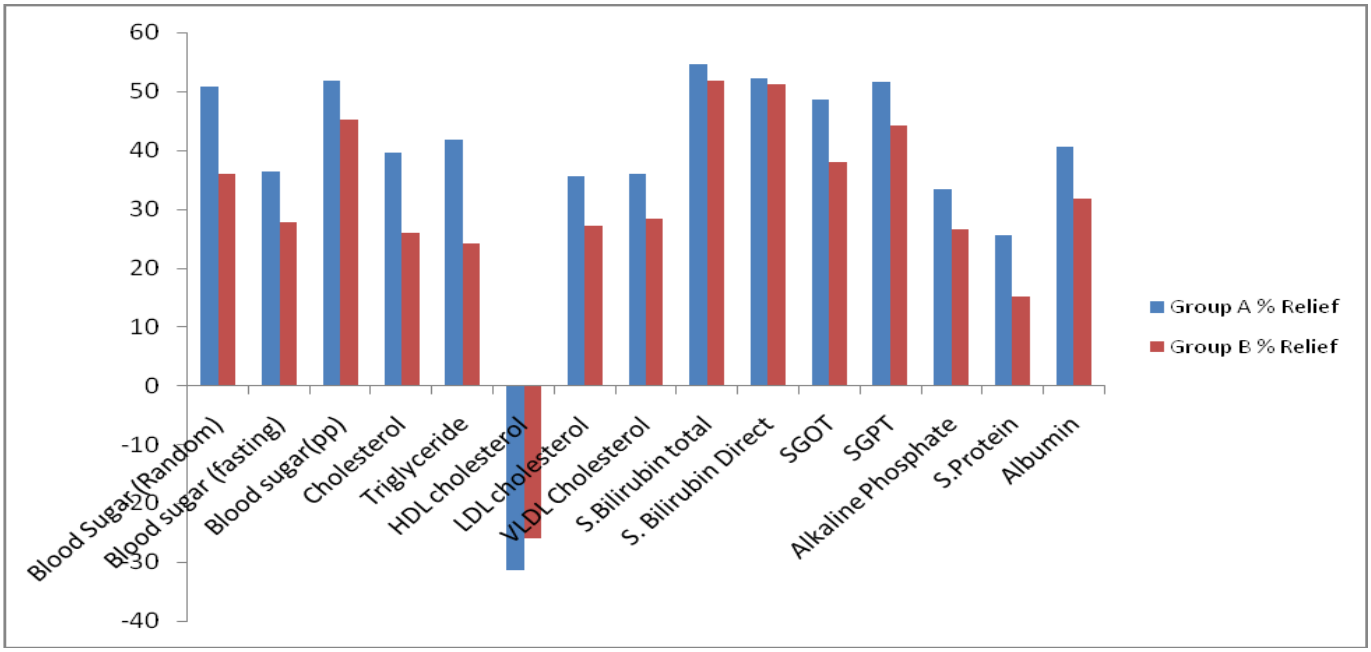

Fig no. 1 shows % relief of Group A is greater than Group B in all objective parameters, (-) % relief in HDL cholesterol in both groups shows increase in HDL cholesterol level

Figure no. 2 Comparison of %Relief in Group A & Group B on subjective parameters

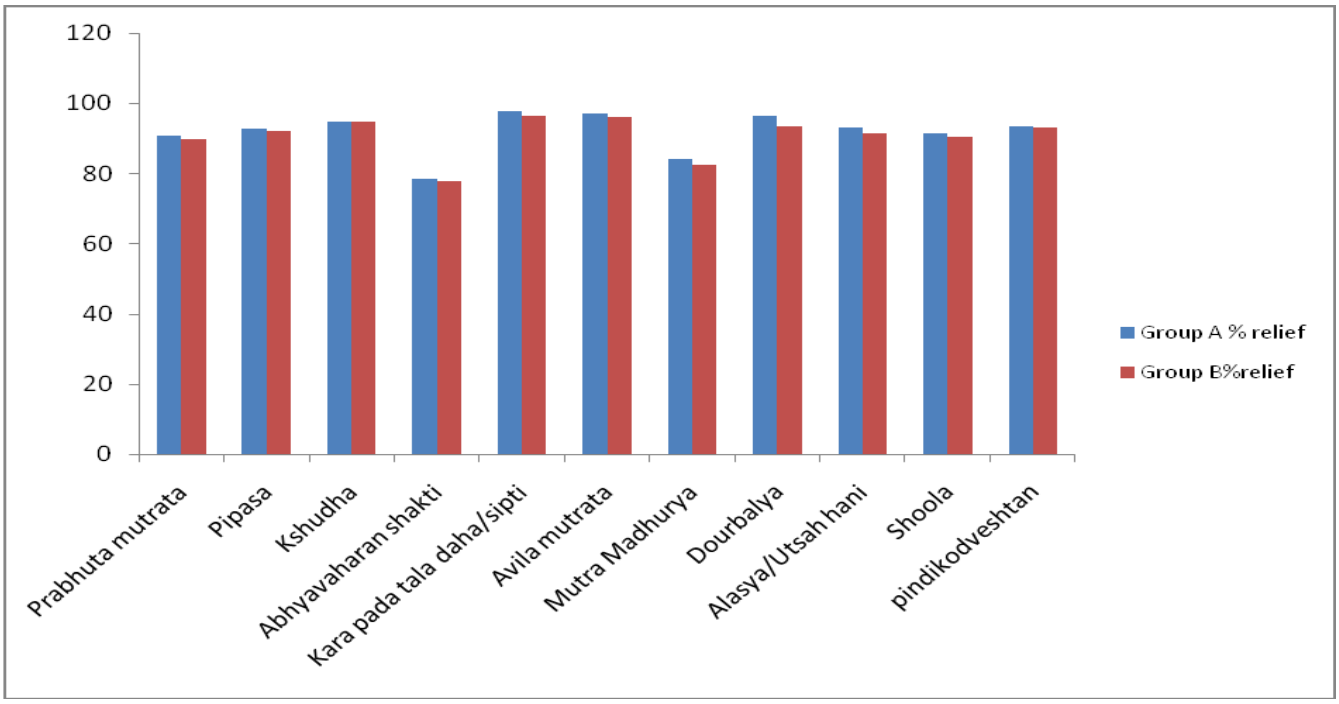

Fig no. 2 shows % relief of Group A is greater than Group B in all subjective parameters

Probable mode of action of *MM 21 (Formulated Hypothetical Compound)*-

MM 21 (Formulated Hypothetical Compound) is having mainly *Kashaya- Tikta, kapha Pitta Shamaka* ingredients the contents of drug also have the *Rasayana, Vayasthapana, Balya, Medhya, Jivaniya* and *Agnidipana* properties[3]. *MM 21 (Formulated Hypothetical Compound)* is able to control symptoms of *Dhatukshaya*, vitiated *Kapha-Pitta, Agnivaishamya* and *Manovahasrotas* (psychological). *Madhumeha* is the disease of *Agnivikriti* and *Dhatuvikriti*. Formation of *Ama Dasha* at different levels is the main *Samprapti* responsible for the disease. So for the *Samprapti Vighatana* of the disease, the drug remove *Ama Dosha* at various levels, correct the *Agni* and cleaness the *Srotasa*. In this formulation *MM 21 (Formulated Hypothetical Compound)* has maximum of *Kashaya Rasa* followed by *Tikta Rasa Madhura Rasa* and *Katu Rasa*. Most of the contents of *MM 21 (Formulated Hypothetical Compound)* are *Sheeta Virya* and *Katu Vipaka*. *Kashaya Rasa* acts as a controller of excessive urination, *Dhatu Kashaya* and *Oja Kashaya* through urine by *Stambhana* properties. It absorbs *Kleda*, *Meda*, *Vasa* and *Kapha Dosha*. The *Rasa* like *Tikta* has also potency to improve the basic cellular metabolism due to their *Shodhana* properties while *Kasaya Rasa* not only reduces the peripheral resistance as well as clinical manifestation of the disease. *Katu rasa* stimulates *Pachakagni* desiccants the food, removes obstruction and dilates the passages and allays *Kapha Doshas*. Its main pharmacological action is *Amapachana* and makes *Ama* stable which helps in glucose uptake in insulin sensitive tissues like as muscle, fats etc. by enhancing activity of insulin receptor. (*Aavaranajanaya* effect) . *Madhura Rasa* being habituated since birth produces greater strength in *Srotasa*, *Dhatus* (tissues) and improves the strength of *Oja* due to their *Ojovaradhaka*, *Rasayana* and *Yogvahi* properties which play an important role in pathogenesis of *Madhumeha*. Following modern studies about different content of *MM 21 (Formulated Hypothetical Compound)* also supports its hypoglycemic effect such as:-

- **Swarnapatri** –The hypoglycemic effect of senna may be due to increasing the excretion of toxic chemical agents and oxidative cytotoxic compounds in the feces or due to reducing intestinal carbohydrate absorption[4].

- ***Aam-*** Aam administration prevented significantly glycated haemoglobin elevation. Flavonoids and phenolic acids, inhibits some key enzymes (a-amylase, a-glucosidase, and aldose reductase) linked to the pathology and complications of Type 2 diabetes[5].

- ***Jambu-*** Syzygium cumini stimulates precursor cell differentiation. Syzygium cumini induces the appearance of positive insulin staining cells in the epithelia of the pancreatic duct[6].

- ***Nimba-*** Nimbocinone, nimocinolides, isonimocinolide, azadirachtin, flavonoid have been beneficial effects in the diabetic environment by improving and/or mimicking insulin action. Improving Glucose tolerance. Prevention in Diabetic Nephropathy[7].

- ***Gokshura-*** *T.terrestris* have been proposed to account for the hypoglycemic property of the extract by stimulating insulin secretion in a glucose-dependent manner[8].

- ***Guduchi-*** *Tinospora cordifolia* increased the activity of glycogen synthase in the liver; it may increase the storage of glucose in hepatocytes. It also decreased the activity of phosphorylase in the liver; thereby it may prevent the release of glucose into the blood[9].

- ***Haridra-*** *Curcuma longa* rhizome intake can stimulate secretion of pancreatic glucose regulating hormones – insulin and C-peptide. Turmeric, probably, inhibits the Na+- glucose co-transporter (SGLT) [10].

- ***Tamalapatra-*** The leaves extract may be promoting the insulin release from the undestroyed β-cells or its action may be insulin, extract could be improving the oral glucose tolerance by increasing the availability of insulin[11].

- ***Manjishtha***- (Rubia cordifolia) inhibits glycated and fructated guanosine and ROS-modification of glycated and fructated guanosine and is a natural antioxidant[12].

- ***Jeeraka***- Cumin decrease blood glucose level. This may be through stimulation of surviving β-cells to produce insulin. In addition, it is known that the antioxidant effect of cumin suppressed apoptosis and exerted beneficial effects on pancreas β-cells[13].

- ***Karvellaka***- Its various extracts and compounds are its hypoglycemic effect, stimulation of peripheral and skeletal muscle glucose utilisation, inhibition of intestinal glucose uptake, inhibition of adipocyte differentiation, suppression of key gluconeogenic enzymes, stimulation of key enzyme of HMP pathway, and preservation of islet β cells and their functions[14].

- ***Meshashringi-*** Gymnemic acid is structurally similar to glucose. It prevents the absorption of sugar molecules, leading to balanced blood sugar levels even when you consume sugar-based foods[15].

- ***Methika-*** Hypoglycemic action of the extract of herbal plants may be possible through the insulinomimictic action or by other mechanism such as stimulation of glucose uptake by peripheral tissue, inhibition of endogenous glucose production of activation of gluconeogenesis in liver and muscles[16].

- ***Bilwa***- A. marmelos might be increase the release of insulin from the existing β–cells of pancreas. The levels of urea and Triglycerides were increased after induction of diabetes. After the administration of A. marmelos these levels were reverted back to near normal level[17].

- ***Shunthi***- Aqueous extract of raw ginger has potential hypoglycaemic properties. This hypoglycaemic action of ginger maybe due to effects involving serotonin receptors, an increase in pancreatic secretion of insulin from β cells or release of bound insulin[18].

- ***Bala***- It shows improvement of liver function and subsequent increase in uptake of blood glucose and its utilization may be another mechanism of action of its extract[19].

- ***Babool***- Due to presence of tannins and polyphenol compounds in babool that have anti-oxidant properties. The tannins restore the function of pancreatic beta cells and stimulate release of insulin, while the polyphenols reduce the blood glucose level through inhibition of glucosidase enzyme from the intestine[20].

- ***Indravaruni***- Shows antihyperglycemic effect by promoting regeneration of beta cells or by protecting the pancreas from destruction, by restricting glucose load as well as by promoting unrestricted endogenous insulin action or its effect beta cells to release insulin and activate the insulin receptors to absorb the blood sugar[21].
- ***Udumbara***- Due to increase in peripheral utilization of glucose or by stimulating the secreation of insulin by remaining intact β cells. Flavanoids may trigger some Ca++ mediated mechanism for insulin release or may modulate the voltage dependent channel in activation mechanism by altering voltage sensitivity[22].
- ***Paneer Doda***- Administration of W.coagulans to reduce the glycosylation of haemoglobin by virtue of its free radical scavenging property and thus decreased the level of HbA1c. A decrease in blood glucose level might also contribute to decreased level of HbA1c[23].
- ***Kalonji***- Increase insulin secretion induces proliferation of pancreatic β-cells, and stimulate glucose uptake in skeletal muscle and fat cells[24].

Conclusion-

- The mean % relief of all objective parameters of Group A and Group B was found to be 46.542 and 33.254 respectively, which indicates the improved effects of *MM 21 (Formulated Hypothetical Compound)* along with allopathic medicine (Group A) on objective parameters.
- The mean %relief of all subjective parameters of Group A and Group B was found to be 91.811 and 90.6766 respectively, which indicates good effects of *MM 21 (Formulated Hypothetical Compound)* (Group B) on subjective parameters.
- Statistical results prove that *MM 21 (Formulated Hypothetical Compound)* along with allopathic medicine proved to be an effective and dependable remedy in the management of Diabetes.
- All the patients tolerated the trial drug "*MM 21 (Formulated Hypothetical Compound)*" very well with no complaints of any side effects/toxic effects.
- *"MM 21 (Formulated Hypothetical Compound)"* herbal formulation for management of Diabetes proved to be an effective, safe, promising and cost effective remedy.
- Some studies indicates most of the ingredients of *MM 21 (Formulated Hypothetical Compound)* shows synergistic effect (*Azadirachta indica, Momordica charantia, Curcuma longa, Zingiber officinale, Gymnema sylvestre, Trigonella foenum-graecum, Ficus racemose, Withania coagulans* etc.) with oral modern hypoglycemic agents which shows the treatment in Group A is more effective than treatment in Group B[25].

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Clinical Study

A Clinical Study to assess the Efficacy of *Suktyadi Yog* in Rickets

*Dr.Vinod Kumar Swami, **Dr. Rakesh Kumar Nagar, ***Prof. Ajay Kumar Sharma

Abstract:

Rickets is defective mineralization or calcification of bones due to deficiency of vitamin D and calcium. Rickets is among the most frequent childhood diseases in many developing countries, due to lack of adequate calcium in the diet may also lead to rickets. The majority of cases occur in children suffering from severe malnutrition, or starvation during the early stages of childhood.

A clinical study was carried out to evaluate the efficacy of "*Suktyadi Yog*" (hypothetical drug compound) as a Calcium Supplement. The clinical study was done in 61 patients selected from OPD & IPD of Balroga Department, N.I.A.Jaipur. The drug was administered in the form of tablet at a dose of 10mg/kg/ day in 2 divided doses for 3 months in both Groups. After 3 months of treatment, in Group A Statistically highly significant results were found; improvement in all clinical symptoms like Pain in Limbs, Bow Leg, Knock Knee, Dental Deformity, Tooth Discoloration and Irritability. Grop B also showed significant improvement in laboratorial parameters; Serum Calcium and Serum Alkaline Phosphatase. Therefore we can use *Suktyadi Yoga* as a good alternative for the Calcium Supplement.

Key words- Calcium, Rickets, *Suktyadi yog,* Calcium supplement

सारांश –

कैल्सियम और विटामीन डी की कमी के कारण अस्थियों में विकृति आ जाती है, जिसे रिकेट्स कहते है। रिकेट्स (अस्थिमृदुता) विकासशील देशो मे बाल्यावस्था मे सबसे अधिक पाया जाने वाला रोग रिकेटस है, जो कि पोषण की कमी के कारण हो रहा है।

प्रस्तुत अध्ययन में बालको की कैल्सियम की कमी को दूर करने के लिये औषधि शुक्त्यादि योग (काल्पनिक योग) का कैल्सियम पूरक के तौर पर प्रयोग करके देखा गया है। ग्रुप (ए) एवम् ग्रुप बी मे 61 बच्चों को औषधि (शुक्त्यादि योग) को गोली के रुप में 10 मि.ग्रा./कि.ग्रा. मात्रा प्रतिदिन दो बार में विभाजित करके दिया गया। तीन महिने की चिकित्सा के बाद ग्रूप ए में हाथ-पावों में दर्द अस्थियों एवम् दातौ की विकति और चिड़चिड़ापन आदि लक्षणों में सार्थक सुधार देखा गया। जबकि तीन माह की चिकित्सा के पश्चात् ग्रूप बी में सीरम कैल्सियम और सीरम अल्केलान फोस्फटेज़् में सार्थक सुधार प्राप्त हुआ। इस प्रकार से शुक्त्यादि योग बालको मे कैल्सियम पूरक के तौर पर एक बहुत अच्छा विकल्प हो सकता है ।

*P.G.Scholar, **Asst. Prof., ***Former Director and Head of Department, Department of *Balroga*, National Institute of Ayurveda, Jaipur Correspondence author, dr.vkswami@gmail.com Mob 9928427025

Clinical Study

A Clinical Study to assess the Efficacy of *Suktyadi Yog* in Rickets

Dr.Vinod Kumar Swami, Dr. Rakesh Kumar Nagar, Prof. Ajay Kumar Sharma

Introduction:

Childhood period is considered as a period of maximum growth, this growth is achieved when child is supplied with proper balance diet/nutrition and free from disease. But the nutritional status is very poor in developing countries. Nutritional status plays an imperative role in deciding the health status of children. Deficiencies of micronutrients afflict more than 50% of the world population, result in increased morbidity and mortality rates, loss of productivity and sometimes permanent impairment of cognitive development in infants and children[1]. The micronutrient deficiency is one of the aspects of child malnutrition and India has 1/3rd of global 2 billion people suffering from vitamin and micronutrient deficit; calcium deficiency.

Calcium, most important micro nutrient component of diet, most ample mineral which help in vascular contraction and vasodilatations, muscular functions, nerve transmission, intracellular signaling, hormonal secretion and supporting to bone and teeth in the body[2].

Asthi Kshaya was taken for the present study in relation to Calcium deficiency, which is a degenerative/metabolic disorder of the bone. It is a condition in which there is decrease in the *Asthi Dhatu* (Bone tissue) leading to many undesirable effects. The important point to be noted is that, the signs and symptoms of *Asthi Kshaya*[3] i.e. *Asthi-Sandhi Shula, Kesha, Roma, Nakha, Danta Vikara/ Pata and Daurbalya* are exactly the same as the updated signs and symptoms of Calcium deficiency mentioned in the contemporary science. Recently, modern scientists have agreed that there is definite association between hair, nails and teeth pathology and Calcium deficiency.

Many drugs of *Ayurveda* which are described in *Sudha Varga* holds the maximum calcium element. Which used after well purification and modification, these drugs could be use as calcium supplement to the human.

Aims And Objectives

The Present research study has been planned to conduct with following main objectives.

- To minimize the sign & symptoms of rickets by using of study drug.
- To find out a better option for Calcium Supplementation in children.

Material And Method

Following materials and methods were adopted for conducting the present clinical trial.

Clinical Study

For this study, calcium deficient children and normal children of age Group between 1-10years were selected from OPD and IPD of Bal-roga department of NIA Jaipur. Total 65 cases were registered for the study, which of them 4 patient left the trial in between, so rest 61 fall into two Groups; 30 cases in Group A and 31cases in Group B.

Group A: Trial drug in Ca- deficient children.

Group B: Trial drug in Normal children.

Trial Drug

The drug (*Suktyadi Yog*) was prepared in the pharmacy of N.I.A., Jaipur, in tablet form in order to enhance its palatability for easy administration in children. *Sukti Bhasma* and *Godanti Bhasma* are the main content of *Suktyadi Yog,* known as good source of calcium which increases Calcium in body hence relieve in clinical features of calcium deficiency.

Suktyadi Yog is a herbo-mineral preparation containing following ingredients-

Table No. I : Composition of the *Suktyadi Yog*

Name	Scientific Name	Use Part	Quantity
* *Sukti Bhasma*	*Oyster Shell*	*Bhasma*	4.5 Part
* *Godanti Bhasma*	*Gypsum Calx*	*Bhasma*	4.5 Part
* *Yashad Bhasma*	*Calcined Zincum*	*Bhasma*	3 Part
* *Sonth/Shunthi*	*Zingiber officinale*	Rhizome	1 Part
* *Marich*	*Piper nigrum*	Fruit	1 Part
* *Pippali*	*Piper longum*	Fruit	1 Part

Dose And Duration

The proposed drug *Suktyadi Yog* was prescribed in doses according to body weight of children (10mg/kg/day) for 3 months.

Follow-Up

All patients were followed on an interval of 15 days i.e. on day 15, day 30, day 45, day 60, day 75, and day 90 after registration. A window period of +3 days was given to allow for holidays and weekends.

Criteria To Be Adopted

A. Inclusion Criteria

1. Age between 1-10 years
2. Calcium deficient children

B. Exclusion Criteria

1. Hypocalcaemia (Serum calcium level below 5mg/dl)
2. Congenital Anomalies.
3. Endocrinal disorder related to growth
4. Metabolic disorders.
5. Mal absorption Syndrome.

C. Discontinuation Criteria

1. Appearance of complication during trial,
2. Any parent not willing to continue with the medicine,
3. Presence of any other acute illness.

D. Assessment Criteria

Clinical Assessment:

Clinical assessment done by a pre designed Performa based on clinical sign and symptoms of Ca deficiency; Pain in limbs, Knock Knee, Bow Legs, Dental deformity, Tooth Discoloration and Irritability. Above mentioned clinical features were used to evaluate the morbidity pattern of the child and drug effect also.

Laboratory Assessment

In the laboratory assessment Serum-Calcium, Serum Phosphorus and Serum Alkaline Phosphatase tests were done in both Groups. These investigations carried out to rule out the underlying illness and for establishment of the efficacy of trial drug *Suktyadi Yog* in calcium deficient patients.

Radio- logical Assessment

X-ray of wrist Joint done in both groups

E. Adverse effect evaluation criteria

Clinical criteria were adopted to rule out possible side effects of the study drugs. It included the documentation of information related to change in appetite, sleep, abdominal features, drowsiness, irritability etc.

F. Analysis and Statistical methods to be used.

Observation data of study period were analyzed & findings evaluated by using statistical analysis to establish the efficacy of trial drug.

Observations

- In the present study highest numbers of patients (39.34%) were in 1to 4 year's age Group with male predominance (55.73%) over females.
- Maximum numbers of patients (67.22%) belongs to nuclear family in compare to joint family and majority of patients were from low socioeconomic status families (41%).

- Hindu constitutes 67.21% in comparison of 31.14% Muslims and majority of patients (81.96%) in present study belongs to urban region.
- In present study maximum patients (47.54%) having Vata-*Kapha Prakriti* whereas 27.86% patients were from *Vata-Pitta Prakriti*.
- Present study holds maximum number of patients from *Avara satva* in71% and *Manda-Agni* in 93.33% patients in Group A and 48.38% in Group B.
- Out of registered 61 patients 25(40.98%) of them consuming 250 to 500 ml milk per day while 18(31.14%) patients were consuming below 250ml milk per day and 17(27.86%) patients were taking more than 500ml milk per day and 26 (42.62%) children having sunlight exposure between 1 to 2 hours per day whereas 21(34.42%) having sunlight exposure more than 2 hours per day.
- It was observed that out of 30 enrolled patients in Group A, maximum 28 (93.33%) patients were suffered from Pain in limbs, followed by 21(70%) with Tooth discoloration, 16 (53.33%) with difficulty in walking, 46.66% with bow Legs and Dental deformity. Only 11(36.66) patients were suffered from Knock knee.
- The mean serum calcium was found 8.95mg% in Group A and 9.59 mg% in Group B.

Statistical Analysis

Table No. II Showing Statistical Analysis of Clinical Symptoms in Group A

Symptoms	Mean			N	%	SD	SE	't'	'p'	Remark
	BT	AT	Diff.			(±)	(±)	Value	Value	
Pain in limbs	2.75	1.35	1.39	28	50.90	0.91	0.17	8.04	<0.0001	H.S.
Knock Knee	2.72	1.90	0.82	11	30.14	0.60	0.18	4.50	<0.0011	H.S.
Bowing Leg	2.28	1.64	0.64	14	28.15	0.49	0.13	4.83	<0.0003	H.S.
Dental Deformity	2.07	1.50	0.57	14	27.53	0.51	0.13	4.16	<0.0011	H.S.
Tooth Discoloration	2.42	1.76	0.66	21	27.56	0.48	0.10	6.32	<0.0001	H.S.
Irritability	2.16	1.41	0.75	12	34.72	0.45	0.13	5.74	<0.0001	H.S.

The statistically highly significant result was observed in Group A as improvement in all clinical symptoms with the drug *Suktyadi Yoga as* calcium supplement in calcium deficient.

Table No. III Showing Statistical analysis of improvement in Serum Alkaline Phosphatase after Treatment

Group	Mean S. Alk.Phosphatase.			N	%	SD	SE	't'	'p'	Remark
	BT	AT	Diff.			(±)	(±)	Value	Value	
Group A	584.93	541.53	43.40	30	7.41	21.81	3.98	10.89	<0.0001	H.S.
Group B	207.10	203.10	4.00	31	1.93	8.57	1.54	2.59	0.014	S.

The statistically highly significant result was observed in Group A as improvement in Serum Alkaline Phosphatase with 'p' value<0.0001, whereas this is significant in Group B with 'p' value 0.01 with the drug *Suktyadi Yoga as* calcium supplement.

Table No. IV Showing statistical analysis of improvement in Serum Calcium after Treatment in both Groups

Group	Mean T.S.Ca. (mg)			N	%	SD	SE	't'	'p'	Remark
	BT	AT	Diff.			(±)	(±)	Value	Value	
Group A	8.95	9.23	-0.27	30	3.07	0.27	0.50	5.46	<0.0001	H.S.
Group B	9.59	9.62	0.03	31	0.31	0.01	0.03	2.25	<0.02	S.

The statistical analysis shows that improvement in Serum Calcium after treatment is highly significant in Group A with 'p' value<0.0001 and significant in Group B with 'p' value<0.02.

Table No. V Showing Statistical analysis of gain in Serum Phosphorus after Treatment in both Groups

Group	Mean T.S.P. (mg)			N	%	SD	SE	't'	'p'	Remark
	BT	AT	Diff.			(±)	(±)	Value	Value	
Group A	3.21	3.40	-0.19	30	5.91	0.15	0.02	6.36	<.0001	H.S.
Group B	3.32	3.34	-0.02	31	0.60	0.08	0.01	1.29	0.20	N.S.

The statistical analysis result shows that gain in serum phosphorus after treatment is highly significant in Group A with 'p' value<0.0001 and insignificant in Group B with 'p' value>0.20.

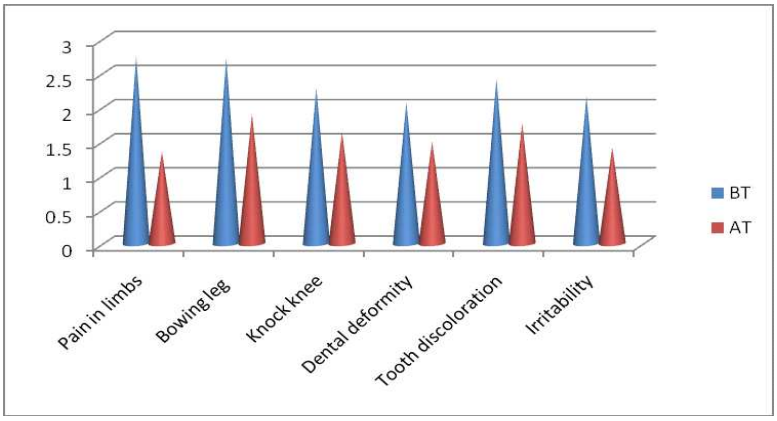
Table No. VI Showing Statistical analysis of X-ray of Wrist Joint after Treatment

Group	Mean			N	%	SD	SE	't'	'p'	Remark
	BT	AT	Diff.		(±)	(±)	Value	Value		
Group A	**1.30**	**1.20**	**0.10**	**30**	**7.69**	**.40**	**.07**	**1.36**	**0.1841**	**N.S.**

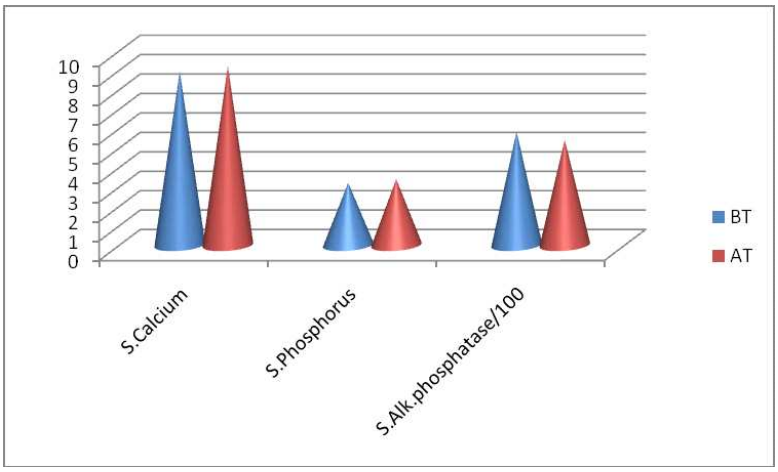
Statistical analysis of changes in X-ray of Wrist joint after treatment is not significant in Group A with 'p' value 0.1841 and no change observed in Group B (healthy group).

- After treatment in Group A; improvement observed in all clinical features with highly significant result, significant improvement in serum phosphorus level, highly significant in total Serum Calcium and serum Alkaline Phosphatase level whereas significant improvement noticed in Serum Calcium and Serum Alkaline Phosphatase in Group B.

Graph no.1 Showing Comparison of Clinical Symptoms (BT Vs AT) in Group A



Graph no.2 Showing Comparison of Lab Parameters (BT Vs AT) in Group A



Discussion

Age- Out of 61 registered patients, 39.34% patients were present in between 1-4 years age and 32.78% in 4-7 years age range. The high incidence in 1-7 yrs age may be attributed to be improper weaning, poor feeding habits, imbalance diet and poor care by parents along with may be less exposure to sunlight (minimum outdoor playing activity in children).

Sex- male predominance with 60% was observed over 40% females in Group A. *S.Chakraborty et al 2006* also reports higher incidence of nutritional deficiency in males. The higher incidence may be due to much awareness' of parents for the male child in Indian culture.

Type of Family- Majority of patients 67.22% from nuclear family in compared to 32.78 % from joint. This is may be due to less care of children in nuclear families in the case of working parents, if no older person or absence of caretaker for children in the family or home.

Socio-Economic Status- In study majority of patients 25 (40.98%) found from lower class and 34.42%, 18.03% were from middle lower class & middle class respectively. High incidence of malnutrition in lower Socio Economic status due to poverty, poor purchasing capacity, illiteracy, poor hygiene, poor mother health, less exposure to sun light, improper diet and higher risk of infections.

Age of Weaning – In the majority of patients weaning were done between the age of 6 to12 months i.e. 62.29% and after the age of 12 months in 22.95% patients. Late weaning is one of the major reasons of Calcium deficiency in children.

Dietary Pattern- Out of 61 registered patients, 54.09% patients consuming Vegetarian diet whereas 45.91% patients having mixed dietetic history. This present data shows that dietary pattern is not significantly related to calcium deficiency in patients.

Prakriti- Maximum 47.54% patients having *Vata-Kapha Prakriti* and *Vata-Pitta Prakriti* in 27.86 patients. The main *Dosha* in both *Prakriti* are *Vata* and *Vataja Dusthi*/etiologies are the main causes in malnutrition *(Dhatu Kshaya*).

Satva- This study data showing that maximum number of patients i.e.71% from *Avara Satwa* and remaining are from *Madhyama Satva.*

Sara- Maximum 56.66% patients were found with *Twak Sara* and 14.75% in *Mamsa Sara*. Only one patient i.e. 3.33% of total in Group A present with *Asthi Sara and* not a single patient were found with *Shukra Sara.*

Status of *Agni-* *Manda-Agni* was most common type of *Agni* in overall 70.49% patients in both Groups. In Group A 93.33% patients and 70% patients in Group B have *Manda-Agni* at the time of registration. This study also indicates the most popular principal of *Ayurveda* that *Manda-Agni* is the root cause of *Dhatu Kshaya.*

Status of Milk Intake- Overall 50% patients in Group A were consuming between 250 to 500ml milk per day and 33.33% patients taking less

than 250 ml milk per day. Milk plays an important role in calcium supplementation of body due to its rich calcium concentration; less intake of milk will cause calcium deficiency.

Status of Exposure to Sun light- In Group A 36.66% patients given history for Sun Light exposure in the range between 1 to 2 hours per day, followed by less than 1 hour per day Sun Light exposure in 30% patients. Sun light exposure plays the key factor role in calcium absorption by conversion and activation of Vit.D, so less exposure to sun light can cause calcium deficiency.

Discussion On The Effect Of Therapy

In present study patients were treated in two individual Groups i.e. Group A - calcium deficient and Group B - healthy children, with *Suktyadi Yog* tablet. The clinical efficacy of the drug was analyzed statistically on all parameters mentioned in the assessment criteria. A scoring structure was employed to evaluate the effectiveness of therapy. Scoring of chief clinical features was done before and after treatment.

Thus the obtained results in each Group were statistically analyzed by using "Student's paired't' test" for the variation and significance of effect seen in individual Groups. More specific quantification of the percentage improvement in each feature the formula BT-AT/BT x 100 was applied.

All the parameters adopted i.e. Clinical Features; Laboratorial Values and Radiological findings were statistically analyzed and after getting the result of every parameter being discussed at this juncture.

On overall evaluation the patients of Group A has better outcome in comparison to Group B, this result may be because of action of drug compound which acts on the pathogenesis of *Asthi Kshaya* and maintaining the homeostasis the status of *Agni* in patient. There is rapid recovery found in Group A, it may be due to formation of *Prasahasta Dhatu* in patients with the trial drug *Suktyadi Yog* but no any major significant change reported at the end of study in Group B (only healthy children).

Pain in limbs- The effect of the drug on pain in limbs was slow in starting but in the end of study 51% improvement noticed in affected patients with *p value <0.0001* in Group A. The drug compound contains *Shoolhara* and *Jvarahara* properties like *Godanti* and *Sukti Bhasma,* which decreases the pain in limbs[4].

Knock knee- 30.14% improvement found in the condition of Knock knee at the end of study with trial drug *Suktyadi Yog*; statistically highly significant for Group A (*p value* <0.0011).

Bowing leg- 28.15% improvement noticed in Bow Legs with highly significant result (*p value <0.0003*) for Group A; which indicate good response of trial drug *Suktyadi Yog*. The calcium as major component of trial drug increases the bone mass and responsible for normalizing the bone's curvature & strong bones.

Dental Deformity: In the end of study trial drug show the 27.53% improvement in affected patients, statistically highly significant in Group A (*p value <0.0011*) and reflecting good response of drug on Dental deformity.

Tooth Discoloration: In the end of the study 27.56% improvement in tooth discoloration noticed in total number of affected cases, this result is Statistically highly significant in Group A (p value <0.0001) and reflecting good response of drug on Tooth discoloration. Calcium also works as a chelating agent which decreases the staining toxicity of metals[5].

Irritability in the end of study there are 34.72% improvement noticed in irritability incidence, it's statistically highly significant in Group A (*p value <0.0001*). The trial drug *Suktyadi Yog* ingredients' contain *Tikta Rasa*, which mainly contain *Vayu* and *Akaash Mahabhoot* and as per *Ayurveda* principals *"Akaash Satva Bahulo", Satva Guna* decreases the irritability and play an important role at the level of CNS. A clinical study results also indicate that calcium prevents the loco motor behavioural disorder *(P.Ekamboram et Al 2001*).

Mode of Action of the Drug

सर्वदा सर्वभावानाम् सामान्यम् वृद्धिकारणम्।[6]

The main ingredients of *Suktyadi Yog* are *Sukti Bhasma* and *Godanti Bhasma*. *Mukta-sukti*

Bhasma and Godanti placed in *Sudha Varga* are the natural source of trace element i.e. Fe and minerals (calcium) having similarities with bone and its components of human body. So these drugs can fulfill the calcium requirement of human being, in such a way these drugs can be used in nutritional/mineral deficiency. Mode of action of the drug can be attributed to the various pharmacodynamic properties of the contents of "*Suktyadi Yog"*. The trial drug possesses three *Rasa* excluding *Amla, Lavana* and *Kashaya Rasa* but mainly *Madhura, Katu* and *Tikta Rasa*, *Madhura* and *Katu Vipak, Sheeta* as well as *Ushna Veerya*. The properties of contents are balancing each other by having *Laghu, Snigdha, Ruksha,* and *Sheeta Guna*. They are mainly *Kapha-Vata Shamak* and holds therapeutic properties like *Deepana, Pachana, Rochana, Shoolprashamana, Vatanuloman, Srotoshodhak, Jwaraghana* and *Shothahara* etc. therefore these properties are helpful in breaking the *Samprapti*/pathogenesis of *Asthi Kshaya*, balancing *Doshas* and qualitative as well as quantitative increase in the *Asthi Dhatu*.

- Calcium is the main component of chemical composition of *Sukti Bhasma* and *Godanti Bhasma*, about 50% of total ash value. In calcium deficient children all symptoms of calcium deficiency relieved after the using of trial drug as a Calcium supplement.
- Antioxidant activity of *Yashada Bhasma* (*Santosh et Al.2013*) has detoxified the body's toxins[7].
- *Pippali*, *Marich* and *Shunthi* are both digestive and increase bioavailability of various nutrients at GIT & plasma level as well as tissue & cellular level. (*QAZI, et al, 2002*)

Conclusion

Following conclusion can be drawn from the present research work:

- Low socioeconomic status, nuclear family, lack of exposure to sunlight, poor hygiene, late introduction of solid food items or diary products and acute infectious diseases are the chief predisposing factors for calcium deficiency along with poor nutrition.
- Children with *Vata* predominant *Sharirika Prakriti* are more prone to develop nutritional disorder (*Dhatu Kshaya*).
- Present research work shows that trial drug; *Suktyadi Yog* can provide better calcium supplement in mild to moderate calcium deficiency condition.
- Study drug; *Suktyadi Yog* show highly significant improvement in clinical features of rickets like Tooth discoloration, Painful bones, Knock-Knees, Bowing Leg, Irritability and Dental Deformity.
- No adverse effects of the drug were observed during the study period; therefore the study drug can be advice as a calcium supplement in calcium deficient as well as in healthy children.

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Clinical Study

An Antitoxic Study of *Sidharthakadi Agad* in *Dushivishjanya Vikar* with Special Reference to Allergic Eruptive Disorders of the Skin

*Dr. Anita Gautam, **Dr. Bhawana Mittal, ***Dr. Anita Sharma, ****Prof. Vinod Kumar Gothecha

Abstract

In this modern era use of intoxicating beverages, canned food, irregular eating and sleeping habits, usage of various synthetic drugs have taken modern man to a world, where immunity is declining day after day and many diseases are evolving. The immune system, which is one of the most complex and intriguing system of the body, declines when the body is formed of unwholesome (toxic) substances (*dushivisha*) and then the body attempts to eliminate these toxins. One of the routes of elimination of the unwanted product is the skin, so manifestation of skin disease occurs. Ayurveda provides us with detailed information about toxins, their management and methods of purging these poisons out of the body.The drug *Sidharthakadi Agad*, which is a classical formula of *Charaka Samhita*, was selected to study. In this present research work 75 patients of *Dushivishjanya Vikar* with Special Reference to Allergic Eruptive Disorders of the Skin were randomly dividing into three groups. Patients of Group A were given *Sidharthakadi Agad* only for internal use in 2 tablets (500 mg) three times a day and group B were given Only local application or lepa on the skin lesions and group C were given both the formulations simultaneously. The analysis of the relief percentage of the Sammuchya Lakshnas (overall symptoms) shows that the percentage relief for Group A patients was 34.25% and that for Group B was somewhat lower (25.34%). The relief was maximum for group C (69.52%).The combined effect (when both external and internal medication was administered) has had the best effect with improvements ranging between 52% and 83%. In case of hematological analysis, there were some improvements in Group A and C. So it is an effort to search effective Ayurveda treatment for this disease.

Key Words:- *Dushivishjanya Vikar*, *Sidharthakadi Agad*, Toxic substances etc.

साराशं–

आधुनिक युग मै अनियमित आहार विहार के कारण व्याधि क्षमता दिन प्रतिदिन कम हो रही है। जब हमारे शरीर मै कई दुषी विष संचित हो जाते है तब हमारा शरीर त्वचा के माध्यम से इन विषों को शरीर से बाहर निकलता है। आयुर्वेद में दुषी विष की चिकित्सा का विस्तार से वर्णन किया है।

प्रस्तुत शोध पत्र मै सिद्धार्थकादि अगद जो चरक संहिता मै वर्णित है इसका अन्तः व वाह्य प्रयोग दूषी विष जन्य त्वचा विकारो में किया गया है। इस अध्ययन मै 75 रोगियों का चयन किया गया है। वर्ग 'ए' के रोगियों को सिद्धार्थकादि अगद दिन मै 3 बार 2–2 गोलिया खाने के लिए दी गयी वर्ग बी के रोगियों को सिद्धार्थकादि अगद का लेप त्वचा पर वाह्य प्रयोग के लिए दिया गया। वर्ग सी के रोगियों को दोनों योग एक साथ दिए गए। वर्ग ए के रोगियों का लाभ 34.25 प्रतिशत रहा। वर्ग बी के रोगियों का 25.34 प्रतिशत और वर्ग सी के रोगियों का लाभ प्रतिशत अधिकतम रहा जो 69.52 प्रतिशत था रक्तः सम्बंधित परीक्षणो मै वर्ग ए और सी मै अच्छा लाभ मिला। अतः सिद्धार्थकादि अगद का अन्तः व वाह्य प्रयोग दुषी विष जन्य त्वचा विकारो मै प्रभावी है।

*Medical Officer, Himachal Pradesh, **Ph.D. Scholar P.G. Dept.of Agad Tantra, National Institute of Ayurveda, Jaipur, ***Associate professor & H.O.D. P.G. Dept.of Agad Tantra, National Institute of Ayurveda , Jaipur ****Former Professor P.G. Dept.of Agad Tantra, National Institute of Ayurveda , Jaipur

Clinical Study

An Antitoxic Study of *Sidharthakadi Agad* in *Dushivishjanya Vikar* with Special Reference to Allergic Eruptive Disorders of the Skin

Dr. Anita Gautam, Dr. Bhawana Mittal, Dr. Anita Sharma, Prof. Vinod Kumar Gothecha

Introduction

Due to industrialization and heavy traffic one constantly comes into contact with various pollutants. Use of intoxicating beverages, canned food, irregular eating and sleeping habits, usage of various synthetic drugs have taken modern man to a world, where immunity is declining day after day and many diseases are evolving. The pesticide residues in fruits and vegetables, adulterated food products, polished rice and pulses have added to the health concerns.

The immune system, which is one of the most complex and intriguing system of the body, declines when the body is formed of unwholesome (toxic) substances (*dushivisha*)[1] and then the body attempts to eliminate these toxins. One of the routes of elimination of the unwanted product is the skin, so manifestation of skin disease occurs. Ayurveda provides us with detailed information about toxins, their management and methods of purging these poisons out of the body. The concept of *Dushivisha*[2,3] with special reference to allergic skin disorders[4] are clearly mentioned in Caraka Samhita, Sushruta Samhita and other ancient ayurveda texts. Some of the skin problems caused by *Dushivisha*, which are described in Samhitas are kustha[5], *visharpa*, *bhinna* varna (discoloration of skin), *shonit dushti*[6], shitapitta, udarda and kotha[7,8]. The cause of all these diseases is *dushivisha* which is enhanced by indulgence in unsuitable foods produced by the toxins formed which can be correlated with allergic disorders. These can be prevented by following healthy eating habits and if such diseases do occur, they can be cured through Ayurveda. Modern medicine not having any remedy for permanent cure but remission of the disease can be achieved administering the medicine. Patients have to take those medicines for lifetime, which are having some unwanted side effects. Ayurveda can provide better and permanent management.

Aims & Objectives

1. To elaborate the concept of *dushivisha* regarding allergic eruptive skin disease.
2. To provide relief from allergy problems like eruptive skin disorders by using ayurvedic preparations well mentioned in classical texts to treat such problems.
3. To conduct clinical trials to see the anti-toxic effect of *Sidharthakadi Agad* by internal, external and combined use.
4. To clinically assess the efficacy of this specific ayurvedic treatment[9,10] for this specific pathological condition of the patient caused by *Dushivisha* and not well explained in modern texts.
5. To assess availability of the *dushivisha* as a cause of different kinds of allergic skin disorders in different forms other than direct poison.

Materials & Methods

The patients, their profile, the drug prepared in the pharmacy of the NIA and the laboratory of NIA were the materials of this study.

Trial Drug- *Sidharthakadi Agad*[11]

The drug *Sidharthakadi Agad*, which is a classical formula of *Charaka Samhita*, was selected to study as test drug after a detailed classical survey. It was then prepared in the pharmacy of the National Institute of Ayurveda, Jaipur by maintaining all classical aspect of drug preparation for external and internal use of the same drug.

Siddharthaka (Sarshapa), Vacha, Hingu, Karanja, Devdaru, Manjistha, Haritaki, Bibhitaka,

Amala, Shveta (Aparajita), Katabhitwaka (Shvetashirisha), Sunthi, Maricha, Pippali, Priyangu, Shirisha, Haridra, Daruharidra – take equal parts and make a paste in *Basta mutra* (male goat's urine). (Ch.Chi.9/69-72)

Table - I *Doshanghnata* wise distribution of 18 drugs of *Siddharthakadi Agada*

Doshanghnata	No. of drug	%
Tridosha	06	33.33
Vatakapha	07	38.89
Kaphapitta	02	11.11
Pitta	01	05.56
Kapha	01	05.56

Table - II *Karma* wise distribution of 18 drugs of *Siddharthakadi Agad*

Karma of drug	No. of drug	%
Vishaghna	08	44.44
Krimighna	12	66.67
Jvaraghna	10	55.56
Pleehaghna	03	16.67
Ruchikara	08	44.44
Deepana	08	44.44
Pachana	04	22.22
Vishama Jvaraghna	04	22.22
Raktadoshahara	09	50.00
Twakdoshahara	07	30.89
Dahashamaka	04	22.22
Chhardihara	06	33.33

Table - III Rasa wise Distribution of 18 drugs of *Siddharthakadi Agad*

Rasa	No. of drug	%
Tikta Rasa	13	72.22
Katu Rasa	10	55.56
Kashaya Rasa	08	44.44
Madhura Rasa	05	27.78

Grouping of patients

For the present study, the patients were divided into three groups:

Group A: *Sidharthakadi Agad* only for internal use in 2 tablets (500 mg) three times a day

Group B: Only local application or *lepa* on the skin lesions. Thin *lepa* of the drug was advised.

Group C: *Sidharthakadi Agad* was administered in the same doses as in Group A patients and along with that external *lepa* of *Sidharthakadi Agad* was administered as given to Group B patients.

Plan of study

Criteria of selection of patients

It is very difficult to identify the exact cause of the diseases as in *pradhanik hetus* we can only decide the exact causative relationship between cause and effect or *hetus* and the disease but it has been mentioned in the texts. Therefore availability of *hetu* used or practices can only provide an idea or support the idea that this disease was caused by a *hetu*, and therefore, after careful survey of the text and scientific analysis of symptoms and signs of the *Dushivisha* it has been decided that only those symptoms which are affecting the skin or appearing on the skin be taken as criterion of selection of patients for the present study. Presence of any ten symptoms on the skin along with history of intake of *Dushivisha* or history of intake of such dietic articles that may have *Dushivisha* inside them or with them was selected for study through a specifically prepared proforma.

Inclusion criteria :

1. Patients of age group b/w 16-70 years.
2. Patients of either sex (Male / Female).
3. Subjects with signs and symptoms of *Dushivishjanya Vikar* with Special Reference to Allergic Eruptive Disorders of the Skin.
4. Subjects who will be ready to give written informed consent.

Exclusion criteria :

1. Patients of burn
2. Patients of severe infectious disease
3. Patients of psoriasis
4. Patients of leucoderma and leprosy
5. Patients of herpies
6. Patients of measles
7. Any skin lesions having no sensation

Subjective diagnostic parameters

1 Itching
2 Redness
3 Burning
4 *Shoth*/Inflammation
5 Acne due to allergy
6 Photosensitivity
7 Hyperpigmentation
8 Elevated skin lesion
9 *Shonit Dusti Lakshan*
10 Tod

Objective diagnostic parameters- Lab. Investigations

To assess the *Raktadushti*, following haematological investigations were planned:

Blood, Hb%, TLC, DLC, ESR ,TEC, IgE.

Grading of the symptoms:

The efficacy of the drugs were judged on the basis of the scoring pattern described as below.

0 – Nil, 1 – Mild, 2 – Moderate, 3- severe, 4- Severe symptoms with associated symptoms

Follow up study

Follow up study was carried out at the interval of one month after the completion of full treatment schedule.

Group A : In group A recurrence was observed in 2 patients i.e. 25% of the total patients.

Group B: Recurrence was observed in 4 patients i.e. 50% of the total patients.

Group C: In Group C recurrence was observed in only 1 patient i.e. 11.11%

So, it can be concluded that Group C may provide better *Vyadhi bala Virodhi prabhava*.

Samprapti Vighatana

We have seen that most of the ingredients are of *Tikta* rasa which is highly *pitta shamak*, *Rakta shodhak* and also *vishaghan*, so this rasa perfectly effect on the visha.

External use will subside the dosha or the disease situated at the site, i.e skin which is *Pratilomsamprapti vighatan* by the elimination of *Vyadhilinga* i.e. *Vartidansh Shoth* and by *Sidharthkadi* Agad *ghansatwa* tablets.

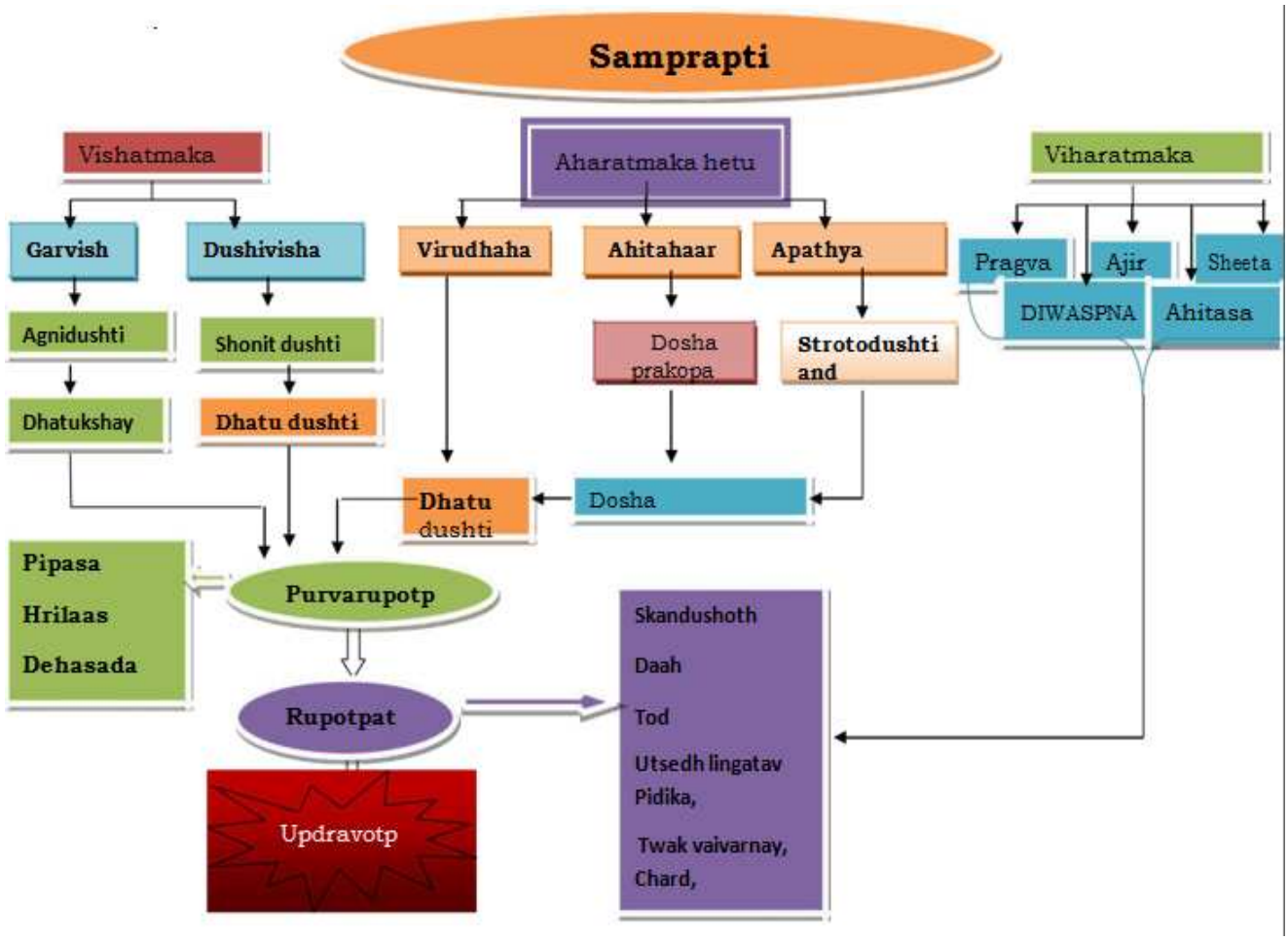
Anulom Samprapti Vighatan by removing effect of *Virudhahar*, *Atiahar* by providing strength to Agni and removing *agnimandaya* with effect *shunthi, marich, pippali* etc. Besides this *Karanja, Devdaru, Manjistha, Katbhitwak* are not only blood purifier but also *Twakdoshahar*.

Some of them are *Vishagna* and some are *Dushivishaghan* so we can say that it is perfect planning to destroy the *samprapti* at various levels by external and internal use of tested drug at the beginning of *Samprapti* that *Jatharagnidusthi* at the middle of *samprapti* and *Shonitdushti* at the climax *Twakdushti* as planned.

The results were presented in the chapter of observations and discussion in the form of tables duly presented, calculated, analysed and tested statistically and recognized in a scientific manner to test its significance.

The results show that the combined effect of *Sidharthkadi Agad* tablets and *Sidharthkadi Agad lepa* prepared in *Basta mutra* gave best results which were statistically highly significant on particularly skin lesion.

***Nidanokt Samprapti* of *Dushivishajanya Vikaar* Figure-1**



Results

Table IV showing statistical analysis of Effect of *Siddharthakadi Agad* on Cardinal symptoms before/after treatment of 30 days in 25 patients of *Dushivishjanya vikaar* (Group A)

Symptoms	n	Mean			Mean %	S.D. (±)	S.E. (±)	t Value	p Value
		B.T.	A.T.	Diff.					
Itching	8	2.75	2.00	0.75	27.27%	1.16	0.41	1.82	< 0.1
Burning	7	2.43	1.71	0.71	29.41%	1.25	0.47	1.51	< 0.1
Redness	8	2.38	1.63	0.75	31.58%	1.28	0.45	1.66	< 0.1
Inflammation	8	2.25	1.38	0.88	38.89%	1.55	0.55	1.59	< 0.1
Acne due to allergy	5	2.40	1.20	1.20	50.00%	1.64	0.73	1.63	> 0.1
Photosensitivity	2	2.50	2.00	0.50	20.00%	0.71	0.50	1.00	> 0.1
Hyperpigmentation	3	2.67	1.67	1.00	37.50%	1.00	0.58	1.73	> 0.1
Wheal formation	8	2.50	1.75	0.75	30.00%	1.16	0.41	1.82	< 0.1
Shonit Dushti Lakshan	8	2.50	1.63	0.88	35.00%	1.64	0.58	1.51	< 0.1
Tod	5	2.20	1.20	1.00	45.45%	1.22	0.55	1.83	> 0.1

The analysis of the data of patients of Group A shows that maximum relief was observed in Acne due to allergy (50%) followed by Tod (45.45%), inflammation (38.89%) and hyperpigmentation (37.50%). For rest, the relief percentage was somewhat lower. Analysing the data statistically, the treatment proved to be insignificant for all symptoms mentioned in the table.

Table V showing statistical analysis of Effect of *lepa* of *Siddharthakadi Agad* on Cardinal symptoms before and after treatment of 30 days in 25 patients of *Dushivishjanya vikaar* (Group B)

Symptoms	n	Mean			Mean	S.D.	S.E.	t	p
		B.T.	A.T.	Diff.	%	(±)	(±)	Value	Value
Itching	8	2.38	1.88	0.50	21.05%	0.76	0.27	1.87	< 0.1
Burning	7	2.29	1.71	0.57	25.00%	0.98	0.37	1.55	> 0.1
Redness	8	2.25	1.75	0.50	22.22%	1.07	0.38	1.32	< 0.1
Inflammation	8	2.13	1.50	0.63	29.41%	1.06	0.38	1.67	< 0.1
Acne due to allergy	3	2.67	1.67	1.00	37.50%	1.00	0.58	1.73	> 0.1
Photosensitivity	4	3.00	2.50	0.50	16.67%	0.58	0.29	1.73	> 0.1
Hyperpigmentation	2	2.50	2.00	0.50	20.00%	0.71	0.50	1.00	> 0.1
Wheal formation	8	2.75	2.13	0.63	22.73%	1.19	0.42	1.49	> 0.1
Shonit Dushti Lakshan	8	2.50	1.88	0.63	25.00%	1.06	0.38	1.67	< 0.1
Tod	4	2.00	1.25	0.75	37.50%	1.26	0.63	1.19	> 0.1

Group B analysis showed mild improvements with relief percentage ranging from 16% to 29%. Only for Tod and Acne due to allergy (37.50%) the relief percentage was somewhat better. Statistically, the improvement was insignificant.

Table VI showing statistical analysis of Effect of *Siddharthakadi Agad* (orally and lepa) on Cardinal symptoms before and after treatment of 30 days in 25 patients of *Dushivishjanya vikaar* (Group C)

Symptoms	n	Mean			Mean	S.D.	S.E.	t	p
		B.T.	A.T.	Diff.	%	(±)	(±)	Value	Value
Itching	9	2.78	1.33	1.44	52.00%	1.01	0.34	4.27	< 0.001
Burning	7	2.43	0.71	1.71	70.59%	0.49	0.18	9.30	< 0.001
Redness	8	2.38	0.75	1.63	68.42%	0.74	0.26	6.18	< 0.001
Inflammation	9	2.33	0.56	1.78	76.19%	0.83	0.28	6.40	< 0.001
Acne due to allergy	4	3.00	0.75	2.25	75.00%	0.50	0.25	9.00	< 0.001
Photosensitivity	3	3.33	1.00	2.33	70.00%	0.58	0.33	7.00	< 0.010
Hyperpigmentation	2	3.00	0.50	2.50	83.33%	0.71	0.50	5.00	> 0.1
Wheal formation	9	3.00	0.89	2.11	70.37%	0.60	0.20	10.54	< 0.001
Shonit Dushti Lakshan	9	3.00	1.00	2.00	66.67%	0.50	0.17	12.00	< 0.001
Tod	7	2.14	0.86	1.29	60.00%	0.49	0.18	6.97	< 0.001

Maximum relief was observed for inflammation (76.19%) and acne due to allergy (75%) in Group C. For other symptoms also the results were encouraging with relief percentage above 50%. Statistically highly significant improvement was observed for all the symptoms (Itching, Burning, Redness, Inflammation, Acne, Photosensitivity, wheal formation, *shonit dushti lakshan* and Tod) except Hyperpigmentation for which the results were insignificant as the number of patients was very less.

Table VII showing the effect of Effect of *Siddharthakadi Agad* on the *Rakta dusthi*[10] of 25 patients in group A

Laboratory Investigation	n	Mean			Mean %	S.D. (±)	S.E. (±)	t Value	p Value
		B.T.	A.T.	Diff.					
Hb Gm%	8	13.21	13.35	-0.14	-1.04%	0.30	0.11	1.31	> 0.1
TLC	8	8800	8562.50	237.50	2.70%	630.05	222.76	1.07	> 0.1
Neutrophils	8	55.63	54.00	1.63	2.92%	6.86	2.43	0.67	> 0.1
Lymphocytes	8	39.13	40.63	-1.50	-3.83%	7.62	2.69	0.56	> 0.1
Eosinophil	8	2.63	3.13	-0.50	-19.05%	0.93	0.33	1.53	> 0.1
Monocyte	8	2.63	2.25	0.38	14.29%	1.41	0.50	0.75	> 0.1
Basophil	8	0.00	0.00	0.00	#DIV/0!	0.00	0.00	0.00	N.D.
ESR	8	17.75	17.13	0.63	3.52%	1.85	0.65	0.96	> 0.1
TEC	8	224.38	218.50	5.88	2.62%	28.23	9.98	0.59	> 0.1
IgE	8	313.86	284.60	29.26	9.32%	80.41	28.43	1.03	> 0.1

The analysis of Group A patients shows that the maximum change occurred in Eosinophil count(19.05%) followed by Monocyte (14.29%). Statistically, the data shows that the results were insignificant.

Table VIII showing the effect of *Siddharthakadi Agad* on the *Rakta dusthi* of 25 patients in group B

Laboratory Investigation	n	Mean			Mean %	S.D. (±)	S.E. (±)	t Value	p Value
		B.T.	A.T.	Diff.					
Hb Gm%	8	12.08	12.18	-0.10	-0.83%	0.24	0.08	1.18	> 0.1
TLC	8	7337.50	7237.50	100.00	1.36%	297.61	105.22	0.95	> 0.1
Neutrophils	8	56.63	57.13	-0.50	-0.88%	3.51	1.24	0.40	> 0.1
Lymphocytes	8	37.13	38.25	-1.13	-3.03%	4.12	1.46	0.77	> 0.1
Eosinophil	8	3.25	2.38	0.88	26.92%	1.25	0.44	1.99	< 0.025
Monocyte	8	3.00	2.25	0.75	25.00%	1.49	0.53	1.43	>0.1
Basophil	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N.D.
ESR	8	26.63	25.88	0.75	2.82%	3.77	1.33	0.56	> 0.1
TEC	8	224.38	231.00	-6.63	-2.95%	34.88	12.33	0.54	> 0.1
IgE	8	420.23	456.29	-36.06	-8.58%	218.80	77.36	0.47	> 0.1

The analysis of Group B patients shows that the maximum change occurred in Eosinophil count (26.92%) followed by Monocyte (25%). Statistically, the data shows that except for Eosinophil tests, which gave highly significant results, rest were insignificant.

Table IX showing the effect of *Siddharthakadi Agad* on the *Rakta dusthi* of 25 patients in Group C

Laboratory Investigation	n	Mean			Mean %	S.D. (±)	S.E. (±)	t Value	p Value
		B.T.	A.T.	Diff.					
Hb Gm%	9	12.21	12.40	-0.19	-1.55%	0.36	0.12	1.56	< 0.1
TLC	9	6900.00	6088.89	811.11	11.76%	791.27	263.76	3.08	< 0.010
Neutrophils	9	56.22	58.22	-2.00	-3.56%	2.29	0.76	2.62	< 0.025
Lymphocytes	9	38.89	37.33	1.56	4.00%	2.70	0.90	1.73	< 0.1
Eosinophil	9	2.33	2.44	-0.11	-4.76%	0.93	0.31	0.36	> 0.1
Monocyte	9	2.56	2.00	0.56	21.74%	0.73	0.24	2.29	< 0.050
Basophil	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N.D.
ESR	9	16.78	12.11	4.67	27.81%	4.33	1.44	3.23	< 0.010
TEC	9	175.22	159.67	15.56	8.88%	12.08	4.03	3.86	< 0.005
IgE	9	273.24	184.63	88.61	32.43%	45.53	15.18	5.84	< 0.001

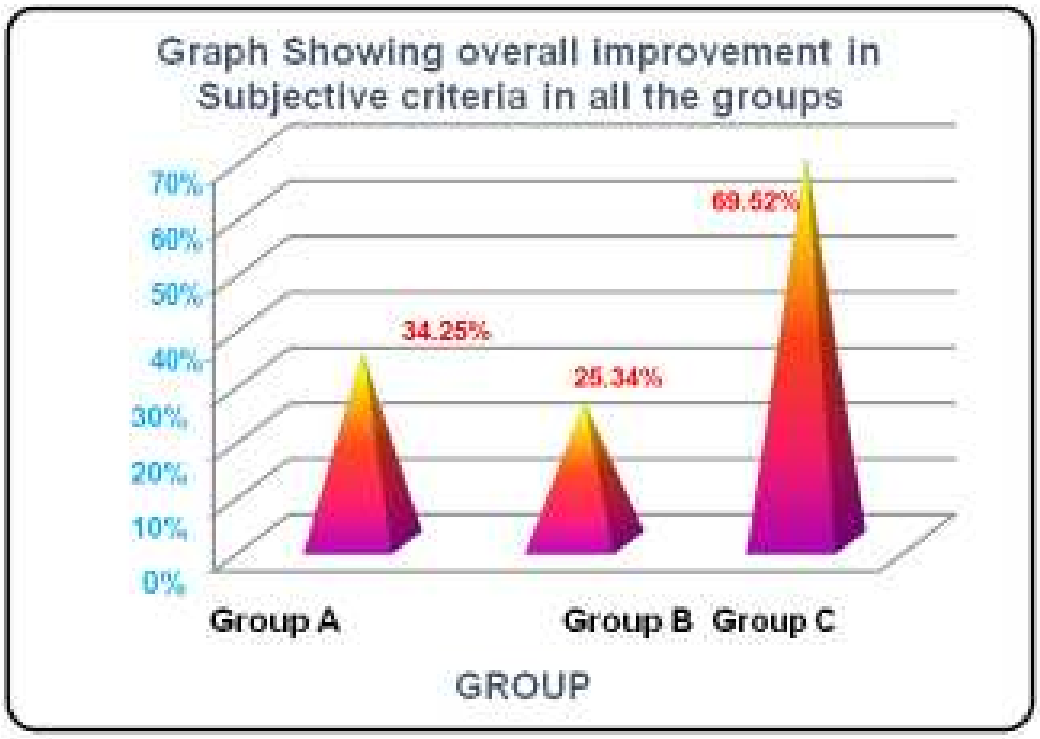
Table shows that maximum improvement in the patients before and after treatments for Group C patients was observed in IgE (32.43%) followed by ESR (27.81%) and Monocyte (21.74%). Statistical analysis of the same showed that the results were highly significant for TLC, Neutrophils, Monocyte, ESR, TEC and IgE. Rest of the tests showed insignificant results.

Total effect of therapy

Table no. X *Sammuchya Lakshana* (Overall symptoms)

Groups	n	Mean			Mean %	S.D.	S.E.	t	p
		B.T.	A.T.	Dif.					
Group A	10	2.46	1.62	0.84	34.25%	0.19	0.06	13.71	< 0.001
Group B	10	2.45	1.83	0.62	25.34%	0.16	0.05	12.50	< 0.001
Group C	10	2.74	0.83	1.90	69.52%	0.40	0.13	15.08	< 0.001

Graph no. 1 Graph showing overall improvment in subjective criteria in all the group.



Overall Improvement in the three Groups

The analysis of the relief percentage of the *Sammuchya Lakshnas* (overall symptoms) from Table & Fig. shows that the percentage relief for Group A patients was 34.25% and that for Group B was somewhat lower (25.34%). The relief was maximum for group C (69.52%). The statistical analysis of the same shows that the improvements in all the three Groups were highly significant.

It can be inferred from the results that the oral administration of the medicine has had a good effect on the patients and results varied between20% to 50% for various symptoms. The effect of lepa of *Siddharthakadi Agad* the patients had somewhat lower effect with improvements ranging between 16% and 37%. The combined effect (when both external and internal medication was administered) has had the best effect with improvements ranging between 52% and 83%. In case of haemotological analysis, there were some improvements in Group A and C. However these were statistically insignificant. It has been stated by *Charaka* that by administering medicine.

''यथा हि पतितं पुरूष समर्थमुत्थानायोत्थापचन् पुरूषो बलमस्योपादध्यात, स क्षिप्रतरमपरिक्लिष्ट एवोत्तिष्ठेत,''[12]

Means that by administering medicines, we can only support the Bala or Vyadhi kshmatva of such a patient who is capable to move or stand, so if the disease is curable, treatment increases its immunity. Our study also supports this theory of Charaka that treatment increases Vyadhi kshmatva.

In Group A

Encouraging results were observed in patients with Acne due to allergy (50%),Tod (45%), Inflammation (39%) and Hyperpigmentation (38%). Patients with redness got 31% relief, while those with elevated skin lesions got 30% relief. The relief in the burning and itching symptoms was 29.41% and 27.27% respectively.

In Group B

The analysis of Group B results showed that for Tod and Acne due to allergy, the relief percentage was 37.50% each. For other symptoms, there were mild improvements with relief percentage ranging from 16% to 29%.The results were statistically insignificant for Group A and Group B.

In Group C

Maximum relief was observed for inflammation (76.19%) and Acne due to allergy (75%)

in Group C. For other symptoms also the results were encouraging with relief percentage above 50%. Statistically highly significant improvement was observed for all the symptoms (Itching, Burning, Redness, Inflammation, Acne, Photosensitivity, wheal formation, *Shonit dushti lakshan* and *Tod*) except hyperpigmentation for which the results were insignificant as the number of patients was very less.

Discussion:-

- The overall result was best when both external and internal medication was administered as in Group C.
- The concept of *Dushivisha* is the most important and unique concept of *ayurveda* which can be directly co-related with allergy. *Dushivisha* has been described In (Su. Ka.2/25-26) by *Acharya Sushruta*. According to him when a person is afflicted by artificial or natural toxins, he is treated with antitoxic treatments.
- Regarding *dhatudushti, Chakrapani* has commented that "*Dushivisha*" vitiates the *dhatus* after the lapse of a long time upon obtaining favorable conditions. Explaining further, *Sushruta* has mentioned that "when causative factors like *desha* (place), *kala* (time), *anna* (diet) and *divaswapna* (day sleep) are favourable for *dushivisha*[12], it will become more potent vitiating *dhatus* leading to the manifestation of a disease." tatistically which were highly significant.
- ***Kandu*/ itching:** This sign was relieved by 27.27% in group A,by 21.05% in group B and by 52% in Group C. Obviously the results in Group C were highly significant which shows that best results are found when the drug is administered internally as well as externally.
- ***Daha*/burning** : As far the daha was concerned relief in this symptom was 29.41% in Group A, 25% in group B and 70.59% in group C. This finding also showed that the results are encouraging when a combined therapy (external as well as internal) is given to the patients. The results for Group C are highly significant.
- **Redness/erythema:** The percentage of relief in redness observed in group A was 31.58%, group B was 22.22% and in Group C it as 68.42%. The statistical analysis showed highly significant result in group C.
- ***Soth*/inflammation:** This sign was relieved by 38.89% in group A,by 29.41% in group B and by 76.19% in Group C. Better results are found in case of oral administration of the drug but the best results are found in Group C, which are highly significant.
- **Acne due to allergy:** *Pidika* is one of the cardinal symptom of the allergic skin problems. In this study, this symptom was relieved up to 50% in group A and 37.50% in group B. It was 75% in Group C, hence it can be said that oral administration had better results than external application, but the combined therapy gave the best results which are highly significant.
- **Photosensitivity:** The photosensitivity was relieved by 20% in group A, 16.67% in group B and 70% in Group C. The result was highly significant in Group C, while the individual applications were not much effective.
- **Hyperpigmentation:** The percentage of relief in hyperpigmentation observed in group A was 37.50%, group B was 20% and 83.33% in group C. Though the relief percentage in Group C is very high, it is statistically insignificant as due to very few number of patients the sample size was very small.
- **Wheal formation (elevated skin lesions):** This sign was relieved by 30% in group A, by 22.73 % in group B and by 70.37% in Group C. The results were highly significant in Group C.
- ***Shonit dusti lakshan*:** The symptoms of *shonit dusti* were relieved by 35% in group A, by 25% in group B and by 66.67% in group C. The results were statistically highly significant.
- ***Tod*:** The relief percentage in burning sensation on the lesions in group A was 45.45%, group B was 37.50 and 60% in group C. The statistical analysis showed highly significant result in Group C.

Conclusion :

Complete remission was noted in 77.78% of patients in group C and marked improvement was noted in 62.5% of patients in group A and 50% of patients in group B. Moderate improvement was noted in 62.5% of patients in group A and 50% of patients in group B while the patients who remained unchanged were 37.5% in group A and 50% in Group B. It can be inferred from the results that the oral administration of the medicine had a good effect on the patients as compared to the *lepa* of *Siddharthakadi Agad*. The combined effect (when both external and internal medication was administered) i.e. in group C gave the best results, statistically which were highly significant.

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Clinical Study

"Effect of *Moorchita Tila Taila Shamana Sneha* and *Navaka Guggulu* in Hyperlipidemia" A Comparative Clincial Trial

*Dr. Sidram Guled, **Dr Kiran kumar Mutnali, ***Dr S G Mangalagi, ****Dr. Mrs. Jyoti S. Guled

Abstract:

Hyperlipidemia is one such disorder which is identified as potential risk factor for multitudes of diseases like cardiovascular diseases, metabolic syndrome and even hypertension. This is mainly due to interplay of various lifestyles, genetic and environmental factors which have altered over the years due to modernization. Though modern antihyperlipidemic drugs are available, but they have their own potential adverse effects. Present study was undertaken to reduce the increased levels of lipids in the blood and complications of hyperlipidemia using herbs that have minimal adverse effects. The present study was intended to evaluate the comparative effect of *Moorchita tila taila* as *shaman sneha* and *Navaka Guggulu* in hyperlipidemia. Totally 40 subjects were recruited and randomized equally in two groups, Group A subjects were administered *Moorchita tila taila* and Group B subjects were administered *Navakaguggulu* for one month duration. 12 hours fasting Lipid profile was done before and after the treatment. Data was collected before and after treatment and analyzed using student's 't' test. Study revealed statistically significant results in reduction of lipid levels and body weight.

Keywords: Hyperlipidemia, *Medoroga, Shamana Snehapana, Moorchitatilataila, Navaka Guggulu.*

सारांश–

हाइपरलिपिडाइमिया एक ऐसा विकार है जो हृदय रोगों, मेटाबोलिक सिंड्रोम और यहां तक कि उच्च रक्तचाप जैसी बीमारियों के लिए संभावित जोखिम कारक के रूप में पहचाना जाता हैं। यह मुख्य रूप से विभिन्न जीवन शैली, आनुवांशिक और पर्यावरणीय कारकों पर आधारित है, जो आधुनिकीकरण के कारण बदल गए हैं। हालांकि आधुनिक एंटीहाइपरलिपिडेमिक दवाएं उपलब्ध हैं, लेकिन उनके पास अपने संभावित प्रतिकूल प्रभाव हैं। हाइपरलिपीडाइमिया के रक्त और जटिलताओं में लिपिड के बढ़े हुए स्तर को कम करने के लिए वर्तमान अध्ययन का इस्तेमाल किया गया था जिसमें कम प्रतिकूल प्रभाव पड़ने वाले दवाएं हैं। इसलिए, हाइपरलिपिडेमिया में मूर्च्छित तिल तैल के रूप में शमन स्नेह और नवक गुगुलु के तुलनात्मक प्रभाव का मूल्यांकन करने के लिए वर्तमान अध्ययन का इरादा था। पूरी तरह से 40 रोगियों का चयन किया गया और दो समूहों में समान रूप से विभाजित किया गया, ग्रुप ए को एक महीने की अवधि के लिए मूर्च्छित तिल तैल और ग्रुप बी के साथ नवक गुग्गुलु दिया गया। 12 घंटे उपवास अवस्था में लिपिड प्रोफाइल इलाज के पहले और बाद में किया गया था। अध्ययन के पहले और बाद में विश्लेषण किया गया। अध्ययन ने लिपिड स्तरों और शरीर के वजन में कमी के आंकड़ों के महत्वपूर्ण परिणाम दिखाए।

*Reader, Department of Kayachikitsa, SDM trust's Ayurvedic Medical College, Terdal, Bagalkot, **Reader, Department of Kayachikitsa, KLE University Shri.B.M.KankanawadiAyurveda Mahavidyalaya, PG Studies and Research Centre, Shahapur, Belagavi, Karnataka, ***Sri Sri College of Ayurvedic Sciences & Research, Bengaluru, ****Reader, Department of Panchakarma, SDM trust's Ayurvedic Medical College,Terdal, Bagalkot

Clinical Study

"Effect of *Moorchita Tila Taila Shamana Sneha* and *Navaka Guggulu* In Hyperlipidemia" A Comparative Clincial Trial

Dr. Sidram Guled, Dr Kiran kumar Mutnali, Dr S G Mangalagi, Dr. Mrs. Jyoti S. Guled

Introduction:

Acharya Charaka states that "A physician should not be embarrassed if he is unable to name a disease as each and every disease cannot be named".[1] This quotation fits best for today's era where arrays of newer diseases come into foreground. This is mainly due to the interplay of various lifestyles, genetic and environmental factors which have altered over years. Man has adopted himself to the fast paced life by modifying his dietary and lifestyle preferences to suit the modern era. This has resulted in a discrepancy between external environment and his internal mechanism causing multitudes of diseases which are popularly referred as lifestyle diseases.

Hyperlipidemia is one such disorder which is identified as potential risk factor for cardiovascular diseases, metabolic syndrome and even hypertension. Hyperlipidemia term is used to denote raised serum levels of cholesterol or triglycerides or both.[2] Nikolai Anitschkow in 1912 discovered the role of cholesterol in atherogenesis.

Though there is no precise terminology for Hyperlipidemia mentioned in the ayurvedic classics, various scholars have tried to use distinct nomenclature for the same like *Rasagatasnehavriddi, Rasaraktagatasnehavriddi, Medovriddi, Medoroga, Ama Medodhatu* etc. A detailed study of Hyperlipidemia reveals its similarity to *asthayimedo-dhatuvriddi* on the basis of pathophysiology. According to recent studies in American Heart Association conducted during 2005-06; for every 1% reduction in lipid level, the risk of heart diseases reduces to 2.5%.

Development of dietary and therapeutic approaches to lower the lipid levels has been a continuous process amongst the scientific fraternity. Apart from synthetic drugs like clofibrates, statins etc., there are efforts to find out herbal drugs possessing lipid lowering activities. Today, there is a need for an ayurvedic practitioner to be equipped with an effective tool to manage the situation.

Objectives of the study:

- To evaluate the effect of *Moorchitatilataila-shaman sneha* in Hyperlipidemia
- To evaluate the effect of *Navakaguggulu* in Hyperlipidemia.
- To compare and assess the effect of both drugs.

Materials And Methods

Materials:

1. *Moorchitatilataila*
2. Tab. *Navakaguggulu*

Methods:

Source of data:

The patients of either sex diagnosed to be suffering from hyperlipidemia were selected from the OPD, IPD and special camps conducted in GAMC and Hospital, Mysore.

Study design: Comparative Clinical Trial

Inclusion criteria:

- Subjects of either sex were selected for the study
- Subjects above 18 years with increased serum lipidswere selected
- Both obese and non-obese subjects were included

Exclusion criteria:

- Subjects suffering from secondary hyperlipidemia were excluded

- Subjects who were unfit for *snehapana* therapy were excluded
- Subjects with major systemic disorders, which interfere with the present study treatment, were excluded.

Diagnostic criteria:

- The diagnosis was based on the serological investigation, viz. serum lipid profile

Investigations:

- Routine investigations for Blood, urine were done.
- Specific investigation – Serum lipid profile (12 hours fasting sample) was done.

Parameters of the study:

- Parameters include the lipid profile picture done before and after the treatment
- Data was collected before commencement of treatment and after the completion of treatment. It was compared and analyzed for the improvement, and the results were statistically analyzed by using student's't' test.

Interventions:

The patients were randomly divided into two groups consisting of 20 patients in each group.

For Group A:

- *Moorchitatila Taila* 15 ml twice daily before food with warm water for 30 days

For Group B:

- *Navaka Guggulu* in tablet form 500mg, one tablet thrice daily after food for 30 days

Assessment criteria:

Assessment of effect of *Tila Taila Shaman Sneha* and *Navaka Guggulu* on serum lipid profile was done by pre and post test values of serum lipid profile by analyzing statistically. The data was collected and analyzed. The total score before treatment and after treatment was assessed statistically by using independent sample 't' test, paired sample 't' test, descriptive statistics and repeated measure 'ANOVA'. Analysis was considered by SPSS for windows.

Results:

Results on body weight: In Group A, treated with *Moorchita Tila Taila* there was a decrease of 1.7kgs of weight after 1 month of treatment. In Group B, treated with *Navaka Guggulu* there was a decrease of 1.65 kgs of weight after 1 month of treatment. P value for overall change from pre to post test is 0.000 which is highly significant. P value changes with respect to groups was 0.913 which was non-significant. (Table No. 1)

Results on Total cholesterol: In Group A, treated with *Moorchita Tila Taila* the mean of Total cholesterol before the treatment was 221.26, which was decreased to 196.162 so that mean decrease of total cholesterol from pre to post test was 25.098. In Group B, treated with *Navaka Guggulu* the mean of Total cholesterol before the treatment was 212.805, which was decreased to 198.5375 so that mean decrease of total cholesterol from pre to post test was 14.2675.P value for overall change from pre to post test is 0.002 which is highly significant. P value changes with respect to groups was 0.359 which was non-significant.(Table No. 2)

Results on LDL cholesterol: In Group A, treated with *Moorchita Tila Taila* the mean of LDL cholesterol before the treatment was 133.44, which was decreased to 119.21 so that mean decrease of LDL cholesterolfrom pre to post test was 14.23. In Group B, treated with *Navaka Guggulu* the mean of LDL cholesterol before the treatment was 117.94, which was decreased to 114.81. So that mean decrease of LDL cholesterol from pre to post test was 3.13. P value for overall change from pre to post test is 0.115 which is non significant. P value change with respect to groups was 0.309 which was non-significant. (Table No. 3)

Results on VLDL cholesterol: In Group A, treated with *Moorchita Tila Taila* the mean of VLDL cholesterol before the treatment was 50.16, which was decreased to 35.30. So that mean decrease of VLDL cholesterol from pre to post test was 14.85. In Group B, treated with *Navaka guggulu* the mean of VLDL cholesterol before the treatment was 49.84, which was decreased to 45.60. So that mean decrease of VLDL cholesterol from pre to post test was 4.24. P value for overall change from pre to post test is 0.002 which is highly significant. P

value change with respect to groups was 0.077 which was non-significant. (Table No. 4)

Results on HDL cholesterol: In Group A, treated with *Moorchita Tila Taila* the mean of HDL cholesterol before the treatment were 40.31, which increased to 40.71. So that mean increase of HDL cholesterol from pre to post test was 0.405. In Group B, treated with *Navaka guggulu* the mean of HDL cholesterol before the treatment was 43.77, which was decreased to 42.07. So that mean decrease of HDL cholesterol from pre to post test was 1.7.P value for overall change from pre to post test was 0.596 which is non-significant. P value change with respect to groups was 0.389 which was non-significant.(Table No. 5)

Results on Chol:HDL ratio: In Group A, treated with *Moorchita Tila Taila* the mean of Chol:HDL ratio before the treatment was 5.85, which was decreased to 4.95. So that mean increase of Chol:HDL ratio from pre to post test was 0.90. In Group B, treated with *Navaka Guggulu* the mean of Chol:HDL ratio before the treatment was 4.95, which was decreased to 4.92. So the mean decrease of Chol:HDL ratio from pre to post test was 0.02. P value for overall change from pre to post test was 0.075 which is non-significant. P value change with respect to groups was 0.095 which was non-significant. (Table No. 6)

Results on Triglycerides: In Group A, treated with *Moorchita Tila Taila* the mean of Triglycerides before the treatment was 250.06, which was decreased to 185.52. So that mean increase of Triglycerides from pre to post test was 64.54. In Group B, treated with *Navaka Guggulu* the mean of Triglycerides before the treatment was 254.56, which was decreased to 236.85. So that mean decrease of Triglycerides from pre to post test was 17.71. P value for overall change from pre to post test was 0.004 which is highly significant. P value change with respect to groups was 0.086 which was non-significant. (Table No. 7)

Results on individual type of hyperlipidemia: In Group A, treated with *Moorchita Tila Taila* of total cholesterol in Hypercholesterolemia patients before the treatment was 225.48, which was decreased to 197.1, mean of Triglycerides in Hypertriglyceridemia patients before the treatment was 301.48 which was decreased to 210.95. In Group B, treated with *Navaka Guggulu* the mean of Total cholesterol in Hypercholesterolemia patients before the treatment was 248.52, which was decreased to 198.78, mean of Triglycerides in Hypertriglyceridemia patients before the treatment was 316.46 which was decreased to 316.36.

Discussion:

Most numbers of patients (42.5%) were from the age group of 51-60 years, 60% were females and all were married. Maximum patients belonged to *Kaphavata Prakriti* (45%); 37.5% were home maker by occupation; 45% patients had completed only high school; 77.5% patients belonged to urban area; 67.5% patients were new cases; 40% patients belonged to upper middle class; 52.5% patients were taking moderate quantity of food; 57.55 patients were having the habit of day sleep and 72.5% patients were not having any other habits.

In *nidanas*, *ahara* dominant in *madhura rasa, guru* and *snighda Guna* was predominantly consumed. Consumption of fried and bakery products was found extensively. Among *vihara*, *divaswapna* and *avyayama* were found in maximum patients. High number of patients displayed insidious onset, negative family history of Hyperlipidemia. Maximum females had attained menopause. Most of them showed symptoms of weight gain*, angagourava* and *dourbalya*.

On the overall assessment of the therapy, *Moorchita tila taila* revealed a better effect on almost all the parameters of lipid profile as compared to *Navaka Guggulu*. Study showed statistically highly significant results in reduction of body weight, total cholesterol, triglycerides and Chol:HDL ratio.With reference to reduction of LDL cholesterol and increase of HDL cholesterol study showed statistically non-significant results.

When we compare both the groups statistically for the significance with respect to groups, the change was insignificant. But when we analyzed individual results, Group A treated with *Moorchita tila taila* expressed better results.

The results shown by *Moorchita Tila Taila* can be attributed to its *Medohara* properties like

ushna, teekshna, sookshma, vyavaya Guna and *Madhura, Kashaya* and *Tikta rasa, ushnaveerya* which are *Kaphavata shamaka*.[3] *Snehapana* through *tila taila* stimulates bile synthesis and secretion while *Navaka Guggulu* effect can be mainly attributed to *vatakapha* and *medohara* properties. In modern parlance the efficacy can be understood through increased catabolism of plasma LDL cholesterol and increased hepatic binding sites for LDL. Whereas other ingredients like *triphala*, *trikatu* and *trimada* of *Navaka Guggulu* are helpful to counteract the increased body weight.[4]

Conclusion:

Hyperlipidemia is one of the major modifiable risk factor for atherosclerotic diseases like CAD, stroke etc. A precise reference of hyperlipidemia is not available in Ayurveda but it can be understood in terms of *medoroga*. Maximum numbers of patients were asymptomatic which shows presence of signs and symptoms in Hyperlipidemia being very rare. *Shamana snehapana* can be safely carried out in patients of Hyperlipidemia.Both the groups treated showed reduction in serum Total cholesterol, Triglycerides, LDL-C, VLDL-C and Chol:HDL ratio and Group A showed slight increase in HDL levels. Comparing both the groups, group A treated with *Moorchita tila taila* showed better results in terms of reducing serum lipid values than group B.

List of Tables:

Table No. I showing results on body weight

	Pre-test mean	Post-test mean	Mean difference
Group A	78.05	76.35	1.7
Group B	71.60	69.95	1.65

Table No. II showing results on Total cholesterol

	Pre-test mean	Post-test mean	Mean difference
Group A	221.26	196.16	25.098
Group B	212.80	198.53	14.26

Table No. III showing results on LDL

	Pre-test mean	Post-test mean	Mean difference
Group A	133.44	119.21	14.23
Group B	117.94	114.8	3.13

Table No. IV showing results on VLDL

	Pre-test mean	Post-test mean	Mean difference
Group A	50.16	35.30	14.85
Group B	49.84	45.60	4.24

Table No. V showing results on HDL

	Pre-test mean	Post-test mean	Mean difference
Group A	40.31	40.71	0.40
Group B	43.77	42.07	-1.7

Table No. VI showing results on Triglycerides

	Pre-test mean	Post-test mean	Mean difference
Group A	250.06	185.52	64.54
Group B	254.56	236.85	17.71

Table No. VII showing results on Chol:HDL ratio

	Pre-test mean	Post-test mean	Mean difference
Group A	5.85	4.95	0.90
Group B	4.95	4.92	0.02

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Clinical Study

A Fundamental and Clinical Study of *Vishesha-Siddhanta* With Special Reference To *Amlapitta*

*Dr. Pallavi Dixit, **Dr. Govind Pareek, ** Dr. Shweta Dewan

Abstract:-

Background: *Amlapitta* is a burning problem of today's society. It has given rise to many other serious diseases. Nowadays there is a drastic change in life style of mankind in all aspects due to modernization and industrialization. It has resulted in *agnimandya* and ending in *amlapitta* related symptoms such as acid eruption and heartburn etc. According to *vishesha-siddhanta; vishesha dravya* are given in *amlapitta* disease to decrease the vitiated *pitta dosha.* **Aims and Objectives:** To study the fundamental principle of **"***vishesha-siddhanta***"** involved in the treatment of *amlapitta* disease. **Materials and Methods:** In this clinical study we had randomly allocated 45 patients in to three groups. Group *Aamalaki Churana (dravyavishesha),* Group B *Yashtimadhu Churana (gunavishesha)* and Group C *Trivrut Churana (karma vishesha)* were selected for the comparative and target based study in management of *amlapitta* disease. All the patients were reviewed after 15 days for a period of 2 months. During the trial and follow up study, patients were assessed on the basis of subjective improvements. **Result:** Group A had statistically significant improvement than Group B and Group C. **Conclusion:** Single drugs which have *vishesha* action on vitiated *pitta dosha,* according to *vishesha-siddhanta* can be used in the management of *Amlapitta*.

Key Words- *Amlapitta, Vishesha, Pitta, Amalaki, Yashtimadhu, Trivrut*

सारांश–

पृष्ठभूमि: अम्लपित्त आज के समाज की एक ज्वलन्त समस्या हैं तथा यह अनेक व्याधियोको जन्म देता हैं वर्तमान समय में मानव की जीवन शैली में आधुनिकीकरण व औद्योगीकरण के कारण बहुतायात में परिवर्तन हुए हैं। जिसके परिणाम स्वरूप पित्त प्रकुपित होकर, अग्निमान्द्य करते हुए अम्लपित्त उत्पन्न कर देता हैं विशेष सिद्धान्त के अनुसार विशेष एकल औषधियों का चुनाव किया गया हैं जो कि पित्त की अवस्था विशेष के अनुसार विशिष्ट लक्षणो पर विशिष्ट प्रभाव रखती हैं। **लक्ष्य और उद्देश्य:** आयुर्वेदिय मौलिक सिद्धांत विशेष–सिद्धान्त का अध्ययन करने के लिए अम्लपित्त रोग के उपचार में शामिल करना। **सामग्री और तरीके :** इस चिकित्सीय अध्ययन में हमने क्रमरहित 45 रोगीयों को तीन समूहों में आवंटित किया। समूह A आमलकीचूर्ण (द्रव्यविशेष), समूह B यष्टिमधु चूर्ण (गुणविशेष) और समूह C त्रिवृत चूर्ण (कर्मविशेष) का तुलनात्मक अध्ययन अम्लपित्त व्याधि पर किया गया हैं सभी रोगियों को 2 महीने की अवधि के लिए 15 दिनों के बाद समीक्षा की गई। परीक्षण के दौरान, अनुवर्ती रोगियों के अध्ययन के आधार पर व्यक्तिपरक सुधार का मूल्यांकन किया था। **परिणाम:** समूह A मे समूह B और समूह C की तुलना में निष्कर्ष सांख्यिकीय के आधार पर महत्वपूर्ण सुधार था। **निष्कर्ष:** विशेष सिद्धान्त के अनुसार विशेष एकल औषधियों का चुनाव किया गया हैं जोकि पित्त की अवस्था विशेष के अनुसार विशिष्ट लक्षणो पर विशिष्ट प्रभाव रखती हैं उनका प्रयोग अम्लपित्त रोग में किया जा सकता हैं।

*M.D. Scholar, Mo. No.- 08058282420, Email id – dixitpallavi17@gmail.com **Assistant Professor, Mo. No.- 09251495571, Email id – govindd77@gmail.com *** M.D. Scholar, Mo. No.- 09785719221, Email id – arorau51@yahoo.com P.G. Department of Maulika Siddhanta And Samhita, NIA, Jaipur, Rajasthan, 302002

Clinical Study

A Fundamental and Clinical Study of *Vishesha-Siddhanta* With Special Reference To *Amlapitta*

Dr. Pallavi Dixit, Dr. Govind Pareek, Dr. Shweta Dewan

Introduction:-

Every science is based on its own basic principles and on these basic principles that science gets elaborated. Ayurveda science is also based on the various fundamental principles. Fundamental principles of *Ayurveda*have significant value even in the life of modern man. Several seers have tested these principles for many years and then these principles have got a place in classics.[1] Out of these principles "*samanya-vishesha-siddhanta"* is one of the most important fundamental principle.[2]

Disease *amlapitta* has very long history. *Bruhattrayi (Charaka Samhita,*[3] *Sushruta Samhita,*[4] *Ashtangahrudya*[5]*)* have given some references about *amlapitta*as a symptom but *Kashyapa* has first of all mentioned *amlapitta* as a disease in a separate chapter in *Kashyapa-Samhita* and he has also mentioned *manasikabhava* (psychological factors) as a chief cause of this diseaseas well as the analysis of[6] *amlapitta* on the basis of *dosha*has been described. After that *Madhava-nidana,*[7] *Yogaratnakara,*[8] *Bhavaprakasha,*[9] *Chakradatta*[10] and *Rasaratna-samuccaya* have also mentioned *amlapitta* disease. *Acharya Madhavakar* has given detailed description about this disease including classification of the same according to *gati* i.e. *Urdhvaga* and *adhogaamla Pitta* and *chikitsa* of *amlapitta* has been described by *Bhavamishra*.

Acharya Charaka and *Kashyapa* have clearly indicated that *grahanidosha* and *Amlapitta* occur in the persons who are careless in intake of food. The *nidanasevana* create *mandagni* and due *to mandagni, ajirna* is developed and it leads to *amavisha* production. This *amavisha* mixed with *pittadidosha* accumulate in *amashaya* then it produces the *amlapitta* disease.[11]

According to *vishesha-siddhanta; vishesha-dravya* are given in *amlapitta* to decrease the vitiated *pitta dosha*. This study was helped to establish and implement of the *vishesha-siddhanta*. In this clinical study we had selected single drugs which had *vishesha* action on *pitta.* Therefore for the comparative study of *Amalaki Churana* (Emblica-officinalis) which has *Dravya Vishesha* property*, Yashtimadhu Churana* (Glycyrrhizaglabra) which has *Guna Vishesha* property*, Trivrut Churana* (Operculinaturpethum) which has *karma vishesha* property were selected for the management of *amlapitta*. Here the fundamental principle was specifically studied to see its clinical aspect in the management of the *amlapitta*.

Aims and objectives:-

The research work was started with following objectives

1. To study the fundamental principle **"***vishesha-siddhanta***"** involved in the treatment of *amlapitta*.
2. To collect and analyze the study material of *amlapitta* in classics as well as modern science.
3. To evaluate the effect of *Amalaki Churana (dravyavishesha), Yashtimadhu Churana (gunavishesha), Trivrut Churana (karma vishesha)* in the management of *Amlapitta*.

Material and Methods:-

For present study, two types of materials and methods were utilized as furnished below:

1) Literary materials and methods:-

a) All literature regarding *amlapitta* and *"samanya-vishesha-siddhanta"* were referred from available authentic books with their available commentaries and other literature.

b) Articles from journals and papers possessing the concern topic.

c) Allied literature from internet.

d) Lexical medical literature.

2) Clinical material and methods:-

a) Patients:- Patients were fulfilled all the selection criteria (inclusion and exclusion), visiting the OPD'S of *NIA* hospital and *Bombaywala* Hospital jaipur.

b) Laboratory:- Assistance taken from central lab of NIA hospital.

c) Drug:-Drugs like *Amalaki, Yashtimadhu* and *Trivruta* were purchased and prepared through pharmacy of *NIA, Jaipur*.

Inclusion Criteria:-

1. Patients of the age group 16yrs to 60yrs
2. Patients of either sex were considered.
3. Patients were presenting the classical features which contain in text of *Ayurveda* of *Amlapitta*.

Exclusion Criteria:-

1. The patients who were suffering from systemic disorder and structural disorder.
2. Patients were suffering from any other diseases with *amlapitta*
3. Known Patients of both Duodenal and Peptic ulcers and acute Stages.
4. Chronic smokers and alcoholic patients.
5. Chronic consumers of NSAID's and other drugs as in diseases like Osteo-arthritis and Rheumatoid arthritis etc.
6. Pregnant women were excluded from the study.

Clinical study:-

Clinical study had been done as under:

Sample of Patient

3 samples consisting of 15 patients in eachwere selected according to the selection criteria from the OPD'S of *NIA* hospital and *Bombaywala* Hospital jaipur.

Table No. I Drug Schedule

Grp	Name of the Drugs[12]	*Anupan*[13]	*Matra*	*Aushadha Kal*[14]	Duration
1st	***Amalaki (Dravyavishesha)***	*Shrutashita Jala*	*Ardhakarsha* in two divided dose (3gm B.D.)	*Madhya bhakta*	For two months
2nd	***Yashtimadhu (Gunavishesha)***	*Shrutashita Jala*	*Ardhakarsha* in two divided dose (3gm B.D.)	*Madhya bhakta*	For two months
3rd	***Trivruta (Karma vishesha)***	*Shrutashita Jala*	*Ardhakarsha* in single dose (6gm O.D)	*Nisha-kala*	For two months

Follow Up

All the patients were reviewed after each 15 days for a period of 2 months. During the trial and follow up study the patients were assessed on the basis of subjective improvements.

Discussion about observation and result:-

In this clinical study majority of the patients (53.33%) were in age group of 16-30 years.It indicates that middle age shows dominancy of *pitta dosha*. Maximum patients (53.33%) were female. It might be because of most of the female patients randomly participated in this work and due to the consumption of fast food and also variable stress conditions. Maximum patients were(93.33%) Hindu The main cause of this finding was that, patients were selected from N.I.A., populations residing around it are mostly Hindu. Maximum patients (33.33%) were graduates. This is the period in life in which persons get exposed to variety of stresses *(chinta)* andstress is major cause of many disorders and *amlapitta* is one of them. Maximum numbers of patients (62.22%) were consuming tea. It indicates *Ushna, Tikshna* and *Drava Guna* of tea is cause of *Pitta Vruddhi*. Maximum patients were 68.88% taking meal twice a day, 48.88% patients were fond of *Amla, Lavana, Katu Rasa Pradhana* diet. Maximum 40% patients were taking *Ushna, Tikshna* diet and 40% *Drava,*

snigdha and *guru* diet. 75.55% patients were taken food from hotels regularly. Maximum patients (100%) were habituated with improper diet styles like *Viruddhashana, Samashana*, *Vishamashana* and *adhyashana*. All these observations indicate towards the faulty dietary habits and negligence towards the code and conduct of food intake. Secondly, these were also the causative factor for the vitiation of *agni*; leading to *agnimandya* and finally terminating in to unhealthy condition. *Mandagni* were assessed in maximum patients (57.77%). *Mandagni* is main cause of *amlapitta* disease. Maximum patients (68.88%) were of *mrudukoshtha*. It indicates, condition of *dosha* in *mrudu Koshtha* is *udirna pitta, alpakapha* and *mandamaruta*. On examining the *sharira prakruti* it was revealed that maximum patients (44.44%) were of *kapha-pittaja* and *vata pitta prakruti*. It indicates that especially *pitta prakruti* patients are more prone to *amlapitta*. On examining the *manasa prakruti*, it was revealed that maximum patients (55.55%) were of *rajasa*. In practice, it is also observed that *rajasa prakruti* people are more inclined towards enjoyment of eating and worldly pleasures.

Subjective improvements

Table–II *Avipaka*

	Group A (Mean±S.E.M.)	**Group B** (Mean±S.E.M.)	**Group C** (Mean±S.E.M.)	**Kruskal-Wallis statistic**	**P Value**	**Significant?**
BT	2.67±0.1259	2.6±0.1309	2.73±0.118	22.23	<0.0001	Yes(ES)
AT	0.67±0.2323	1.93±0.2062	1.67±0.303			
Diff	2±0.2330	0.67±0.2519	1.06±0.315			
Diff %	75	25.64103	39.02			
P Value	< 0.0001	0.0545	0.02070			
Kruskal-Wallis statistic	42.01	9.281	11.59			
Significant?	Yes(ES)	NS	Yes(S)			

Table–III *Klama*

	Group A (Mean±S.E.M.)	**Group B** (Mean±S.E.M.)	**Group C** (Mean±S.E.M.)	**Kruskal-Wallis statistic**	**P Value**	**Significant?**
BT	2.67±0.1259	2.933±0.0667	2.8±0.1069	16.29	0.0003	Yes(ES)
AT	0.6±0.16329	2.2±0.2	2±0.1951			
Diff	2.067±0.2281	0.73±0.2062	0.8±0.174			
Diff %	77.5	25	28.57			
P Value	< 0.0001	0.0048	0.0034			
Kruskal-Wallis statistic	48.28	14.97	15.76			
Significant?	Yes(ES)	Yes(HS)	Yes(HS)			

Table–IV *Utklesha*

	Group A (Mean±S.E.M.)	**Group B** (Mean±S.E.M.)	**Group C** (Mean±S.E.M.)	**Kruskal-Wallis statistic**	**P Value**	**Significant?**
BT	2.733±0.1181	2.733±0.1181	2.8±0.1069	9.749	0.0076	Yes(HS)
AT	1.867±0.1333	2.267±0.2062	1.467±0.2152			
Diff	0.8667±0.1652	0.467±0.1332	1.333±0.2108			
Diff %	31.71	17.073	47.61			
P Value	0.0014	0.3241	< 0.0001			
Kruskal-Wallis statistic	17.70	4.659	28.11			
Significant?	Yes(HS)	NS	Yes(ES)			

Table–V *Tiktamlodgara*

	Group A (Mean±S.E.M.)	**Group B** (Mean±S.E.M.)	**Group C** (Mean±S.E.M.)	**Kruskal-Wallis statistic**	**P Value**	**Significant?**
BT	2.6±0.1309	2.667±0.1259	2.667±0.1259	3.915	0.1412	NS
AT	1.733±0.2481	1.13±0.1918	1.533±0.2363			
Diff	0.867±0.2363	1.53±0.2557	1.133±0.2152			
Diff %	33.33	57.5	42.5			
P Value	0.0454	< 0.0001	0.0010			
Kruskal-Wallis statistic	9.722	39.60	18.53			
Significant?	Yes(S)	Yes(ES)	Yes(HS)			

Table–VI *Gourava*

	Group A (Mean±S.E.M.)	**Group B** (Mean±S.E.M.)	**Group C** (Mean±S.E.M.)	**Kruskal-Wallis statistic**	**P Value**	**Significant?**
BT	2.66±0.1259	2.667±0.1259	2.667±0.1259	1.33	0.0035	Yes(HS)
AT	1.8±0.2225	2.4±0.19023	1.33±0.2702			
Diff	0.86±0.2363	0.26±0.1532	1.33±0.23231			
Diff %	32.5	10	50			
P Value	0.0085	0.8886	0.0007			
Kruskal-Wallis statistic	13.64	1.135	19.27			
Significant?	Yes(HS)	NS	Yes(ES)			

Table–VII *Hrutkanthadaha*

	Group A (Mean±S.E.M.)	**Group B** (Mean±S.E.M.)	**Group C** (Mean±S.E.M.)	**Kruskal-Wallis statistic**	**P Value**	**Significant?**
BT	2.8±0.1069	2.6±0.1309	2.667±0.1259	6.930	0.0313	Yes(S)
AT	1.867±0.2152	0.867±0.1918	1.67±0.2138			
Diff	0.933±0.181703	1.73±0.2062	1.067±0.20625			
Diff %	33.33	66.67	40			
P Value	0.0016	< 0.0001	0.0008			
Kruskal-Wallis statistic	17.37	40.42	18.88			
Significant?	Yes(HS)	Yes(ES)	Yes(ES)			

Table–VIII *Aruchi*

	Group A (Mean±S.E.M.)	**Group B** (Mean±S.E.M.)	**Group C** (Mean±S.E.M.)	**Kruskal-Wallis statistic**	**P Value**	**Significant?**
BT	2.6±0.1309	2.66±0.1259	2.667±0.1259	1.063	0.4486	NS
AT	1.53±0.2152	2.13±0.1652	1.733±0.2481			
Diff	1.067±0.2839	0.533±0.1333	0.93±0.26667			
Diff %	41.025	20	35			
P Value	0.0010	0.1132	0.0088			
Kruskal-Wallis statistic	18.50	7.466	13.56			
Significant?	Yes(HS)	NS	Yes(HS)			

NS= Non-Significant, S= Significant, HS= Highly Significant, ES= Extremely Significant

Discussion about subjective improvements:-

***Avipaka*(Indigestion), *Aruchi* (Anorexia) and *Klama* (Fatigue):-**.

In group A we had selected *amalaki churana*. *Amalaki churana* had highly significant result in symptoms of *avipaka, aruchi* and *klama*. There is reason behind it that *avipaka* and *Aruchi* are due to *kapha dosha* which leads *agnimandya* and *klama* is the *lakshana* of *kapha* and *ama* associated with the *pitta*. *Amalaki has rocana, dipana, hridya* and *tridosha shmaka,* especially *pitta shamaka* property hence it worked on *agnimandya* so that it is very useful in *Avipaka* and *Aruchi*. *Amalaki* is also beneficial in *klama* due to *ama* condition because it has also *medhya rasayana* and *vrishya* property thus it reduced *klama*.

***Tiktamlodgara* (Bitter and sour belching) and *Hritkanthadaha* (Burning sensations of the heart and throat) :-**

In group B we had selected *Yashtimadhu Churana*. *Yashtimadhu Churana* had highly significant result in symptoms of *Tiktamlodgara* and *hrutkanthadaha*. There is the reason behind it that *tiktamlodgara* and *hrutkanthadaha* is due to *ushna tikshna guna* of *pacaka pitta*. *Yashtimadhu* has *glycyrrizic* acid which has fifty timesmore sweetness than sugarhence might be neutralized the gastric acid and got better relief in *tiktamlodgara* and *hrutkanthadaha*. *Yashti madhu* has *madhura rasa, shitavirya* and *shitavipaka* which was subsided the *ushna* and *tikshnaguna* of *pitta* and patients got relieved in *tiktamlodgara* and *hrutkanthadaha*. *Yashtimadhu* has a soothing effect on the gastric mucosa hence it reduced *tiktamlodgara* and *hrutkanthadaha*.

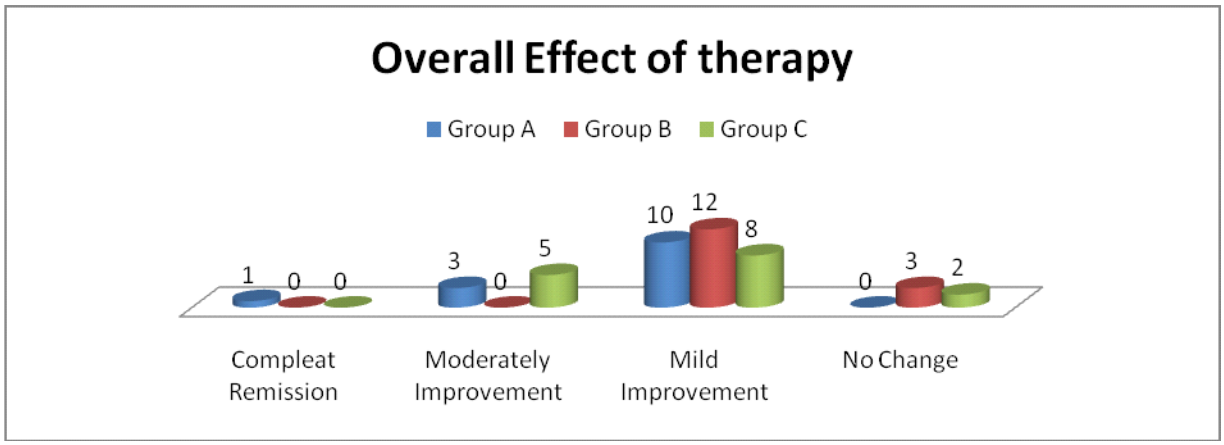
***Utklesha* (Nausea) and *Gaurava* (Heaviness of the body):-**

In group C we had selected *trivrut churana*. *Trivrutchurana* had highly significantresult in symptoms of *utklesha* and *gourava*. There wasthe reason behind it that *utklesha* and *gourava* were found due to *kaphadosha* and increased *pitta vruddhi* due to *dravaguna* of *pitta*. It is also be caused by the formation of the undigested food and the end result of it *Ama* production in all over the body which leads to *gauravata*. *Trivrut* has also *sukhavirecaka, bhedana, recana, shothahara* property *doshaghnata* is *pitta-kaphasanshodhana* so it had acted on *dravaguna* of *pitta* and expelled out *dravaguna* of *pitta* into the body and subsided *utklesha* and *gourava*.

Overall Effect of therapy

Table–IX

Gradation	Group A		Group B		Group C	
	No.of patients	%	No.of patients	%	No. of patients	%
Complete Remission (>75to 99%)	1	6.66%	0	0%	0	0%
ModerateImprovement (>50– 75%)	3	20%	0	0%	5	33.33%
MildImprovement (>25– 50%)	10	66.66%	12	80%	8	53.33%
NoImprovement (0– 25%)	0	0	3	20%	2	13.33%



Result:-

Group A had statistically significant improvement than Group B and Group C.

Conclusion:-

- ✓ *Vishesha-siddhanta* is one of the most important basic principles of *Ayurveda*. According to *vishesha- siddhanta, vishesha* is always the cause of *hrasa* (diminution) in all the beings when it's applied clinically.
- ✓ In present era due to the changed life style like unwholesome dietary habits and involvement of psychological factors in day to day practice causes many serious health problems, *amlapitta* is one of them very common and burning problem for society.
- ✓ *Amalaki* acts on *amla pitta* disease because of its *dravaya prabhava and doshaghnata* of *amalaki* is *tridosha-shamaka,* especially *pitta-shamaka*. According to *Acharya Charaka* drug like *amalaki* balances *dosha and dhatu* in the body.
- ✓ *Yashtimadhu* acted on *ushnaguna* of *pitta* because *ushna guna* has *agnimahabhuta* dominant and *yashtimadhu* which has *jala* and *pruthvi mahabhuta* dominance is opposite to *ushnaguna* (*agnimahabhuta)* of pitta in *amlapitta* disease and *doshaghnata* of *yashtimadhu* is *vata pitta-shamaka* so it had acted on *ushna* guna of pitta and got *pitta shamana* action in *amlapitta*.
- ✓ *Trivruta* acted on *drava guna* of pitta because of *dravaguna* it is *jalamahabhuta* dominant and

trivruta which has *agni* and *vayumahabhuta* dominance, is opposite to *dravaguna* (*jalamahabhuta)* of pitta in *amlapitta* disease and *prabhava* of *trivruta* has *virechaka* and *doshaghnata* is *pittakapha samshodhana* so its acted on *dravaguna* of *pitta* and expelled out *dravaguna* of *pitta* from the body.

- ✓ *Amalaki* was more beneficial in the symptoms of *amlapitta* like *avipaka, klama* and *aruchi*. *Yashtimadhu* was more advantageous in the symptoms of *tiktamlodgara* and *hrutkanthadaha* and *trivruta* was more useful in the symptoms of *utklesha* and *gourava*. Some single drugs are effective on some specific sign and symptom of the disease. So to reduce the number of drugs and to do target based treatment, single drugs are essential.

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Clinical Study

The Effect of *Vamana Karma* with *Kutaja* (*Vatsaka) Beeja Yoga* in the management of *Medoroga* w.s.r to Dyslipidemia

*Dr. S. Sangeeta Sharma, **Dr. Santoshkumar Bhatted

Abstract:

Cardiovascular diseases (CVDs) and diabetes mellitus are major diseases for which dyslipidemia is one of the prime causative factor. Abnormal cholesterol levels are estimated to cause 18% of the global CVDs and 56% of the global Ischemic Heart Diseases (IHD). For every 1% reduction in lipid level, the risk of heart diseases reduces by 2.5%. Dyslipidemia is an established risk factor for atherosclerotic disease.

In *ayurveda* dyslipidemia can be compared to *Medoroga* which is *Santarpanotha Vyadhi* and *Vamana karma* is the preferred line of management. *Vamanakarma* is the best therapy for the elimination of *Kapha Dosha* and related morbid factors. As *Medodhatu* is one of the substance belonging to the category of *Kapha,* in this trial *Vamana Karma* was selected for the treatment of Dyslipidemia. *Kutaja* (*Vatsaka) Beeja churna* was selected for *Vamanakarma* which is indicated mainly in *Kapha* Diseases, heart diseases and similar condition arising out of excessive *Kapha* and *Meda*. So it has been selected for *Vamana Karma* in 15 patients. The results of the trial were highly significant in reducing lipid levels.

Key words:- *Vamana Karma, Medoroga, Santarpanotha Vyadhi, Kutaja Churna,* Dyslipidemia.

सारांश –

हृदय संबन्धित व्याधियाँ, मधुमेह (डायबीटिज) प्रमुख व्याधियाँ है, जिनमें डिस्लिपीडेमिया प्रमुख निदान है। विश्वस्तर पर 18 प्रतिशत हृदय व्याधियाँ केवल कोलेस्ट्रोल के बढ़े हुये स्तर के कारण पायी जाती है। लिपिड स्तर में 1 प्रतिशत की कमी होने पर, 2.5 प्रतिशत हृदय संबन्धित व्याधियो में कमी आती है।

डिस्लिपीडेमिया (मेदोरोग) धमनी प्रतिचय का प्रमुख संभावित लक्षण होता है। आयुर्वेद में डिस्लिपीडेमिया की मेदो रोग से तुलना की जा सकती है। मेदो रोग एक संतर्पणोत्थ विकार है। प्रस्तुत शोध कार्य में डिस्लिपीडेमिया से ग्रसित 15 रोगियों का अध्ययन किया गया है। तथा इस संतर्पणोत्थ व्याधि में इन रोगियों की चिकित्सा हेतु वमन कर्म के लिये कुटज बीज चूर्ण का प्रयोग किया गया है। कुटज बीज चूर्ण द्वारा कराये गये वमन के कारण इन रोगियों में लिपिड के स्तर में संतोषप्रद कमी देखी गयी।

*Ph.D. Scholar, Dept. Of Panchkarma, NIA, Jaipur, **Associate Prof., P.G.Department of Panchakarma, All India Institute of Ayurveda, New Delhi.

Clinical Study

The Effect of *Vamana Karma* with *Kutaja* (*Vatsaka) Beeja Yoga* in the management of *Medoroga* w.s.r to Dyslipidemia

Dr. S. Sangeeta Sharma, Dr. Santoshkumar Bhatted

Introduction:

Dyslipidemia is defined as a condition with abnormally elevated levels of any one or all lipids in the blood. It is one of the disease that resulted due to faulty lifestyle. It is of significance because it leads to atherosclerosis of vessels (arterial walls) leading to Vascular accidents (Cerebrovascular/ Cardiovascular disease). More than half of the Coronary Heart Disease is attributable to abnormalities in the levels and metabolism of Plasma lipids and lipoprotein.

Abnormal cholesterol levels are estimated to cause 18% of the global CVDs and 56% of the global Ischemic Heart Diseases (IHD). For every 1% reduction in lipid level, the risk of heart diseases reduces by 2.5%. Dyslipidemia is an established risk factor for atherosclerotic disease.[1]

Need Of The Study

The available allopathy medication for Dyslipidemia is associated with side effects. So world is looking towards Ayurveda for a safe and effective medication for treatment of Dyslipidemia. Ayurveda through its holistic approach particularly *Panchakarma* which aims at eliminating the basic causative factor and morbid factors involved in the disease. Among *Panchakarma Vamanakarma* is the best therapy for the elimination of *Kapha Dosha* and related morbid factors. As *Medodhatu* is one of the substance belonging to the category of *Kapha,* in this trial *Vamana Karma* was selected for the treatment of Dyslipidemia.

About 355 formulations by using six main drugs with other supporting drugs are described for inducing *Vamana* (Therapeutic Emesis) but clinically mainly *Madanaphala* is used in almost all the conditions. Hence there is need to work on other drugs and formulations which are specific to the underlying disease.

So *Kutaja* (*Vatsaka) Beeja churna* was selected for *Vamanakarma* which are indicated mainly in *Kapha* Diseases, heart diseases and similar condition arising out of excessive *Kapha* and *Meda*.[2]

Aims & Objectives

To evaluate the effect of *Vamana Karma* with *Kutaja* (*Vatsaka) Beeja Yoga* in the management of *Medoroga* w.s.r to Dyslipidemia.

Materials And Methods :

Clinical study materials: 15 patients.

Source of data: Patients indicated and fit for trial were selected from outpatient and inpatient department of *Panchakarma,* National Institute of Ayurveda Hospital, Jaipur.

Drugs used in the trial:

All the medicines were procured from National Institute of Ayurveda Pharmacy, Jaipur. They are *Kutaja Beeja Churna*, *Yashtimadhu* ,*Vacha Churna, Saindhava Lavana, Madhu.*

Diagnostic criteria:

1. Abnormal levels of serum lipid profile.
2. Clinical features of Dyslipidemia and *Medoroga* like *Ashaktaha Sarva Karmasu, Kshudra Shvasa, Svedadhikya, Utsahahani, Angagaurava.*

Inclusion criteria

- Aged between 20-60 yrs.
- Serum lipid levels more than normal ranging from:
  - S.cholesterol (201mg/dl or more)
  - S.Triglycerides (161mg/dl or more)
  - Serum LDL (131mg/dl or more)
  - Serum VLDL (41mg/dlor more)

- Having clinical features of *Medoroga*
- Fit for *Vamana Karma*

Exclusion criteria

- Age below 20 years & above 60 years.
- Associated with serious illness like Carcinoma, Cardiac Failure, Malignant Hypertension.
- Not fit for *Vamana Karma.*

Laboratory investigation

Following investigation were carried out before & after treatment;

- Routine blood investigation.
- ECG to rule out Cardiac Pathology.
- Lipid profile.
- Routine urine analysis.

Methodology :

Procedure : *Vamana Karma*

A. Poorvakarma

Drug for *Deepana Pachana*:- *Panchakola Choorna* 3 gms. twice a day was given before food till *Nirama Lakshanas.*

- ***Shodhananga Snehapana*:** *Moorchita tila Taila* for 3 to 7 days.
- ***Sarvanga Abhayanga* –** *Dashamoola Tailam* & *Mridu Sarvanga Sveda* (*Bashpa Sveda*) was carried out after getting *Samyaka Snigdha Lakshana* for 2 days.

B. Pradhana Karma

Vamaka Yoga - *Kutaja Churna* 6 grams with other conventional drugs like *Yastimadhu* (*Glycerazzhia glabra*), *Vacha* (*Acorus calamus*), *Madhu, Saindhava Lavana.*

C. Paschat Karma

According to *shuddi samsarjana karma* was advised for 3 to 7 days.

Assessment criteria

A) Objective parameters:

Objective criteria were mainly assessed on the basis of biochemical investigations like lipid profile, body weight, BMI ,Waist Hip Ratio, before *Vamana Karma* and after *Vamana Karma* were assessed in terms of percentage relief and statistical evaluations.

B) Subjective parameters:

Signs and symptoms of *Medoroga* were used for symptomatic evaluation for which a multi-dimensional scoring pattern was adopted. The patients were assessed by giving a score before and after *Vamana Karma* according to the severity of the symptoms.

The following four parameters were assessed.

1. Sarva Karmasu Ashaktata
2. Kshudra Shvasa
3. Svedadhikya
4. Dourbalya

Observations and Results:

Data related to Demographic data:

Maximum 40% of patients were from the age group of 41-50 years, 66.6% were female, 93.24% were married, 86.58% were of Hindu religion, 66.6% patients were from urban population, 39.96% were having primary education, 46.62% were house wife's, 53.28% belonged to lower middle class, 79.92% were vegetarian, 73.26% were having *Vishamagni*, 66.6% were having *Madhyama Koshtha*, 46.62% belonged to *Kapha Pitta Prakriti*, 53.28% were having *Madhyama Satva,* 73.26% were of *Avara Samhanana* and 79.92% were of *Avara Saara*. 53.28% were taking *Madhura Rasa Pradhana Ahara,* 79.92% patients were having addiction to tea alone.

Data related to disease:

73.26% Patients were not having the positive family history, 33.3% patients were having chronicity history of above 4 years, maximum 33.33% were having the body weight between 81 to 100 Kg, 39.96% of patients were having BMI between 30 to 34.9, 100% were taking *Snigdha Ahara* (milk products), 66.6% patients were giving history of day sleep, 39.96% were having history of tension, 66.6% were having sedentary life style.

Data related to treatment:

Out of total 15 patients, maximum 66.6% of patients *Deepana Pachana* was given for 3 days, maximum 73.26% patients were administered *Snehapana* for 3 days. Maximum 46.62% of patients had *Snehapana* dose between 301 to 400 ml. *Pittanta Shuddhi* was observed in 60% of patients. *Lainghiki Shuddhi* like *Kale Pravriti* was observed in 39.96% of patients. *Hridaya, Parshva, Murdha,* and *Indriya Shuddhi* was observed in100%. Maximum 53.28% patients had attained *Madhyama Shuddhi*. maximum 66.6% followed *Samsarjana Krama* for 5 days.

Data related to lipid profile:

It was observed that maximum 53.28% patients were having the serum cholesterol level between 200-239 mg/dl, 46.62% patients were having the serum triglycerides range in between 151 to 199 mg/dl and 200 to 499 mg/dl each, 79.92% patients were having the serum HDL range in between 40 to 60 mg/dl, 46.62% of patients were having the serum LDL level between 130-159mg/dl, 46.62% patients were having the serum VLDL level in between 41-80 mg/dl.

Results:

The data obtained in clinical study was subjected to statistical tests and analyzed in two parts:

1) Objective Parameter

2) Subjective Parameter

Statistical Methods:

- Student t test (two tailed, dependent) has been used to find the significance of objective parameters.
- Wilcoxon test was used for the assessment of subjective parameters.

Table No. I: Showing Statistical analysis on objective parameters:

(Lipid profile, Body weight, Body Mass Index, Waist Hip Ratio)

Objective Parameters	N	MEAN		Dif	% change	SD	SE	T	P
		BT	AT						
S. Cholesterol	15	228.40	195.00	33.40	14.62	28.49	7.36	4.54	.0005 ES
S. Triglycerides	15	229.40	154.80	74.60	32.52	65.19	16.83	4.43	.0006ES
S.HDL	15	48.87	47.93	0.93	1.91	10.87	2.81	0.33	.74 NS
S.LDL	15	134.07	117.07	17.00	12.68	27.83	7.19	2.37	.032 S
S.VLDL	15	45.73	29.80	15.93	34.84	15.02	3.88	4.11	.0011VS
Body Weight	15	85.20	80.93	4.27	5.01	1.87	0.48	8.84	<.0001ES
Body Mass Index	15	32.78	31.17	1.61	4.92	0.70	0.18	8.89	<.0001ES
Waist Hip Ratio	15	0.94	0.91	0.03	3.60	0.10	0.02	1.37	.19 NS

The mean cholesterol was 228.40 which was reduced to 195.00(14.62%) after *Vamana* with P=0.0005 which is extremely significant. Serum Triglyceride was 229.40 which was reduced to 154.80 (32.52 %) after *Vamana* with P=0.0006 which is extremely significant. Serum HDL was 48.87 which was reduced to 47.93 (1.91%) after *Vamana* with P=0.74 which is not significant. Serum LDL was 134.07 which was reduced to 117.07 (12.68%) after *Vamana* with P=0.32 which is significant. Serum VLDL was 45.73which was reduced to 29.80 (34.84%) after *Vamana* with P=0.001 which is very significant.

The mean Body Weight (BW) was 85.20 which was reduced to 80.93 (5.01%) after *Vamana* with P<0.0001 which is extremely significant. Mean BMI was 32.78 which was reduced to 31.17 (4.92 %) after *Vamana* with P<0.0001 which is extremely significant. mean WHR was 0.94 which was reduced to 0.91 (3.60 %) after *Vamana* with P=0.19 which is not significant.

Table.No. II : Showing Statistical analysis on subjective parameters: (wilcoxon test):

Subjective Parameters	N	MEAN		Dif	% change	SD	SE	T	P
		BT	AT						
Sarvakarmasu *Ashaktata*	15	1.67	1.07	0.60	36.00	0.51	0.13	45	.003 VS
Kshudra Swasa	15	1.87	1.07	0.80	42.86	0.41	0.11	78	.0005 ES
Svedadhikya	15	2.33	1.47	0.87	37.14	0.35	0.09	91	.0002 ES
Dourbalyata	15	2.20	1.67	0.53	24.24	0.52	0.13	36	.007 VS

The Mean value *Sarva Karmasu Ashaktata* was 1.67 which was reduced to 1.07 (36.00 %) after *Vamana* with P=0.003 which is very significant. The mean value of *Kshudra Swasa* was 1.87 which was reduced to 1.07 (42.86 %) after *Vamana* with P=0.0005 which is extremely significant. The mean value of *Svedadhikya* was 2.33 which was reduced to 1.47 (37.14 %) after *Vamana* with P=0.0002 which is extremely significant. The mean value of *Dourbalyata* was 2.20 which was reduced to 1.67 (24.24 %) after *Vamana* with P=0.007 which is very significant.

Discussion

In the clinical study conducted in 15 patients of dyslipidemia *(Medoroga)* the results after *Vamana Karma* were statistically extremely significant in both objective and subjective parameters.

Vamana karma is one of the classical Bio-Cleansing therapy which eliminates the morbid material, like vitiated *Dosha*, metabolic waste, unwanted excessive accumulated substance from the body. It is specific for *Kapha Dosha* which belongs to the category of *Medo Dhatu* (Fats), there by having its direct effect on Fat tissue which may be one of the reason for reduction in lipid levels, further *Vamana* also corrects *Pitta Dosha* to moderate extent indirectly improves functioning of liver which plays an important role in the lipid metabolism. Hence this may be the second reason for reduction of lipid levels. *Vamana karma* being cleansing in nature may help for the mobilisation of peripheral fat, which subsequently gets eliminated through liver.

Lastly *Vamana Karma* improves digestion and metabolism there by corrects the lipid metabolism and may regulate endogenous production of lipids.

In *Vatsaka Kalpa (Kutaja*) it has been indicated for *Hridroga*. As dyslipidemia is a direct factor for atherosclerosis leading to heart diseases, so it has been taken for *Vamana Karma*.

In the study conducted to evaluate the efficacy of methanol extract of seed of *Holarrhena antidysentrica* in streptozotocin (STZ) induced diabetic rats, the antihyperlipidemic activity was also measured. The serum levels of TC, TG, LDLc, VLDLc and HDLc were measured. The results were very promising.[3]

Conclusion:

Following conclusions can be drawn from the clinical study:

- Dyslipidemia is an abnormal amount of lipids in the blood due to impaired lipid metabolism and a major risk factor for many life threatening diseases like Coronary artery disease, Diabetes mellitus etc.

- As *Medoroga* is a *Santarpanajanya Vyadhi, Kapha Pradhana Vyadhi,* for which *Samshodhana* is indicated, in that also *Vamana* is primary indication.
- In *Vatsaka Kalpa (Kutaja*) it has been indicated for *Hridroga*. As dyslipidemia is a direct factor for atherosclerosis leading to heart diseases, so it has been taken for *Vamana Karma*.
- In different parameters of lipid profile, the mean reduction of triglycerides showed better results statistically.

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Pharmacological Study

Development of Multitier Identification tools for Certain Drugs

**Dr. Lalit Nagar **Dr. Sudipta Rath, ***Dr. Naresh Khemani*

Abstract

Disappearance of many medicinal plant species from the flora, indiscriminate use, and exponential increase in demand of herbal medicines has led to building up of pressure on demand side there by leading to unethical and dangerous practice of adulteration that is the prime obstacle in excellence of the Ayurveda in this present Era. There is an urgent need to develop tools of identification of medicinal plant raw materials at multiple levels which can be used by Ayurvedic physicians, researchers and pharmaceuticals with limited or well equipped analytical facilities. The chief methods employed in evaluating drugs are Organoleptic i.e. practical & on the spot tool, Physical & Chromatographic – Lab based tools, Experimental and Clinical – final confirmative tools.

Key Words Indiscriminate, Identification, Organoleptic, Chromatographic, pharmaceuticals.

सारांश:

युक्तिविहीन व्यवहार के साथ औषधीय पौधो की मांग मे अत्याधिक वृद्धि के कारण प्रकृति से बहुत सारे औषधीय पौधे धीरे धीरे विलुप्त हो रहे है। इस कारण औषधियों में मिलावट की प्रवृति बढ़ती जा रही है। यह मिलावट आयुर्वेद की समृद्धि मे एक प्रमुख बाधक है। अत: औषधीय पौधो के कच्चे माल की विभिन्न स्तर पर सही पहचान करने के लिये प्रायोगिक साधनो का विकास करना अत्यंत आवश्यक है जैसा कि विदित है औषधीय पौधो को चिकित्सक, अनुसंधाता फार्मेसी आदि काम मे लेते है और इनके पास उपलब्ध संसाधन मे बहुत अंतर है। अत: औषध द्रव्य परिचय के भी कलिष्ट साधन अप्रायोगिक हो जाते है। इन उद्देश्यो की पूर्ति करने हेतु इस कार्य मे औषध द्रव्य परिचय हेतु विभिन्न स्तर मे काम लिये जाने वाला एक प्रायोगिक साधन बनाया गया है।

*P.G Scholar, Deptt. Of Dravyaguna, NIA,Jaipur **Asst. Prof., Deptt. Of Dravyaguna, NIA, Jaipur, ***Prof. & Head, Deptt. Of Dravyaguna, NIA, Jaipur

Pharmacological Study

Development of Multitier Identification tools for Certain Drugs

Dr. Lalit Nagar, Dr. Sudipta Rath, Dr. Naresh Khemani

Introduction-

Pursuits of health and longevity have been the main goals of life of man since Vedic period. To achieve this target dravya or the drug is employed as the main tool. Dravya is stated to be next to physician in importance since is the medium of treatment[1]. Therefore it is apparent that the acharyas never ignored *Dravyaguna*, in fact, they considered *Dravyaguna* as an integral part of therapeutics. The field of *Dravyaguna* is incomplete without the study of *Nighantus*[2] and these *Nighantus* have contributed many new drugs to Indian Materia Medica. But, in the course of adding new drugs and identifying some of the drugs in the samhitas, it appear that the Nighantu writers also created some confusion by adding several synonyms for a single drug, particularly, for the drugs of uncertain identities. The controversy has become more in India because we find various people dwell in different areas with different cultures, so naturally might have been the reason why, one plant is known by various names in various parts of the country.

One of the important aspects which have added misery to the identification of some of the important medicinal plants or raw materials is interruption in the traditional practice of Ayurveda. Moreover, to our misfortune, medical practitioners started depending upon the traders for obtaining the raw materials.It is well known fact that today in the open market different plant parts are used in place of *Pushkarmool, Kutki*, etc. and like this so many other drugs are being adulterated and as such used by both physicians and pharmaceutical industries. Therefore quality assurance of medicinal plant starting materials is of paramount importance to offer predictable efficacy of the Ayurvedic formulations.

The chief methods employed in evaluating drugs are organoleptic i.e. practical & on the spot tool, physical & chromatographic – Lab based tools, Experimental and Clinical – final confirmative tools[3].

Aims

1- To identify the adulterants of *Katuki, Pushkarmool* and *Kustha*.

2- Development of Practical tools to distinguish genuine samples from their adulterants.

Material and Methods

Katuki, Pushkarmool and *Kustha* are the three drugs that were selected for present study. The selection of the drugs is made on the clinical importance of these drugs which are effective in medical emergencies like hepato-billiary disorders, IHD and bronchial asthma also these drugs are of enormous importance to the phyto-pharmaceutical industry.

However, these drugs are somewhat controversial and sometimes substituted by other drug viz. *Kustha (Saussurea lappa)* is substituted by *Pushkarmula (Inula racemosa),* root of the

Katuki (Picrorhiza kurroa) with rhizome of *Katuki*. Presently, these three drugs that mentioned above are commonly adulterated and substituted by other drugs in the market due to disappearance from the flora, indiscriminate use, and increase in demand in herbal pharmaceutical industries. Therefore, keeping in view, the above drugs has been selected for present study.

1. Collection of genuine sample and their adulterants/ substitute from the field

The genuine samples and their adulterants/ substitute were collected by scholar himself after identifying the source of plant as per standard description.

2. Herbarium and authentication of collected genuine plant material

The dried specimens were pasted on the herbarium sheets of standard size with proper labelling. The authentication of plant material

collected for study was done at Herbarium section, Indian Institute of Integrative Medicine, Jammu.

3. Collection of Market Samples

The market samples were also collected from six major raw drug selling markets of India namely Kullu, Amritsar, Jaipur, Kolkata, Mumbai & Kochin.

4. Pharmacognostical Study of all the genuine and market samples.

All the above collected genuine samples and market samples and its adulterant/ substitutes drugs were examined organoleptically and microscopically. Data generated was compared with the adulterants and substitutes.

5. Phytochemical Study

Physiochemical analysis of all the collected, genuine and market samples were done and comparative data were generated and collected in the form of tables.

6. Chromatographic Study

i) Thin Layer Chromatography (TLC)

ii) High Performance Liquid Chromatography (HPLC)

During the market study *katuki*, *Pushkarmool* and *Kustha* were collected from the six major raw drug markets from all over India and compared with genuine plant materials collected from their native habitat. It was found that rhizomes of *katuki* were adulterated by adding roots and leaves of *Katuki* plant, where as *Pushkarmool* and *Kustha* were substituted with each other and adulterated with *Nagauri Ashwagandha*. So multi tier identification tools were developed to differentiate these original drugs from their adulterants and substitutes.

Multi Tier identifying features of *Katuki* (*Picrorhiza kurroa* Royle ex Benth.)

Table No. I- First Tier Identifying Features- Organoleptic or Practical Tools (on the Spot)

S.No	Rhizomes(Fig -1)	*Roots(Fig -2)*
01.	Straight, slightly curved, cylindrical or sub-cylindrical , bearing impressions of round root scars and numerous scales which are tufted crown of leaves **(*Matsyashakala*)**.	Thin, cylindrical, some were straight & some were slightly curved in shape. Outer surface is smooth or bearing some dotted scars.
02.	Very bitter in taste	Less bitter in taste
03.	Fracture- short. A transversely cut portion, shows storage tissue which is blackish in colour **(*Krushnabheda)***and large cream colour vascular bundles arranged in prominent broken ring **(*Chakrangi)***.	Fracture- short. Transverse cut portion is black with whitish centrally located rounded wood. Cream colour vascular bundles are absent.

Note: ***Matsyashakala*** need not to be present in all the rhizomes but ***Krushnabheda*** and ***Chakrangi*** will be present in all rhizomes.

Table No. II- Second Tier Identifying Features- Laboratory based Tools

	Microscopy	
01	Epidermis consists of 5-8 layers of Cells.	In young roots Epidermis consists of single layer cells.
02	Cortex is absent or consists of 1-2 layers of	Cortex consists of 8-24 layers of cells. cells.
03	Vascular bundles are well developed.	It is generally absent or poorly formed.

Table No. III- TLC- Methanolic extracts

Mobile phase- Chloroform: Methanol (95:5)

01	**Iodine vapours-** Rf. 0.05, 0.07, 0.16, 0.21, 0.26, 0.47, 0.70, 0.88, 0.96.	0.24, 0.34, 0.61
02	**Vanillin H_2SO_4 acid-** Rf. 0.05, 0.07, 0.01, 0.16, 0.21, 0.26, 0.47, 0.70, 0.88, 0.96.	0.24, 0.34, 0.46, 0.58.
HPLC- Picroside II percentage		
03	2.90 %	0.54%
Third and Final Tier Identifying Features- Biological & Clinical Tools		

Table No. IV- Multi Tier Identifying features of *Pushkarmool*, *Kustha* and *Nagauri Ashwagandha* First Tier Identifying Features- Organoleptic or Practical Tools (on the Spot)

S.No	***Pushkarmool*(Fig -3)**	***Kustha*(Fig -4)**	***Nagauri Ashwgandha*(Fig -5)**
01.	Hard	Woody	Starchy
02.	Cylindrical gradually Tapering	Fusiform	Straight
03.	Dark Khaki in colour	Saddle Brown.	Buff colour
04.	Pleasant and camphoraceous Odour	Strong and characteristic	Earthy
05.	Bitter in taste	Start with little sweetness and then bitter	Mild bitter and sweet
06.	Fracture short and uneven	Short and horny three distinct	Tough and mealy layers can be seen
Table No. V- Second Tier Identifying Features- Laboratory based Tools			
	Microscopic		
01.	Cells of the medullary rays are polygonal to rounded	Cells of the medullary rays are radially elongated	-
02.	During powder microscopy it gives magenta colour with naphthol and sulphuric acid reagent (inulin crystals)	It also gives magenta colour with naphthol and sulphuric acid reagent (inulin crystals).	It gives orange red colour with naphthol and sulphuric acid reagent (Starch grains crystals).
	Phytochemical tests		
03.	Iodine test for starch **-ve**	Iodine test for starch is **−ve**	Iodine test for starch is **+ve**
04.	Iron salt test for resins is **+ve**	Iron salt test for resins is **+ve**	Iron salt test for resins is **−ve**

05.	Foam test for saponins is **–ve**	Foam test for saponins is **–ve**	Foam test for saponins is **+ve**
06.	Ammonia test for flavonoid is **+ve**	Ammonia test for flavonoid is **+ve**	Ammonia test for flavonoid is **–ve**
07.	Keller killiani test for cardiac glycoside is **–ve**	Keller killiani test for cardiac glycoside is **+ve**	Keller killiani test for cardiac glycoside is **–ve**
08	On adding 50% H_2SO_4 in to powder gives Golden Rod colour.	On adding 50% H_2SO_4 in to powder it gives Red colour	On adding 50% H_2SO_4 in powder it gives dark orange colour

Table No. VI - TLC- Alcoholic Extracts

Mobile phase-Toluene:Acetone:Methanol in the ratio 6:2:2 shows

01.	**U.V.(366 nm)-** 0.7	0.7	0.2, 0.26, 0.7
02.	**Iodine vapour** - 0.16, 0.67, 0.72, 0.8, 0.92	0.13, 0.66, 0.73, 0.81, 0.86, 0.95	0.08, 0.67, 0.72, 0.81, 0.9
03.	**Vanilli H_2SO_4 acid-** 0.03, 0.13, 0.79, 0.91, 0.90.	0.1, 0.15, 0.35, 0.72, 0.78, 0.87,0.95.	0.06, 0.11, 0.3, 0.80, 0.93.
		HPLC	
04.	**Ret. Time-** Allantolactone- 15.546 Isoallantolactone- 14.446	**Ret. Time-** Costunolide- 10.485	**Ret. Time-** Withanolide A- 17.852
Third and Final Tier Identifying Features- Biological & Clinical Tools			

Note-

1. First tier of identifying tools is for Ayurvedic practitioners and pharmacies who procure raw drugs from the raw drug traders and has limited resources for analytic study.
2. Second tier of identifying tools if for researchers, research college pharmacies and pharmaceuticals with limited or well equipped laboratories for analysis.
3. Third and final tier identifying tool is the confirmative tool.

Conclusion

Based on the findings the study has framed multi-tier identification instruments for these three herbs. This tool can be used by physicians, researchers, pharmacy, etc. partly or fully as per the resources available to reasonably identify authentic samples.

Suggestion

During the study sample size is very small and all the findings were based on seven to eight samples of each drug. So it is suggested that the users should use this tools to further validate and require modifications can be appended.

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Conceptual Study

Conceptual Study of The Effect of *Deshanurupa Vastradharana* on General Health

*Dr. Garima Srivastava, **Dr. Anil Sharma, ***Dr. Durgawati Devi, ****Dr. Pushpa Gond

Abstract:

Vastradharana is an important concept of Ayurveda and described in the context of *dincharya* and ritucharya. Another important principle of Ayurveda is karnadravya and it includes desh and kala. Desh and kala, both are responsible for division of time like day, night etc. and manifestations of various seasonal variations. On the basis of this fact, Ayurveda says that every principle must be examined and standardized in the context of *desh* and *kala*. *Vastradharana* is also not exception and thus described in the context of *dincharya* and *ritucharya*. This prescribed regimen of *vastradharana* is quiet effective in the promotion of health. By this study it is crystal clear that traditional dressing pattern of India is relevant to its climatic conditions and definetly improves health of inhabitants.

Key words: *Desha, Dincharya, Kala, Ritucharya, Vastradharana.*

सारांश:

वस्त्रधारण आयुर्वेद का एक महत्वपूर्ण सिद्धान्त है तथा इसका विवेचन दिनचर्या एवं ऋतुचर्या के सन्दर्भ में किया गया है। कारण द्रव्य आयुर्वेद का एक और महत्वपूर्ण सिद्धान्त है जिसके अन्तर्गत देश और काल समाहित है। देश एवं काल दोनो विभिन्न काल विभागों जैसे– अहोरात्र। दिन इत्यादि तथा विभिन्न ऋतु एवं उसके लक्षणों के प्रकटीकरण के लिए आवश्यक है। इस सिद्धान्त के आधार पर ही यह स्वीकार किया गया है कि आयुर्वेद में प्रत्येक सिद्धान्त को देश एवं काल के परिपेक्ष्य में विवेचित किया जाना अत्यावश्यक है। वस्त्रधारण इसका अपवाद नहीं है। इसलिये इसको दिनचर्या एवं ऋतुचर्या के परिपेक्ष्य में विवेचित किया गया है। इस प्रकार वस्त्रधारण का सिद्धान्त स्वास्थ्य संवर्धन में पूरी तरह से प्रभावात्मक है। इस अध्ययन से यह स्पष्ट हो गया है कि भारत के विभिन्न प्रदेशों की पारम्परिक वस्त्रधारण विधि उस परिवेश की जलवायु के लिए उपयुक्त है तथा निश्चित रूप से वहाँ के वासियों के लिए स्वास्थ्यवर्धनात्मक है।

*M.D Scholar (Ayu.), P.G Deptt. Of Swasthavritta, N.I.A., Jaipur **M.D Scholar (Ayu.), P.G Deptt. Of Swasthavritta, N.I.A.,Jaipur ***Assistant Professor, P.G. Deptt. Of Swasthavritta ,N.I.A., Jaipur, ****M.S.Scholar, Deptt. of Shalya Tantra, NIA, Jaipur

Conceptual Study

Conceptual Study of The Effect of *Deshanurupa Vastradharana* on General Health

Dr. Garima Srivastava, Dr. Anil Sharma, Dr. Durgawati Devi, Dr. Pushpa Gond

Introduction

Knowledge and science of Human being depend upon their traditions. Development of the life is only time being alteration of previous knowledge which we get from our ancestors and transmit it to our next generation in the form of trades. This stream is uninterrupted right from beginning of shristi (creation) to the present time and it will be persisted till end of the world (*Pralaya*). This is traditional Knowledge and it is being flown in our tradition after originated from zenith of Indian civilization "Vedic Era" and through *Purana, Upanishada, Smriti* and *Samhita* in all fields of existence.

Amongst, Traditional/*Deshanurupa Vastradharana*/clothing pattern is also very important field of knowledge exist by enlarge in the Indian society according to Desh and Kala. It is an important concept of *Ayurveda*. The prime importance of *vastra* from ancient era to present era is to protect human body against extreme weather conditions and external injuries as well as to maintain personal hygiene. *Vastra* performs a range of social and cultural functions, such as individual, occupational, sexual differentiation and social status. In many societies norms about clothing reflect standards of modesty, religion, gender and social status. Our nation has been attracted to many countries since thousands of years. Many invaders e.g. *Shaka, Huna, Kushan, Mugal*, *Pathan*, Portugal and British came here and some of them ruled on us for extensive period. They came with their own customs and social system and be imposed on the Indian society so effects of such monarch's culture gave the impression on us even after passing a long period. It changed our dressing pattern and life style.

Traditional clothing/ *deshanurupa vastradharana* in India greatly varies across different part of the country and is influenced by local culture, geography, climate and rural/ urban setting. *Vastradharana* according to climatic condition is beneficial for *swasthayapariraksha*na as defined in ritucharya in our samhitas. *Vastradharana* is one of the part of practicing dincharya and *ritucharya*, which are based on concept of kala. Thus *vastradharana* has also its own impact on human health. It is clearly indicated in ayurvedic texts that which factor he going to be utilize must be examined in the context of *desh, kala* and *prakriti*. If the factor which is utilized by person is favourable to the above mentioned factors will be definitely maintain the health, otherwise deleterious effects will be seen.

Material And Method

This thesis is based on a review of Ayurvedic and Modern texts. Materials related to *desh, kala, vastradharana* and other relevant topics have been collected and compiled. The main *Ayurvedic* texts used in this study are *Charak Samhita*, *Susruta Samhita*, *Astang Sangraha*, *Astang Hridya*, *Bhavprakash*, *Yogaratnakar*, *Charucharya* and available commentaries on these. We have also reffered to the Modern texts and searched various websites to collect informations of textile, fabric, climatic zone and traditional dressing pattern and other relevant topics. These materials of relevant topics are reviewed critically and discussed in detail manner. In last summarized and concluded.

Conceptual Study

Concept of *Vastradharana*

It is an important part of *Ayurveda* in the context of *dincharya* and *ritucharya*. The word meaning of *Vastra* is to cover according to various dictionaries and texts. So vastra is the external covering of body made by cotton and other fabrics. It is a part of our traditions since vedic era and described in all the classical texts of Ayurveda. The effects of *vastradharana* on general health are

described by all ayurvedic seers.

Acharya Charaka says- The wearing of clean apparel (cloth) is attractive, conducive to reputation, promotive of longevity, avertive of bad luck, exhilarative, decorative, worthy of society and commendable.[1] According to *Acharya Susruta, vastradharana* promotes ojas, provides charm and pleasure.[2] *Acharya Bhavprakash* says that the new and clean dress enhances reputation, desire, life span, wealth and happiness, good for skin, attractive and pleasing.[3] The description about effects of *vastradharana* on health is about same in all classical texts. These effects have approach towards holistic health and thus have tendency to affect every dimension of health.

In addition to general consideration of *vastradharana*, some specific situations are also described like *vastradharana* for student,[4] *vastradharana* during taking meal,[5] *vastradharana* for *sutika*,[6] for *duta*[7] (messenger) and diseased persons in which *panchakarma* is going to applied.[8] In these situations the fabrics and clothing is planned in such a way that these are capable to counter the harmful effects on health.

Another new concept related with *vastradharana* is also in vogue, named *Ayurvastra*. It is just a modification of classical concept. In this, Normal fabrics like organically grown cotton yarn, jute fiber, silk, wool etc. are used to make Ayurvastra by dyeing them with the desired herbs in a controlled temperature and environment. *Ayurvastra* cloth is completely free of synthetic chemicals and toxic irritants and is totally organic, sustainable and biodegradable. Around 200 herbs are used for making various types of *ayurvastra*. Each kashayas for *Ayurvastra* cloth typically contain between 40 and 60 specifically blended and carefully prepared medicinal herbs, plants, flowers, roots and barks.

Many clinical experiments have been conducted to show the effectiveness of *Ayurvastra*. It was found through various trials that such an environment can help those suffering from skin diseases, arthritis, eczema, psoriasis, rheumatism and blood pressure; all these trials showed a "marked improvement." It is a good approach through *Ayurvastra* (healthy fabrics) to sustain our goal of Ayurveda i.e. *Swasthyaparirakshana*. Along with this, this concept is also helpful to keep the environment pollution free.

Concept of *Desh* and *Kala* and its Relations with *Vastradharana*

These two factors, desh and kala are among the group of *karnadravya* and occupy all the manifestations of universe. Ayurveda says that every principle must be examined and standardized in the context of desh and kala. These both factors are responsible for the determination of climatic conditions and manifestations of various ritu. These factors have tendency to carried out the changes in all living and non-living things. These changes may be beneficial or harmful. *Dincharya* and *ritucharya* are described to counter the harmful changes by these on human health. *Dincharya* comprises the general consideration of *vastradharana*, while *ritucharya* comprises specific consideration. Wearing of clothes in daily routine performs various functions and produces various effects also in the reference to holistic health, for example- if we consider the verse of *Acharya Charaka* in this context, the effects of *vastradharana* are; person looks attractive and beautiful, longevity is promoted, avertive of bad luck, worthy of society and commendable[9] etc. So, the approach of *vastradharana* is on holistic health. There are some rules and regulations described in the context of *vastradharana*; like it is indicated after snana,[10]it should not be dirty and torn,[11] should not be used by other people,[12]etc.

Ritucharya is described with special reference to climatic changes. This concept is further elaborated in the context of fabrics and colours as the basic function of vastradharanais to protect the body from unfavorable external climatic conditions for example- heavy and thick fabrics like wool, leather, blanket etc. are prescribed in cold climate. Bright colour and printed fabrics are also indicated in cold climate due to its heat absorption property.[13]

The current traditional dressing pattern in different geographical regions of India justifies its climatic conditions and variations for example- in Jammu & Kashmir, a type of overcoat is weared by inhabitants due to extreme cold condition.

Discussion

Ayurveda is the absolute science of life and life style. It includes all the factors which are essential for maintaince of health. Its theory is based on equilibrium between human body and environment. Concept of *Karana Dravya* has been described in this context. *Karana Dravya* includes *Panch Mahabhuta, Mana, Atama, Kala* and *Disha*. All the manifestations of universe, either living or non-living are bounded in the boundaries of Kala, Disha and regularly interact with each other. This interaction is of four types-*Atiyoga, Ayoga, Mithyayoga* and *Samyakayoga*. Only *Samyakayoga* results in *Dhatu Samya* of indiviuals.Rest are responsible for the manifestation of many diseases. Human being cannot escape from this interaction with *Kala* and *Disha*, which is responsible for various changes in human body. These changes work as seed for the pathogenesis of various diseases. Principles of Swasthavritta are described to counteract and neutralize these changes eg. *Dincharya, Ritucharya, Ratricharya, Dashvidha Parikshya Vishya* etc. If we talk in the context of dressing and clothing, it starts with the civilization starts. *Vastradharana* is accepted as an important part of Dincharya and Ritucharya which are the basic principles designed to neutralize the effect of Kala. The concept of Vastradharana is not only limited to healthy people but also described in the context of diseased person eg. In "*Upkalpaniya* chapter", *Acharya Charaka* has indicated types of clothing for a person to whom *Vamana Karma* is going to be applied. Therefore we can say that, the concept of *Vastradharana* has vast scope and essential from birth till death.

It is previously stated that health is depend on equilibrium between human being and environment, so Vastradharana will defeinetly affects the status of health. That's why it is an important part of Dincharya and Ritucharya and must be standarised in the context of Desh and Kala. Vastra is an external covering of human being made by Karpasa etc. natural fabrics, although synthetic fabrics are also in vogue in current era. In Ayurveda Vastra is considered as like an ornament. So it not only protects the body from external climatic conditions, though it creates a positive balance of energy between body and environment as well as it is a symbol of decency or modesty or prosperity in the society. In this way Vastradharana fulfill the following purposes-

1. It protects the body from external climatic conditions and infections.
2. It creates a positive energy between human being and environment.
3. It is a symbol of civilization, culture and tradition.

Therefore, *Vastradharana* is not only limited to physical health, although it also influences mental, social and spiritual health. In other words, approach of *Vastradharana* is holistic health. So it must be considered in the context of *Desh* and *Kala*. Properties of Vastradharana are described in detail in ayurvedic texts. These properties can be discussed in five groups; physical, mental, social, spiritual health and diseased condition.

1. Physical - It works like an ornament, attractive, enhances immunity, maintains the cleanliness, protects the body from external climatic condition and infections, increases *ojas*, *Tvachaya* (beneficial for skin), maintains the hygiene of skin, increases the interest for food and symbol of health.

2. Social - It is closely related with culture and tradition, conducive to reputation, *Saubhagyakara*, increases the wealth and happiness, pleasant, enhances the affection and charm.

3. Mental – It removes hasitation, promotes longetivity, evertive of bad luck, *Rakshoghana, Ayushya*, increases reputation, *Medhya*, person feels attractive and pleasant, being an ornament, it creates positive energy which improves mental health.

4. Spiritual – Its spiritual functions are described in the context of student and at the time of taking food and for saint. For this purpose, special color and fabric is described as it creates positive energy, so it affects spiritual health at higher level.

5. Diseased condition – In the context of diseased condition, various references are found like dressing of *Garbhini*, person to whom *Vamana Karma* is applied etc. Use of different fabrics is also indicated in some type of *Svedana Karma*. As the approach of *Vastradharana* is holistic towards

health, it helps in medication and different treatment procedures for the acquisition of health. Clean vastradharana by messenger is accepted as a good luck sign and happiness to the patient. It also indicates towards the good prognosis of the disease.

In Ayurveda, desh means particular geographical area or body. Here meaning of desh is referred to particular geographical area, while Kala is time. In the context of human being, desh plays an important role in the determination of *dehaprakriti*. While, kala is responsible for the various changes in the body. *Kala* is divided into two parts; *samvatshar* and *atura Avastha* for the convenience of physician or vaidhya. Here we will talk about *samvatshar* aspect of kala. It is further divided into ayana (*Dakshinayana* and *Uttrayana*) and in six ritus of two months each. Classification of ritu is based on-

1. Different positions of earth, sun and moon.
2. Geographical region.
3. Characteristic of *shita, ushna* and *varsha*.

In Ayurveda, two types of six ritu combinations are found, first is consideration with *shishir ritu* and second with *pravrita ritu*. The *shishir ritu* is included ritu for *ritucharya*, while *pravrita ritu* combination is for *shanshodhana karma*. So it is seen by reviewing the literature of Ayurveda in the context of desh, kala and ritucharya that, the concept of desh is included in the determination and classification of various ritu, as well as various diet planning and activities are designed to mitigate the combined effects of desh and kala, in the form of dincharya and ritucharya.

Vastradharana is essentially included among in the activities of *dincharya* after *snana* (bath). It is the general consideration of *vastradharana* and basically related with-

- ❖ Protection of body from external environment.
- ❖ Person looks beautiful and civilized so essential for becoming part of civilized society.

The first aim of *vastradharana* is physical protection from external environment as described in *dincharya* and it is further elaborated in the concept of *ritucharya*. Here, we will discuss concept of vastradharana in relation to various ritu having the characteristic of shita, ushna and varsha.

Shita Ritu (*Shishir* and *Hemant*)

The main characteristic of this time period is cold atmosphere which is increasing from hemant to shishirritu. The main requirement of the body in the context of this time period is to protect from hazardous effect of cold that's why a variety of fabrics and clothes are described for various purposes like wearing, bed sheets, mattress, covering, curtains etc. The indicated fabrics are cotton, leather, silk, wool and bark etc. Colour of fabrics is also mentioned like colourful and various prints should be used. This pattern absorbs the sun rays and helps to keep body warm. These indicated fabrics and cloth made by these are capable to maintain the homeostasis of temperature of the body and thus protect it from cold, external environment. If it is not followed various Ritujanya disorder are manifested.

Ushna Ritu (*Basant* And *Grishma*)

The main characteristic of this time fraction is hot environment as the sun rays become stronger and more intense. The requirement of the body in this season is not only maintain the homeostasis of temperature; though skin should be kept clean and dry as perspiration increases and it will become the cause of various skin infections. The indicated fabrics and clothing are light and thin which will be helpful in the maintaince of aeration of the skin and thus hygiene of the skin. The indicated colour of clothes are white and *Kasaya* (saffron coloured) the white colour is soothing for the eyes as well as reflects the sun rays and helpful in the maintaince of temperature homeostasis of the body. The *Kasaya Vastra* having the properties of *shitala*, *laghu* and pacifies pitta which is perfect for this time period.

Varsha Ritu (*Varsha* And *Sharada*)

In this time fraction, environment is humid and temperature is subnormal. Both the conditions provide perfect environment for the growth of microorganisms. Recommended clothes are light and woolen; both depend upon the temperature of environment. Colour of clothes should be white. The light fabrics are capable to maintain the aeration and cleanliness of skin, thus prevents various skin

infections and suitable when temperature is subnormal. Woolen and heavy clothes should only be weared when temperature is too cold. The white colour is neither hot nor cold in the effect. As well as it compensates the bad effects of cold and heat of the sun. One another concept can also be considered in this context that environment become very muddy and white colour helps the individuals to keep neat and clean in this season.

In this way we can say that *vastradharana* is indicated as important part of life style. Use of *vastra* is indicated from two points of view-

1. General
2. Specialized according to various seasonal changes.

Various types of fabric and clothes as well as their colours are described according to seasonal changes as *vastradharana* has important impact on holistic health. So it is closely related with desh and kala. It should be seriously followed, otherwise various ailments can occur.

For the clothing styles and convenience of the study India is divided into five regions

1. East India
2. North east India
3. North India
4. West India
5. South India

Climate and Clothing of East India

It consistthe states of **Bihar**, **Jharkhand**, **Orissa**, **West Bengal** and Sikkim. The region lies in the humid subtropical zones and experiences hot summer from March to June, the monsoon from July to October and mild winter from November to February. Saree is the traditional dress of women in west Bengal, Bihar, Jharkhand and Orissa and the cotton and silk fabrics are mostly used in this region. The male traditional dresses are various types of dhoti and lungi along with kurta and shirt. The costume of Sikkim is slightly different. The original female inhabitant of Sikkim wears a type of wraparound skirt with blouse and jacket.

This region of India experiences extreme of summer and monsoon while winters are mild. The fabric used in this region is cotton and silk, both are very much comfortable in summer and monsoon season as they possess special features like absorbs sweat and keeps the skin dry. These features prevent various skin infections and both fabrics are light to carry.

Climate and Clothing of Northeast India

North east India comprises seven sister states—**Arunachal Pradesh**, **Assam**, **Manipur**, **Meghalaya**, **Mizoram**, **Nagaland** and **Tripura**—and the Himalayan state of **Sikkim**. This reason featured humid subtropical climate with hot humid summer and severe monsoon and mild winter. In some states like Arunachal Pradesh and Sikkim the temperature is very much low. The traditional dress of female is variety of skirt wear with blouse and stole. Although the name of this is different in each state and the traditional dress of male is dhoti, jacket and turbans.The fabric used is silk which is very much light to carry and maintain the aeration of the skin as monsoon season is predominant here. The dress weared covers the whole body and thus prevents the skin form insect bites which is also very much predominant in monsoon season.

Climate and Clothing of North India

It can be divided into two parts, that is western Himalayan region which covers **Jammu & Kashmir, Himachal Pradesh and Uttrakhand** mainly and northern plains which covers **Haryana, Punjab, Uttar Pradesh, Rajasthan, Madhya Pradesh, Delhi and Chandigarh.**

North India lies mainly in the north temperate zone of the earth though cool or old winters, hot summer and moderate monsoon are the general pattern. North India is one of the climatic diverse regions on the earth. Extreme temperature has ranged from -45? C in Drass (J & K) to 50.6? C in Alwar (Rajasthan). The standard season of winter, spring, summer, monsoon and autumn are experienced by all regions except Ladhaka and the Lahaul/Spiti region of Himachal Pradesh.

The hilly areas of North India that is J&K, Himachal and Uttrakhand have the predominance of cold weather. The traditional dress of J&K is the

pheran which is long gown like dress with clourful floral prints and designs. It is outer most covering of the dress. Kurta and Salwar are weared inside, commonly used fabric is cotton, wool and silk.It is the basic pattern of traditional dress and modified versions is also seen in different class of society. In Himachal Pradesh approximately same pattern is belonged, in the case of Uttrakhand the high altitudes regions belongs to the pattern close to Himachal and Jammu & Kashmir, while the lower altitude regions belongs to the pattern related with north most area of Uttar Pradesh. The dressing pattern and fabrics used in these regions clearly justified with its seasonal pattern. A gown like dress along with scarf or cap is weared upon the complete dress which is made by woolen and it is necessity to counteract the effects of extreme cold.As we come down towards the plain areas, this gown like dress is not regularly weared and the dressing pattern is similar to the adjacent area.

If we talk about the plain area of North India, the variety of dressing pattern is being seen in different states. The popular dressing pattern in Punjab, Haryana and Chandigarh is kurta, paijama or lungi and Female wears a type of wraparound skirt with Kurta and Stole. Males usually wear Turban. The fabric mainly use are cotton and wool. The ideal three types of weather cold, hot and rain is seen in these areas and this dressing pattern and fabrics are sufficient to protect from the climate changes.

In Uttar Pradesh and Madhya Pradesh, the traditional pattern is Salwar-kameez and saris, the mixed type of fabrics are used cotton, wool and silk etc. Males wear kurta, pajama or dhoti.

In Rajasthan, the traditional pattern of dressing is a skirt of long diameter with blouse and stole (odoni), males wear dhoti or pajama and special type of kurta and pagari (turban).Varieties of turban are seen in the various regions of Rajasthan and size of stole for women is also very large. Common used fabrics are cotton and wool. The people cover himself completely with their dresses which prevent them from hot waves of the environment. The cotton fabric is very much soothing in hot climate of Rajasthan.

In Delhi, a mixed type of dressing pattern is seen as people from various parts of country are residing.

Climate and Clothing of South India

South India comprises the states of **Andhra Pradesh**, **Karnataka**, **Kerala** and **Tamil Nadu** as well as the union territories of Lakshadweep and Pondicherry. The season is very Tropical climate with the monsoon. The maximum temperature in summer is 40 ?C and minimum is 20 ?C. The traditional clothing in south India is Saree with blouse in women and lungi or dhoti with shirt or kurta in men. The method to carry Saree or lungi is variable in different states. Usually light colour shades, white and cream are in vogue. The fabric mostly used is cotton and silk. The climatic condition of south India usually pleasant whole year, not so much temperature fluctuation is seen. Usually humid climate is found due to adjacent coastal areas, so saree and lungi are perfect dress for this environment as well as cotton and silk fabrics are also very much suitable for this type of climate. The pattern to carry the saree and lungi is also modified according to slight difference in climatic changes of different states.

Climate and Clothing of West India

The western reason of India consists the states of **Goa**, **Gujarat** and **Maharashtra**, along with the Union Territories of **Daman and Diu** and **Dadra and Nagar Haveli**. The climate varies between tropical wet and dry and semiarid. The coastal regions experience little seasonal variations although the temperature ranges between 20 ?C to 38 ?C. The traditional dress of Gujarat is a type of skirt with long diameter, blouse and stole, in some areas Saree is also weared. Traditional dress of Maharashtra is Saree in its specific style. In Goa, western dress like skirt and tops, trousers and shirts and wraparound are weared. Although; some women also carry Saree. The fabrics used are cotton, silk and synthetic. The dress pattern of Gujarat is very much similar to Rajasthan, not in whole state but in the areas where climate is similar to Rajasthan. The pattern of dressing in Goa is very much influenced by the western culture due to repeated invasion of Portugalise.

Clothing is an essential component of civilization. The current pattern of dressing is different in rural and urban areas and even in small towns and metropolitans also. This pattern is very

much influenced by various factors in its journey from ancient to current era. The influencing factors are necessity, geographical structure, repetitive invasions by various other civilizations and no doubt fashion also. But the basic theme is still same as described in Ayurvedic classics. In Ayurveda, dressing is defined and compared as wearing an ornament. As the various ornaments maintain the homeostasis of body by its positive energy and by maintaining the equilibrium between bodily energy and cosmos energy. It is also sign of good luck. Same properties dress possesses, but it also has some additional properties. Actually *vastradharana*, *Abhushanadharana* and *Pushpadharana* are considered collectively and increase the properties of each other. Abhushana and Pushpadharana play their role at subtle level, while vastradharana at gross and subtle both levels. Geographical consideration in vastradharana is basically related with gross health, but it should not be understood that subtle level have been left. The concept of vastradharana has merged with tradition and culture. So all the people of society must follow it and maintain their health.

The climatic conditions of any geographical area include both the concepts of desh and kala. By reviewing the traditional dressing pattern in every part of country it is clearly shown that these patterns of dressing are quite justified with their climatic conditions and protects the people from harmful effects of climate and its changes. It is basic aim of vastradharana. It has previously stated that current pattern of dressing is influenced by various factors. The things are very much changed in the context of vastradharana like fabric, dressing pattern, use of chemicals etc. All these things are discussed in detail in the modern concept of textile and fabrics. It is clearly seen that community is continuously exposed to various hazards by wearing the current fabric and dresses because various chemicals are involved in the treatments of the clothes in its whole journey.

Another aspect is also very vast and useless to discuss here but must be kept in mind. *Vastradharana* is unavoidable phenomena and an important part of any culture. In Ayurveda, it is designed in such a way to protect and promote the human health with special reference to *desh* and *kala*. This concept is being followed in traditional dressing pattern of India and thus protects and promotes their health. In most of the urban and metropolitans areas of country, it is not followed and the results are well known. So there is a need to aware the society about the traditional dressing pattern (*deshanurupavastradharana*) and its relation with health protection andpromotion.

Conclusion

Following conclusions can be made –

- Ayurveda is a complete science of lifestyle and advocates how people live long and healthy life.
- It includes various principles to maintain Dhatusamya which are known as Swasthavritta.
- Dincharya and Ritucharya are specific principles described for the mitigation of various effects of Kala on the body.
- *Vastradharana* is a general principle described in dincharya but it is further elaborated and standardized in ritucharya with special reference to desh and kala.
- The current dressing pattern results from various modifications and changes as time passes.
- A contemporary and fusion of current dressing pattern with Ayurvedic principles should be evoluted as various health hazards are seen by it.
- *Vastradharana* is an important part of daily routine so must be followed according to principles and it will definitely preserve and promotes the holistic health.
- It is only a conceptual study with certain limitations and should be elaborated in the form of experimental and survey study.

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Conceptual Study

Anthropometric Study of *Adhah Shakha* w.s.r. To *Anguli Pramana* Described in *Brihattrayi*

*Dr. Nishi Jain, **Dr. Vikash Bhatnagar, ***Dr. Sandeep M. Lahange

Abstract

Introduction : *Ayurveda* has individualized the concept of health. No two individual are completely alike physically, mental aptitudes, abilities or in vital reactions. The study was conducted to appraise the hidden concept of *Angula Pramana*; an effort was made to establish relation between *Pramana* of various parameters for *Adhah Shakha* mentioned in classics and modern anthropometric landmarks and findings and to standardize the *Svaanguli Pramana*. **Methodology** : In the study, anthropometric measurement of breadth of middle finger at the level of proximal interphalangeal joint of left hand (BM) was taken. The data for 15 parameters of *Adhah Shakha* of left side were recorded, converted into *Angula* (by BM) and analysed statistically with *Samhita* value. 100 females having 18-30 years of age, same geographical area (Rajasthan) and socioeconomic status were included. Females having any congenital and pathological deformities, metabolic and endocrinal disorders, amputation of limb and pregnancy were excluded. **Results :** It was found that measurement of *Anguli Pramana* BM would be average of 1.38-1.71 and SD 0.08. **Discussion and Conclusion :** Variations found in mean value in study may be due to the small sample size, and evolutionary changes. Maximum variations were seen in *Uru Aayama* and *Jangha Aayama*. The obtained measurements of *Paadamadhyama, Prapada Aayama, prapada Vistara, Paadatala Aayama, Parshni Aayama and Januparishthata* were found to be almost nearer to the *Samhita* value.

Keywords: *Adhah Shakha, Angula Pramana, Aayama, Vistara*, BM.

सारांश–

प्रस्तावना–आयुर्वेद में स्वास्थ्य के सिद्धान्त को व्यक्तिकृत किया है अर्थात् दो व्यक्ति शारीरिक, मानसिक योग्यता एवं जीवनीय क्रियाओ में पूर्णतया समान नहीं होते यह अध्ययन अंगुलि प्रमाण के छुपे हुए सिद्धान्त का मूल्यांकन करने के लिए किया गया इस अध्ययन में आयुर्वेदीय ग्रंथो में उद्धृत अधः शाखा के विभिन्न प्रमाणों तथा आधुनिक मानविकीय माप के सीमाचिन्हों के मध्य सम्बन्ध ढूढ़ना एवं स्वा– अंगुलि प्रमाण को मानकीकृत करना। **प्रविधि** – इस अध्ययन में, मध्यमा अंगुलि की चौडाई का मानकीकृत मापन, वाम हस्त के समीपस्थ अन्तरांङ्गुलास्थि संधि के स्तर पर किया गया वामस्थ अधः शाखा के 15 मापदण्डो के आँकड़े लिए गए उन्हें, उपरोक्त मध्यमा अंगुलि की चौड़ाई के आधार पर अंगुल में रूपान्तरित कर संहितोक्त मानों से सांख्यिकी के आधार पर विश्लेषित किया गया इस अध्ययन में समान सामाजिक आर्थिक स्तर एवं समान भौगोलिक क्षेत्र (राजस्थान) के 18–30 वर्ष तक की आयु वाली 100 नारियों को समाहित किया गया उन नारियों को, जिनमे कोई जन्मजात अथवा रोगात्मक विकृति, उपापचयिक अथवा अंग विच्छेद था तथा जो गर्भिणी थी, अध्ययन में नहीं लिया गया। **परिणाम** – अंगुल प्रमाण (मध्यमा अंगुलि की चौड़ाई) का मान 1.38–1.71 से.मी. एवं मानक विचलन 0.08 से.मी. प्राप्त हुआ। **परिचर्या एवं निष्कर्ष** – इस अध्ययन में औसत मान में भिन्नता विकास से हुए परिवर्तन एवं छोटे प्रतिदर्श के कारण हुए है अधिकतम भिन्नता ऊरु आयाम एवं जंघा आयाम में पाई गयी पादमध्यमा, प्रपद आयाम, प्रपद विस्तार, पादताल पार्ष्णि आयाम तथा जानूपरिष्टात के प्राप्त मापन संहितोक्त मान के अधिकाधिक निकट प्राप्त हुअ

*Ph.D. Scholar, Dept. of *Sharira Rachana*, National Institute of Ayurveda, Jaipur.**Assistant Prof., Dept. of *Sharira Rachana*, National Institute of Ayurveda, Jaipur.***Asstt. Prof., Dept. of *Sharira Rachana*, National Institute of Ayurveda, Jaipur. Address for correspondence: Dr. Nishi Jain, Dept. of *Sharira Rachana*, National Institute of *Ayurveda*, Jorawer Singh Gate, Amer road, Jaipur.302001. Email ID: dr.nishijain14@gmail.com

Conceptual Study

Anthropometric Study of *Adhah Shakha* w.s.r. To *Anguli Pramana* Described in *Brihattrayi*

Dr. Nishi Jain, Dr. Vikash Bhatnagar, Dr. Sandeep M. Lahange

Introduction

No two individual are completely alike physically, mental aptitudes, abilities or in vital reactions. This is because each person occupies a point in space-time different from that of everyone else. Each person thus enters into life with a peculiar view-point, mode of reaction to environment and susceptibility to physical and psychic influences. No two persons suffering from the same disease run exactly similar course. Hence, *Ayurveda* has individualized the concept of health.[1]

Anguli means finger and *Pramana* means measurement. Thus *Anguli Pramana* or finger measurement is the equal to the average breadth of the finger of the individual whose body is being measured. This shows the ingenuity of our *Acharyas*, who, in an era when there were no universally accepted scales or units of measurements, developed a single tool, *Svaanguli* i.e. the fingers of the individual himself as a measuring device and also unit of measurement.

Lower limb parameters have been shown to be a relatively accurate biological characteristic from which identification can be made in terms of estimating sex and stature. Because lot of variations exist in lower limb measurements due to numerous environmental, dietary, senile and other factors hence this field need lot of research in this direction. Individual *Svaanguli* i.e. the unit of measurement used to measure various *Anga- pratyanga* has not clearly mentioned from which anatomical point this *Svaanguli* was taken and definite anatomical and anthropometric points, landmarks regarding various *Anga- pratyanga* descriptions are not clearly given in our classics. Thus, the study was conducted to swot up the hidden concept of *Angula Pramana* given in our contexts, analyze state of development of anthropometry in the era of our classics; an effort was made to establish relation between *Pramana* of various parameters for *Adhah Shakha* mentioned in classics and modern anthropometric landmarks and findings and to standardize the *Svaanguli Pramana*.

Review Of Literature

Pramana Sharira can be described as the knowledge related to the body in context of life-span, measurement of parts and sub-parts of the body and all *Saara*. The body has been described (in terms of measurement) with own fingers[2]. *Utsedha* means height, *Vistara* means extension, and *Aayama* indicates length[3]. *Sakthi* means region extending from *Kati Sandhi* to the toe of foot. The *Paadangushtha* (great toe) and *Pradeshini* (second toe) of the foot are 2 *Angula* long by measuring with own fingers. Each digits of limb are 1/5th shorter than the predecessor. Great toe and second toe are 2 *Angula* in length excluding the nail. Sole of foot is divided into three parts: *Prapada, Paadatala and Parshni*[4]. *Prapada* is the forepart of the front of foot excluding the digits (*Haranchandra*). *Paadatala* is the sole proper i.e. part of the arch of foot and *Parshni* is the *Khudika Bhaaga* (*Indu*) and part below *Gulpha* or ankle (*Haranchandra*)[5]. *Paada* represent the total length of the sole of foot on plantar aspect. Regarding the breadth of foot, *Charak* mentioned a single measure of 6 *Angula*. The height of foot has been mentioned by *Charak* and *Vagbhata*. *Indu* explained the height of foot to be from the floor up to the *Gulpha* is 4 *Angula*[6]. *Jangha* defined as region between *Jaanu* (knee joint) and *Gulpha* (ankle joint). Its measure is 18 *Angula* in length. *Uru* is the part between *Jaanu Sandhi* (knee joint) and *Vankshana Sandhi* (hip joint). Its length is also 18 *Angula* which is equal to the length of *Jangha*[7] but according to *Bhanumati Tika* both are 24 *Angula* in length[8]. *Januparishthata* means region from lower border of *Jaanu Sandhi* (knee joint) upto the *Kati Sandhi*. It is 32 *Angula* in length. *Januparishthata* and *Jangha* together is 50 *Angula* in length. The height of a person, which is 120 *Angula*, should be measured from toes to fingers with his hand raised up[9].

Angula derived from root word "*Anga*" with "*Ula*" suffix. In *Deshakaalamaana* chapter of *Kautilya Arthashastra*[10] and *Adhamalla* commentary on *Sharngadhara Samhita*[11] it is mentioned that *Madhyaprakarsha* (proximal interphalangeal joint) of *Madhyama Anguli* (middle finger) of *Madhya Kaaya Purusha* is equal to *Angula.*

Pramana Sharira is the term given to that section which depicts the importance of anthropometry in contemporary sciences. The word 'Anthropos' means human and 'Metry' means measurement. It is the science that defines physical measures of a person's size, form and functional capacities. It is the systematic collection and correlation of measurements of the human body.

Modern anthropometry now incorporates wide ranging streams[12] like

1. Physical anthropology, craniometry, ergonomics, paleoanthropology, criminology, physiognomy, phylogeography, evolution significance, biometry, racial identification etc.
2. In the diagnosis of many diseases, accidents and deformities of the body, physicians and surgeons resort to measurement of the external form, which measurements, to be of value to science etc.
3. Physiological and pathological queries can only be set at rest by extensive anthropometrical inquiries. In effect of climate on development of a race; effects of season, of peculiar hygienic conditions, of diseases of hereditary or accidental characters etc.
4. In the rate of growth of children, in proportions which exist at different ages, in the nature and peculiar effects of work in modifying physical capacity and strength of individual, in selection of recruits for the military and naval services of the country, in physical degeneracy of a people etc.

Thus, today the branch of anthropometry is not just limited to anthropology alone; it has widespread applications in various walks of life.

Materials And Methodology

This study was conducted to survey anthropometric measurement of left *Adhah Shakha* in reference of subject's own *Svaanguli Pramana*. Data were collected from 100 healthy females of Ayurvedic tertiary care centre of Jaipur and Jodhpur. Lower limb measurements for left side of body were taken in centimeters for standardization as per metric system and then converted into *Angula* based on *Svaanguli Pramana* (BM) and analyzed statistically with the reference values. International Biological Programme has recommended that all the bilaterally represented anthropometric measurements be taken on the left side of the body.

Inclusion criteria

Apparently healthy females of age group 18 to 30 years and different province of same geographical area (Rajasthan) and socio economic status were selected. All *Dhaatu* of body is in*Samatvaagatavirya* condition. Epiphyseal fusion is completed in this age group and growth become static.

Exclusion criteria

1. Individuals with congenital deformities and physical disabilities, deformities like fracture, pathologies pertaining to musculoskeletal system and other metabolic and endocrine disorders.
2. Individuals who had undergone amputation of limb.
3. Individual with pregnancy.

Instruments used for study:

Digital Vernier's calliper, Anthropometer rod, measuring tape.

Parameters, anthropometric landmarks and method of measurements selected for study:

1. For *Angula* P*ramana*: breadth of middle finger of left hand at the level of proximal interphalangeal joint (BM)

2. *Paadangushtha, Paadapradeshini, Paada Madhyama, Paada Anamika, Paada Kanishthika*

Subject was in the sitting position and measurement was taken by using measuring tape. The distance between proximal end of toe to proximal end of nail was measured from dorsal aspect of foot for both limbs. Same procedure was repeated for the rest four fingers. Instrument used: Measuring Tape

3. *Prapada*

Subject was in the sitting position with extended leg and measurement was taken by using digital vernier's calliper. Length was measured from skin crease corresponding to 2nd metatarsophalangeal joint to midpoint of horizontal line passing through point where anterior part of arch of foot curves laterally and breadth was measured at the level of midpoint of length in front of arch of foot. Instrument used: Digital Vernier's calliper.

4. *Paadatala*

Subject was in the sitting position with extended leg and measurement was taken by using digital Vernier's calliper. The part at the level of arch was measured in length and breadth was measured at the level of midpoint of length at the arch. Instrument used: Digital Vernier's Calliper

5. *Parshni*

Subject was in the sitting position with extended leg and measurement was taken by using digital Vernier's calliper. Length was measured from pterion to midpoint of line passing through point where the posterior part of arch of foot curves upward and breadth was measured at the level of midpoint of length behind the arch of foot. Instrument used: Digital Vernier's Calliper

6. *Paada*

Subject was in the sitting position with extended leg and measurement was taken by using measuring tape. The distance between pterion i.e. the hind-most point on the heel to proximal end of second toe of the stretched foot was measured for both limbs.

Instrument used: Measuring Tape

7. *Jangha*

Subject was in the sitting position and in abduction, lateral rotation of thigh and knee in flexed position with ankle placed on knee of other limb. Measurement was taken by using measuring tape. The tibiale point i.e. the highest point on the inner glenoidal margin of tibia was held with the measuring tape, and movement of the tape was controlled to extend to the Spherion point i.e. the lowest point on the tip of the medial malleolus of tibia. No pressure was made on the body surface to reduce possible error in contact measurements.

Instrument used: Measuring Tape

8. *Uru*

Subject was in the sitting position and measurement was taken by using a measuring tape. The midinguinal point was held with the measuring tape, and movement of the tape was controlled to extend to the base of patella. No pressure was made on the body surface to reduce possible error in contact measurements.

Instrument used: Measuring Tape

9. *Januparishthata*

Subject was lying supine and measurement was taken by using measuring tape. The tibiale point was held with the measuring tape, and movement of the tape was controlled to extend to the line joining both anterior superior iliac spines. No pressure was made on the body surface to reduce possible error in contact measurements.

Instrument used: Measuring Tape

Precautions taken during measurements

In order to take accurate measurements and ensure their reliability the following recommendations have been made:

1. All instruments should be clean and their precision duly verified.
2. During the measurement procedure the subject should be in minimal clothing because that may interfere with the procedure or else the clothing should be removed if circumstances permit.
3. While taking the measurement with the calliper no pressure should be applied on the points of landmark located on the skin surface.
4. Ring/ ornaments or accessories were removed from the fingers.
5. The Vernier's calliper was not pressed too tight nor left too loose. It was assured that there was no space between the calliper and the finger. The Vernier's calliper was held perpendicular to the long axis of the finger.
6. For the sake of clarity all measurement should be taken in same unit cms.

Observations And Results

Table No-I Table showing breadth of middle finger of left hand at the level of proximal interphalangeal joint.

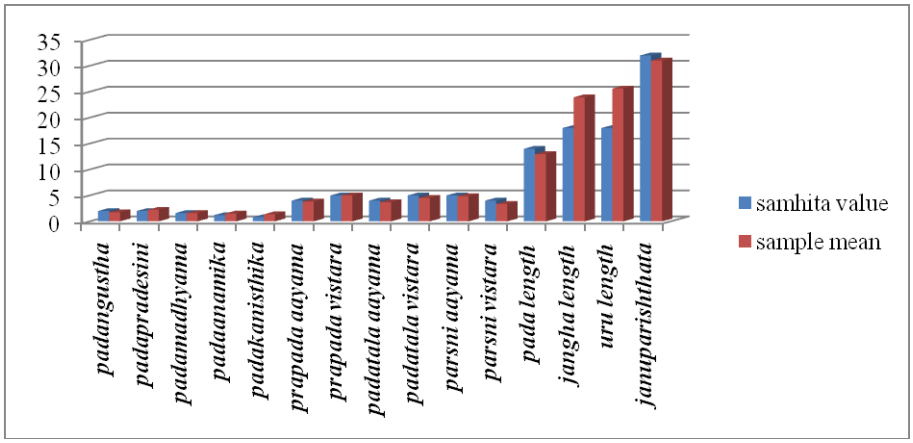
Parameter	Range (cms)	Mean (cms)	SD
BM	1.38-1.71	1.53	0.08

Breadth of middle finger of left hand at the level of proximal interphalangeal joint varies between 1.38 to 1.71 with a mean of 1.53 cms and SD 0.08.

TABLE NO- II : Table showing mean values of different parts of *Adhah Shakha* and comparison with *Samhita* values

PARAMETERS	*Samhita Value (Angula)*	sample mean	S.D. (*Angula*)	lowest value (*Angula*)	highest value (*Angula*)
Paadangushtha	2	1.76	0.19	1.383	2.269
Paadapradeshini	2	2.23	0.21	1.548	2.732
Paada Madhyama	1.6	1.6	0.20	1.2	2.173
Paada Anamika	1.28	1.52	0.17	1.242	2.013
Paada Kanishthika	1.024	1.36	0.15	1.069	1.753
prapada Aayama	4	3.82	0.29	2.963	4.736
prapada Vistara	5	5.01	0.36	3.572	5.739
Paadatala Aayama	4	3.71	0.40	2.791	4.681
Paadatala Vistara	5	4.54	0.24	4.052	5.102
Parshni Aayama	5	4.87	0.39	4.067	5.972
Parshnii Vistara	4	3.35	0.23	2.694	3.835
Paada length	14	12.96	0.62	11.834	15.034
Jangha length	18	23.93	1.74	19.878	29.37
Uru length	18	25.62	1.76	20.181	30.139
Januparishthata	32	31.04	2.15	24.695	36.503

Graph No-1 Graph showing mean values and *Samhita* values of different parts of *Adhah Shakha*.



Discussion

1. This concept is explained in the context of *Pramana Sharira*. This concept of measuring the individual with individual specific unit seems to be more scientific and applicable rather than measuring individual with some other standards. Individuality is the characteristic property of *Svaanguli Pramana*. *Ayurveda* in its principles has given prime importance to individualistic approach rather than a generalized.

2. In present study most of the values of various parameters measured by B.M were nearer to the values mentioned by the *Samhita*.

3. Breadth of middle finger of left hand at the level of proximal interphalangeal joint varies between 1.38 to 1.71 with a mean of 1.53 centimetres and SD 0.08.

4. Maximum variations of obtained mean parameters from that of the values mentioned in *Samhita* were seen in case of *Uru Aayama* and *Jangha Aayama*. But this variation of *Uru Aayama* and *Jangha Aayama* can be justified by the commentary of *Chakrapani (Bhanumati TIka)*, who stated that length of *Jangha* and *Uru* are 24 *Angula* and not 18*Angula*, hence increased value obtained in case of them may be acceptable.

   Variations in measurements obtained in the present study may be due to variability in ethnic origins and racial affiliations which leads to alterations in body dimensions, due to changes in locomotor pattern, lifestyle and energy expenditure. Since subjects of Rajasthan live in a hot arid climate, the energy expenditure is more. In order to compensate all these factors, the subject's surface area of body are increased, hence middle to large build individuals are found in this zone. Also, the measurements given in the *Samhita* are based on the observations on people who lived a few thousand years ago. Over the period of time; due to lifestyle and evolutionary changes, changes in anthropometric measurements can happen which has to be comprehended while analyzing the results of the study. Thus, increased limb length measurements obtained may be attributed to these evolutionary changes over the past 2 millennia.

5. For the parameters of less than or equal to 2 *Angula* in measurement, the obtained mean value of *Paada Madhyama* (1.6 *Angula*) were found to be almost nearer to reference value.

6. For the parameters of 4 *Angula* in measurement, the obtained mean value of *Prapada Aayama* (3.82 *Angula*) and *Paadatala Aayama* (3.71 *Angula*) were found to be almost nearer to reference value.

7. For the parameters of 5 *Angula* in measurement, the obtained mean value of *Prapada Vistara* (5.01 *Angula*) and *Parshni Aayama* (4.87 *Angula*) were found to be almost nearer to reference value.

8. The obtained mean value of *Januparishthata* (31.04 *Angula*) was found to be almost nearer to reference value.

9. The obtained mean value of *Paada Aayama* (12.96 *Angula*) was less than the value described in *Samhita*. It may be due to inaccuracy in determination of anthropometric landmark used.

10. The obtained mean value of *Paadangushtha* (1.76 *Angula*), *Paadapradeshini* (2.23 *Angula*), *Paada Anamika* (1.52 *Angula*) and *Paadatala Vistara* (4.54 *Angula*) were found to be satisfactory to reference value.

11. The obtained mean values of *Paada kanishthika* and *Parshni Vistara* were not nearer or satisfactory to reference value.

Conclusion

The following conclusions can be drawn after cautiously reviewing the present study:

1) The elaborated descriptions of *Pramana Sharira* in the ancient literature show the well established concept of anthropometry in past era.

2) Individuality is the characteristic property of *Svaanguli Pramana* and *A*yurveda gives prime importance to individualistic approach rather than a generalized.

3) The obtained measurements of *Paadamadhyama, Prapada Aayama, Prapada Vistara, Paadatala Aayama, Parshni Aayama* and *Januparishthata* were found to be nearer to the *Samhita* value.

4) The obtained measurements of *Paadangushtha, Paadapradeshini, Paada Anamika, Paadatala Vistara,* and *Paada Aayama* were found to be slightly comparable or satisfactory to the *Samhita* value.

5) The obtained measurements of Paada Kanishthika, Parshni Vistara, Jangha Aayama and Uru Aayama were found to be significantly varied from the Samhita value.

6) Variations in between the measurements of present study and the Samhita value may be due to small sample size, change in lifestyle and evolutionary changes.

7) Angula pramana can be used for future epidemiological studies to develop biological profile for identification, designing, selection of recruits in national services and can serve as non invasive public health marker and alternative method to diagnose, predict future risk and decide prevention strategy for diseases.

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Literary Review

A Comprehensive Review of *Katphal* (Myrica esculenta Buch.- Ham. Ex D. Don Syn. M. Nagi Hook.F.)

Dr. Ashwini Kumar Sharma

Abstract

Katphal (*Myrica esculenta* Buch.- Ham. ex D. Don Syn. M. nagi Hook.f.) is an important drug of Ayurvedic system of medicine. It is mentioned in various classical text for the treatment of disease such as Prameha, Gulma, Arsh, Kasahar, Swashar, Atisarnashak, Mukh rog, Sweta pradar, Netra rog, Varna, Javar etc. At present, it is found that this drug has numerous chemical constituents; gallic acid, catechin, chlorogenic acid, p-coumaric acid, ?-sitosterol, ?-sitosterol-?-D-glucopyranoside and quercetin, myricanol, myricanone, epigallocatechin etc. It is widely used plant in folk and Ayurvedic system of medicine and is also use for different pharmacological activities.

Keywords; Katphal, Myrica esculenta.

सारांश–

आयुर्वेद संहिताओं में वर्णित द्रव्यो में कट्फल एक महत्वपूर्ण द्रव्य माना गया है। यह विभिन्न प्रमुख ग्रन्थों में विभिन्न रोगों जैसे– प्रमेह, गुल्म, अर्श, कास, श्वास, अतिसार, मुखरोग, श्वेत प्रदर, नेत्र रोग, व्रण, ज्वर आदि में उपयोगी बताया गया है। आधुनिक परिप्रेक्ष्य में इसमें विभिन्न रासायनिक संघटन जैसे– गैलिक अम्ल,, कैटेचिन, क्लोरोजेनिक अम्ल, पी. काउमेरिक अम्ल, बीटा सीटोस्टीराल, क्वेरसिटिन, माइरिसीनाल, माइरिसीनान पाये जाते है। आयुर्वेदिय चिकित्सा प्रणाली एवं परम्परागत चिकित्सा प्रणाली के अंतर्गत कट्फल द्रव्य को बहुतायात तरीके से उपयोग में लिया जाता है।

*Associate Proffesor, P.G.Dept.Of Dravyaguna M.M.M. Govt.Ayurvedic College, Udaipur
Email: - Drashwinisharma1972@Gmail.Com

Literary Review

A Comprehensive Review of *Katphal* (Myrica esculenta Buch.- Ham. Ex D. Don Syn. M. Nagi Hook.F.)

Dr. Ashwini Kumar Sharma

Introduction

Katphal (*Myrica esculenta* Buch.- Ham. ex D. Don Syn. M. nagi Hook.f.) of Myricaceace Family is found in sub-tropical Himalayas , has been described in various Samhitas and Nighantus. It is a dioecious, evergreen, small or moderate sized tree.[1] Leaves are lanceolate, 9 cm long, 3 cm broad, lower surface-pale green, upper surface-dark green. Generally leaves are crowded towards the end of branches.[2] Flowers are minute, unisexual and glandular.[3] Fruits are A drupe, ellipsoid or ovoid shaped, in length 0.7-1.0 cm, 0.5-0.7 cm wide, dark brown colored, Shape of seed is ovoid, in length seeds are 0.6 cm long, 0.3 cm wide. The bark is quills or thick pieces, about 1to 2 inches long and from ¼to ½ inches in thickness; fissured transversely and longitudinally;[4] Different Pharmacological actions like *Prameha, Gulma, Arsh, Kasahar, Swashar, Atisarnashak, Mukh rog, Sweta pradar, Netra rog, Varna ropan, Jvarghan, Galgand* are attributed to it. It is an important drug used by Ayurveda Practitioners in various diseased conditions and also for maintenance of health.

Historical Background:-

Samhita Period

Charaka Samhita

This is one among the *Brihatrayi* texts written by *Acharya Charaka*. He described *Katphal* with his synonyms and different pharmacological action in different diseases, but not described this plant profile. He also mentioned *Katphal* among the *Sandhaniya, Kanthaya, Sukrashodhak, Vednasthapak mahakashaya* by attributing *Sandhan, kanthgat rog, Sukrashodhak* and *Vednashamak* properties to it.[6]

Sushruta Samhita

It is second among the three major texts (*Brihattrayi*) Written by *Acharya Sushruta*, Which highlighted the most use of *Katphal* in upper respiratory tract diseases *Kaphaj shirorog, Netra rog*, *Putinasya rog* etc. it is found at 13 places in formulations and is included in 4 *gana* mention it. He describe *Katphal* and his synonyms with *rognashkatav* property.[7]

Astanga Hridaya

This is said as the heart (Short form) of *Astangasangraha* written by *Acharya Laghu Vagbhata*. He mentioned *Katphal* in different formulations like *Kasmardadi ghrit*, part of *anuvasan basti, Anjan, Potli, Pushyanug churna, Dhatakyadi taila, Pratisarn* and *Khadiradi ghutika* in *Chikitsa sthana, Kalpa Sthan* and uttaratantra.[8]

Sharangadahara Samhita

This is one among the *Laghutrayi* texts written by *Acharya Sarangadhara.* He has described in *Madhaya Part* and stressed upon the use of *Katphal* in Various forms of *Javar* like *Pitta Javar, Sannipat javar, Prasuti javar.*[9]

Sodhala Nighantu

This was writen by *Acharya Shodhala* who belonged to *Rayekwad Brahmin* caste of Gujrat. It is an important work on Indian materia medica. It is also called *Nama-gunasamgraha*. *Katphal* cures *mukharoga* (Disease of buccal cavity), *Kasa, Svasa* and *jvara*. Here *Katphal* is described under *Guduchayadi Varga.*[10]

Madanpal Nighantu

This *Nighantu* was composed by king *Madanpala* of the *Tika* dynasty at the city of *Kastha.* In this text, the drug *Katphal* is described under *Abhayadi Varga.*[11]

Dhanvantari Nighantu

Katphal was mentioned first in one **Guduchaydi** out of seven vargas. In this *nighantu* total 373 plant were described.[12]

Kaiyadeva Nighantu

This was written by Acharya kaiyadeva and

is originally called by the name *Pathyapathya-vibodhaka."* The Drug Katphal is mentioned as *Aushadhi Varga* with his synonyms and pharmacological property.[13]

Bhavaprakash Nighantu

This was written by *Acharya Bhavamisra.* He had included *katphal* in *Haritakyadi Varga*. It also described the plant profile and different action of *katphal* in various disease.[14]

Raja Nighantu

This lexicon was written by *Pandit Raja Narahari*. This is otherwise called by the name *Abhidhana Chudamani* or *Dravyabidhana Ganasangraha*. This book is based mainly on substance of *Dhanvantari Nighantu*. The Drug Katphal is mentioned in Prabhadradi Varga.[15]

Saligrama Nighantu

This was written by *Lala Saligrama vaisya.* The drug *Katphal* is described in *Haritakyadi varga* of the text.[16]

Priya Nighantu

This was written by P.V.Sharma. The drug Katphal is described in Haritakyadi varga of the text.[17]

Classification of *Katphal* according to *Varga* in *Samhitas*-

Charak Samhita

Sandhaniya, Kanthaya, Sukrashodhak, Vednasthapak, Kashay Skandh

Sushruta

Rodhradi gana, Sursadi gana, Lakshadi gana, Parushakadi gana

Astanga Hridaya

Parushakadi gana, Sursadi gana, Rodhradi gana

Table No. I- Classification of *Katphala* (*Myrica esculenta* Buch.- Ham. ex D. Don Syn. M. nagi Hook.f.) according to *Varga* in *Nighantu*

Nighantu	*Varga*
Raj Nighantu	*Prabhadradi Varga*
Madanpala Nighantu	*Abhayadi Varga*
Kaiyadeva Nighantu	*Aushadhi Varga*
Dhanvantari Nighantu	*Guduchayadi Varga*
Bhavaprakash Nighantu	*Haritakyadi Varga*
Shodhal Nighantu	*Guduchayadi Varga*
Mahaushadh Nighantu	*Mahaushadhi Varga*
Abhinav Nighantu	*Haritakyadi Varga*
Madhav Dravya Nighantu	*Vividhaushadhi Varga*
Shaligram Nighantu	*Haritakyadi Varga*
Priya Nighantu	*Haritakyadi Varga*
Dravyaguna Samgrah	*Sangyasthapan Varga*
Haritakyadi Nighantu	*Haritakyadi Varga*
Sidh Bhaisjya Manimala	*Vat-Shelasmghanam*
Nighantu Adarsh	*Jambvadi Varga*
Amarkosh	*Vanaushadhi Varga*
Hardaya Deepak Nighantu	*Akpad Varga*

Table No.II- *Nirukti* of *Katphala* (Myrica esculenta Buch.- Ham. ex D. Don Syn. M. nagi Hook.f.)

S. N.	Name	Nirukti	Meaning
1.	कट्फल	कटुरसतयाऽन्यारसावरकफलके कायफल	This name based on Taste of plant. Fruit Chief Taste (Rasa) is Pungent(Katu).
2.	काफल	कुत्सितं फलं यस्य कोः काऽदेषः	Means Fruit of this drug
3.	कृश्णगर्भ	कृश्णवर्णो गर्भः आभ्यान्तरदेषो यस्य	Inner bark of Katphal is Blackish in colour.
4.	कुम्भी	क्षुद्र कुम्भ कट्फलः इति	This synonym based on the structure of Fruit. It is drupe, ellipsoid or ovoid shaped .
5.	कैटर्य्य	केटं त्रासं राति ददाति तिक्तादीनामातिषयात्	Drug that have property of Destroying all Diseases (Kit- Rog). (By *Shabdkalpdrum*)
6.	काम्बोज	कम्बोज देषे भवः इति अण् सोम वल्कः अर्थात् कट्फलः	Based on Country (Kamboj).
7.	अरण्य	अरण्यीयः अरण्यसन्निकृश्टदेषादौ । कट्फल वृक्षः।	Based on Origin Space. *Aranya* Means Jangal Pradesh. (By *Shabdkalpdrum*)
8.	उग्रगन्ध	उग्रस्तीव्रः गन्धो यस्मिन्। उत्कटगंधयुक्ते त्रि (हारीत)	This Synonyms based on the odour. This plant have Sharp odour.
9.	रोहिणी	रूहत्र इनन् गौरादित्वात् त्र डीश् । सोमवल्कः ।	Based on Colour of the Bark. (Red Colour)
10.	नीपपर्णी	.....	This Plant Leaves Structures same as *Kadamb* plant leaves.

Table No. III- Vernacular Names of *Katphal* (*Myrica esculenta* Buch.- Ham. ex D. Don Syn. M. nagi Hook.f.)

S.N.	Language	Name
1.	*Hindi*	*Kayphal*
2.	*Bangali*	*Satsarila, Kayphal, Kayshal*
3.	*Gujrati*	*Kariphal, Kayphal*
4.	*Marathi*	*Kumayanchishal va Phal*
5.	*Punjabi, Sindhi*	*Kaphal, Kayphal, Kachela, Kahi*
6.	*Telgu*	*Kaidaryyam, Papar woodum*
7.	*Tamil*	*Maridam Pataai*
8.	*Kannad*	*Kirusivanni*

9.	*Bumbai*	*Kayphal*
10.	*Rajasthani*	*Kaiphal*
11.	*Malaya*	*Marutmtoli*
12.	*Kanada*	*Kirisivani*
13.	*Paris*	*Kandula, Darshian*
14.	*Nepali*	*Kobushi*
15.	*Khasiya* (Kumayun, Garhwali)	-Ding Solir -Kaphal
16.	*Arabi*	*Ajuri, Darshishwan*
17.	*Farsi*	*Udulbark*
18.	*Asami*	*Nagteda*
19.	*Lushai*	*Kephang*
20.	*English*	*Box myrtle, Be-berry*
21.	*Latin*	*Myrica negi*

Habitat:

A dioecious, evergreen, small or moderate sized tree, 3-15 m high, found in sub-tropical Himalayas from Ravi eastwards to Assam, and in Khasi, Jaintia, Naga and Lushai hills a elevation of 900-2100 m.

Flowering and fruiting:-

The flowering season starts from the first fortnight of February and continues till the second fortnight of April.

Fruit –

A drupe, ellipsoid or ovoid, 0.7-1.0 cm long, 0.5-0.7 cm wide, dark brown, surface tubercled, very hard; taste, sourish sweet.

Seed –

Ovoid, 0.6 cm long, 0.3 cm wide, surface very smooth, light brown; taste, oily.

Stem Bark:-

Drug occurs in pieces of variable length, 1-2.5 cm thick, slightly quilled, fissured longitudinally and transversely, outer surface rough, grey to brownish-grey, inner surface dark brown and smooth; fracture, hard; taste, bitter.

Leaves

Leaves are lanceolate, oblong obovate, crowded towards the ends of the branches, 7.5-12.5 by 2.5 -5 cms.; narrowed at both the ends, entire, obtuse, acute or acuminate, sharply serrate, with resinous glands beneath, glabrous when mature, coriaceous, petiole 7.5 - 15mm. long.

Flowers

Flowers are minute, unisexual arranged in axillary spikes. Male spikes are 7.5 mm. long, arranged racemosely on a common axillary stalk, 2.5 - 7.5 cm. long, while female spikes are also axillary, erect, 1.3 - 2.5 cm. long. Bracts are orbicular, often with 2 - 3 smaller lateral ones, and stamens 3 - 6.

Propagation of Box Myrtle:

Seed are best sown as soon as it is ripe in the autumn. Stored seed germinates more freely if given a 3 month cold stratification and then sown in a cold frame. Germination is usually good. The seedlings are pricked out into individual pots when they are large enough to handle and grow on in the cold frame for the first winter. They are planted out in late spring or early summer. Cuttings of half-ripe wood, 5 - 8cm with a heel is done in July/August in a frame. Cuttings of mature wood are done in November/December in a frame, layering in spring

and Division of suckers in the dormant season.[16]

Cultivation

Prefers a moist soil, Grows well in an open position in a well–deained soil in sun or light shade. Thrives in any ordinary garden soil. Prefers a lime – free loamy or peaty soil.

Table No. IV- External and internal application of Katphal (Myrica esculenta Buch.- Ham. ex D. Don Syn. M. nagi Hook.f) in Nighantu and Samhitas:-

External Use	Internal uses						
Twak~ Sirovirechak (Nasya)	Nervous System	Digestive System	Circulatory	Respiratory System	Urinary tract System	Reproductive System	Temp-erature
Grabhasaya sankochak (Churn Potli)	*Vedna Sthapan*	*Rochan*	*Sandhaniya*	*Kaphaghana*	*Mutra Sangrahniya*	*Shukra shodhak Prasan*	*Sheeta*
Varnshodhak	*Balya*	*Deepan*	*Shothhara*	*Shwashara*		*Vrishya*	*Javarhar*
Varnropak Both Twak Churna	*Avsadak*	*Grahi*	*Rakt Stambhaka*	*Kapha Nissaraka*		*Aartava janan*	
Taila 1. Abhayang		*Shool Prashman*	*Uttejak*			*Stanya shodhak*	
Gandush and Manjan							

Raspanchak of *katphal* (*Myrica esculenta* Buch.- Ham. ex D. Don Syn. M. nagi Hook.f):-

Rasa (Taste) – *Kashaya* (Astringent), *Tikta* (Bitter), *Katu* (Pungent)
Guna (Qualities) – *Laghu* (Light for digestion), *Teekshna* (Pungent in nature)
Vipaka – *Katu* (Undergoes Pungent taste after digestion)
Veerya (Potency) – *Ushna* (Hot)
Karma (Actions) – *Kaphavata shamaka* (reduces vitiated *kapha* and *vata dosha*)

Table No. V- According to different *Samhita* and *Nighantus* -*Katphal* (*Myrica esculenta* Buch.- Ham. ex D. Don Syn. M. nagi Hook.f) in Various Diseases :-

Disease/ Samhita and Nighantus	C.S.	Sh.S	A.H.	Bh.N.	K.N.	D.N.	R.N.	M.N
Vatakaphaj Jwar	-	+	+	+	+	+	+	+
Prameha	+	-	-	+	+	+	+	+
Gulma	-	-	-	-	+	+	+	+
Arsh	+	+	+	+	+	+	+	+
Swas	-	-	-	+	+	-	+	+
Kasa	+	+	+	+	+	-	+	-

Aruchi	-	-	-	+	+	+	-	+
Agnimandhya	-	-	-	+	-	+	-	-
Grahani	-	-	-	-	-	+	-	-
Atisar	+	+	+	+	-	-	-	-
Pratishaya	-	+	+	+	-	-	-	-
Shir-Shool	-	+	+	+	+	-	-	-
Varn-Ropan	+	+	+	+	-	-	-	-
Varn-Soth	-	+	+	+	-	-	-	-
Sandhi-shool	-	-	-	+	-	-	-	-
Vata-Vyadhi	+	-	-	-	-	-	-	-
Mukh-rog	-	+	+	+	+	+	+	-
Gandmala	-	-	-	+	-	-	-	-
Gradhasi	-	-	-	+	-	-	-	-
Apasmar	-	-	-	+	-	-	-	-
Karn-Shool	-	-	-	+	-	-	-	-
Vishuchika	-	-	-	+	-	-	-	-
Kanth-Rog	-	+	+	+	-	-	+	+
Vish-Rog	+	+	+	-	-	-	-	-
Karnmool Shoth	-	-	-	-	-	-	-	-
Hardaya Roga	+	-	-	-	-	-	-	-
Netra-Rog	-	+	+	-	-	-	-	-
Kricha-Aartav	-	-	-	+	-	-	-	-
Kalaivya	-	-	-	-	-	-	-	-
Pradar-Rog	+	-	-	-	-	-	-	-
Pandu-Rog	-	-	-	-	-	+	-	-
Yoni-Vyapad	+	-	-	-	-	-	-	-
Kustha	-	+	+	-	-	-	-	-
Kandu	-	-	+	-	-	-	-	-
Bandhyatva	+	-	-	-	-	-	-	-
Shirshambu	-	-	-	-	-	-	-	-
Murcha	-	-	-	-	-	-	-	-
Hikka	-	-	-	+	-	-	-	-
Aadhyaman	-	-	-	+	-	-	-	-
Krimighana	+	+	-	-	-	-	-	-
Pakshagat	-	-	-	-	-	-	-	-
Udar- Shool	-	-	-	+	-	-	-	-
Shitta-Pita	-	-	-	-	-	-	-	-

Table No. VI- According to different *Samhita -Katphal* (Myrica esculenta Buch.- Ham. ex D. Don Syn. M. nagi Hook.f) in different formulatios :-

S.N.	*Yog*	Indications	Refrences
1.	*Chandanadhya Taila*	*Jvar*	*Charak Samhita Chikitsa 3/258*
2.	*Udakmehhar Kwath*	*Prameha*	*Charak Samhita Chikitsa 4/76*
3.	*Katphaladi Kwath*	*Kaphaj Kasa*	*Charak Samhita Chikitsa 18/112*
4.	*Kusthhar Taila*	*Kustha*	*Charak Samhita Chikitsa 7/101*
5.	*Katphal Churna*	*Sleshmatisar*	*Charak Samhita Chikitsa 19/117*
6.	*Yavkshar Ghrit*	*Kashyaj Kasa*	*Charak Samhita Chikitsa 18/163*
7.	*Gandhnama Agad*	*Visha*	*Charak Samhita Chikitsa 23/66*
8.	*Varnropak yog*	*Varna*	*Charak Samhita Chikitsa 25/113*
9.	*Khadiradi Gutika*	*Mukh Rog*	*Charak Samhita Chikitsa 26/203*
10.	*Jambvadi Kwath*	*Shelasm Pradusta Yoni*	*Charak Samhita Chikitsa*
11.	*Katvangadi Churna*	*Sweta Pradar*	*Charak Samhita Chikitsa 30/92*
12.	*Drakshadi Churna*	*Vatrakt*	*Sushrut Chikitsa Sthan 5/29*
13.	*Priyangvadi Sidha Taila*	*Majjagat Virdadhi*	*Sushrut Chikitsa Sthan*
14.	*Vishnashak Agad*	*Vish Chikitsa*	*Sushrut Kalpa 5/75*
15.	*Varnropak Kalk*	*Varn Chikitsa*	*Sushrut Sutra 37/25*
16.	*Kashaghan Churna*	*Kasa Chikitsa*	*Sushrut Sutra 52/13*
17.	*Aashchyotan*	*Netra rog Chikitsa*	*Shushrut Utar Tantra 10/12*
18.	*Avpidan Nasya*	*Putinasya Chikitsa*	*Shushrut Utar Tantra 23/6*
19.	*Katphal Dhumravarti*	*Kaphaj Shirorog*	*Shushrut Utar Tantra 26/29*
20.	*Kaphavathar Jvar Kwath*	*Jvar Chikitsa*	*Asthang Hriday Chikitsa 1/62*
21.	*Katu ras Pak*	*Kaphaj Svarkshay*	*Asthang Hriday Chikitsa 5/44*
22.	*Kasmardadi Ghrit*	*Kas Chikitsa*	*Asthang Hriday Chikitsa 3/162*
23.	*Pushkaradi Churna*	*Hridyarog Chikitsa*	*Asthang Hriday Chikitsa 6/52*
24.	*Pushyanug Churna*	*Pradar Chikitsa*	*Asthang Hriday Utartantra 34/47*
25.	*Dhatakyadi Taila*	*Pradar Chikitsa*	*Asthang Hriday Utartantra 34/51*
26.	*Khadiradi Gutika*	*Dantrog Chikitsa*	*Asthang Hriday Utartantra 22/62*
27.	*Katphaladi Churna*	*Vaman Ayog*	*Kashyap Samhita Siddhi Sthan 3/149*
28.	*Aaragvadhadi Churna*	*Shalesmik Visrap*	*Kashyap Samhita Khil Sthan 14*
29.	*Changeri Ghrit*	*Arsha Chikitsa*	*Bhel Samhita 18/44*

30.	*Ayurajiya Rasayan*	*Savyathu Chikitsa*	*Bhel Samhita 19/37*
31.	*Triphaladi Taila*	*Varna Chikitsa*	*Bhel Samhita*
32.	*Katphaladi Yog*	*Kasa Chikitsa*	*Harit Samhita 12/29*
33.	*Katphaladi Nasya*	*Kasa Chikitsa*	*Harit Samhita12/39*
34.	*Satyadi Kwath*	*Tridoshaj Javar*	*Harit Samhita 2*
35.	*Bilvadi Yog*	*Vishuchika Chikitsa*	*Bahvprakash Samhita*
36.	*Pipalayadi Kwath*	*Kaphaj Kasa Chikitsa*	*Bahvprakash Samhita*
37.	*Pramehhar Kwath*	*Shaleshmaj Prameha Chikitsa*	*Bahvprakash Samhita*
38.	*Sarvarogya Vati*	*Sangrahni Chikitsa*	*Ras Ratna Samuchya 16/61*
39.	*Udaybhaskar Ras*	*Prameha Chikitsa*	*Ras Ratna Samuchya 17/97*
40.	*Shriparnyadi Kwath*	*Garbhini Atisar Chikitsa*	*Ras Ratna Samuchya 22/90*
41.	*Vrihta Vatgjankush Ras*	*Vatvyadhi Chikitsa*	*Rasendra Sarsangrah 10*
42.	*Mahavatgjankush Ras*	*Vatvyadhi Chikitsa*	*Rasendra Sarsangrah 12*
43.	*Mahamritanjyu Ras*	*Pleeha Rog Chikitsa*	*Rasendra Sarsangrah 60*
44.	*Sukrashodhan Aamayik Prayog*	*Sukrashodhan*	*Ras Tarangini 12/123*
45.	*Swarna Bhasm Aamyik Prayog*	*Swarbhang*	*Ras Tarangini 15/97*
46.	*Garik Aamyik Prayog*	*Karnmool Soth Lep*	*Ras Tarangini 22/122*
47.	*Katphaladi Churna*	*Javar Nashak*	*Yog Ratanakar*
48.	*Katphaladi Kwath*	*Pittaatisar Chikitsa*	*Yog Ratanakar*
49.	*Katphaladi Ghrit*	*Tridosh Panatyay Chikitsa*	*Yog Ratanakar*
50.	*Nimbadi Kwath*	*Vatshaleshm Chikitsa*	*Bhaisajya Ratnawali 5/169*
51.	*Vrihat Katphaladi Kwath*	*Vatoulavn Sannipat Jvar*	*Bhaisajya Ratnawali5/253*
52.	*Katphaladi Lep*	*Vish Rog Chikitsa*	*Bhaisajya Ratnawali 72/25*
53.	*Ashtangavlehika*	*Sannipat Javar*	*Chakradat 1/169*
54.	*Katphaladi Kwath*	*Kasa Chikitsa*	*Chakradat 11/23*
55.	*Katphal Churna Gharshan*	*Galgandadi Chikitsa*	*Chakradat 41/9*
56.	*Irimedadhya Taila*	*Kanth Rog Chikitsa*	*Chakradat 56/47*
57.	*Katphaladi Pachan Kwath*	*Pitta Javar Chikitsa*	*Sarangdhar Madhya 2/14*
58.	*Katphaladi Leha*	*Swas Chikitsa*	*Sarangdhar Madhya 6/43*
59.	*Irimedadhya Taila*	*Mukh Dant Rog*	*Sarangdhar Madhya 9/166*
60.	*Devdarvyadi Kwath*	*Prasuti Javar*	*Sarangdhar Madhya 2/49-50*

Phytochemistry

Form Fruit:-

Reducing sugure, tannins, vitamin C, Gallic acid, catechin, chlorogenic acid, p-coumaric acid.

Form Leave:-

β-sitosterol, β-sitosterol-β-D-glucopyranoside and quercetin have been isolated from the leaves of Myrica esculenta.

Form bark:-

Gallic acid, myricanol, myricanone, epigallocatechin 3-O- gallate, two prodelphinidin dimmers, hydrolysable tannin castalagin. Gallic acid, lupeol, oleanolic acid andstigmasterol were evaluated by HPTLC in bark extract.

Physical Constant

Table No. VII - Percentage extractive and ash in the bark of M. esculenta [17]

IDENTITY, PURITY AND STRENGTH –	(According to API Volume 3)
1. Foreign matter	Not more than 2 Per cent,
2. Total ash	Not more than 4 Per cent,
3. Acid-insoluble ash	Not more than 1 Per cent,
4. Alcohol-soluble extractive	Not less than 13 Per cent,
5. Water-soluble extractive	Not less than 12 Per cent,

Pharmacological Activity

Analgesic effects, antianaphylactic, antiandrogenic , antibacterial, anticoagulant , antidepressant , antifungal , antihypertensive, anti-inflammatory, antilipemic, antioxidant, anxiolytic effect.[18-30]

Part used- Bark, Fruit

Dosage-

Bark powder- 3 to 5 g

Fruit juice- 10 to 25 ml

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Literary Review

Evaluation and Development of *Rasa Shastra*

*Dr.Dolly Suman, **Dr.Mohar Pal Meena, ***Dr. Rajendra Prasad Sharma

Abstract

Rasa Shastra is a branch of Ayurveda which deals with knowledge of alchemical and pharmaceutical processes. It is an ancient tradition of healing that uses medicines incorporating metals and minerals purified using complex procedure .The tradition maintain that Rasa formulations in association with yogic and tantrik practice give extraordinary powers like arresting the process of ageing. Historical evidences of metallic artifacts from *Harappa* and *Mohan jodaro* along with the manuscripts indicate the development of the science of metallurgy in 2500 BC. Similarly we find evidence of use of metals, metals-ores and other minerals as medicine in the *Ayurvedic Samhitas*, Metals and Minerals had used for therapeutic and alchemic purpose. Four methods are elaborated which can be used as per the need. 1. *Shodhan* 2. *Marana* 3. *Satvapatana* 4. *Druti nirman*. *Ayurvedic acharyas* preserves the tradition particularly evident in *Rasa Shastra* , becomes contemporary by using new technological advances to further develop, then the future is bright .At the same time Quality assurance system needs to be strengthened and be more rigorous, considering the hazardous potential of the raw materials.

Keywords - *Rasa Shastra, Shodhana, Marana, Druti*

सारांशः-

रसशास्त्र आयुर्वेद की एक शाखा है, जिसमें औषध निर्माण प्रक्रिया एवं धातु विद्या का ज्ञान प्राप्त होता है इसकी उत्पति भगवान शिव से मानी गयी है। धातु विद्या का एतिहासिक प्रमाण हड़प्पा एवं मोहनजोदड़ो (2500 ई.पू.) काल से मिलता है आयुर्वेदीय संहिताओं में धातु एवं खनिजों का चिकित्सीय उपयोग प्राप्त होता है। रसशास्त्रीय ग्रंथों में शोधन, मारण, सत्वपातन और द्रुति निर्माण के द्वारा धातु एवं खनिजों का प्रयोग होता है नईं तकनीक जैसे नेनो टेक्नोलॉजी आदि के द्वारा इन विधियों को विकसित करने पर रसशास्त्र का भविष्य उज्ज्वल हो सकता है

*PG Scholar, Dept. of Rasa Shastra and Bhaishajya Kalpana, National Institute of Ayurveda, Jaipur **Assistant Professor,, Dept. of Rasa Shastra and Bhaishajya Kalpana, National Institute of Ayurveda, Jaipur ***Assistant Professor, Dept. of Rasa Shastra and Bhaishajya Kalpana, National Institute of Ayurveda, Jaipur moharpalmeena73@gmail.com

Literary Review

Evaluation and Development of *Rasa Shastra*

Dr.Dolly Suman, Dr.Mohar Pal Meena, Dr. Rajendra Prasad Sharma

Introduction

Rasa Shastra deals with the drugs of minerals origin, their varieties, characteristics, processing techniques, properties and their therapeutic uses. According to *Rasa Shastra* '*Parad*' (Mercury) and *'Gandhak'* (sulphur) are the most important minerals as they represent Lord *Shiva* and Goddess *Parvati*. Both mercury and Sulphur could be toxic separately, but blended together, they form a black powder known as *Kajjali,* which is relatively safe and makes an ideal base for most of the preparations. *Kajjali* is claimed to exert a potent effect on the properties of other formulations and makes them easily assimilated in body tissues.

A large percentage of the Ayurvedic formulations are of mineral origin. Their appearance in Ayurvedic medicine marks a coming together with the tantric tradition. The Ayurvedic goal of long-life becomes intermingled with the tantric yogic goal of immortality. Alongside this esoteric union is the clear fact that minerals are stronger then herbs have a longer shelf life and are very effective.

Mineral preparations are usually calcified in stepwise fashion by dipped in detoxifying solvents such as cow's urine, herb decoctions or sesame oil and then ground to the finest powders and subjected to high temperatures repeatedly to obtain *bhasma*. They become "complex" oxides or sulphides or sulfo-oxides. From mercury, gold, iron, *abhraka,* copper and egg shell etc., innate materials are transformed to potent medicines.

Origin

The science of *Rasa Shastra* has trailed through the ages, contemporarizing itself with the changing times and situations. The development of *Rasa Shastra* as an independent branch started since vedic period and then onwards numbers of ancient scholars have contributed in its development. The golden period of *Rasa Shastra* ascertained by historians is between vedic period to 14th century A.D. In this duration it was blended with the mainstream medicine 'Ayurveda' and emerged as a strong and popular medicine.

Rasa Shastra is always been understood as a part of alchemy, which was prevalent in the middle-east area. By medieval times Indian alchemy developed in the tantric domain for anonymity required to perform the complex and somewhat hazardous procedures of metals and minerals; ultimately for the betterment of human life. However, the thin line between alchemy and *Rasa Shastra* exists by the clear fact stated by Indian *Rasa-Siddha* that alchemy is a step comparable to confirmatory tests in chemistry to ascertain the change that has taken place in the raw and therefore, potentially mineral or metal. The products, which comply with this test, only should be considered for the use in humans otherwise they must be discarded or processed further till the expected quality parameters are attained. The Indian alchemist while developing the chemical processes of transforming base metals into gold similar to that in Europe and the Middle East merely considered it as a step towards perfection. Thus before using this medicine they often emphasized the need of bodily perfection through *panchakarma* and *Kshetrikaran*

This philosophy exactly suits all other contemporary *Yogic, Vedic and Buddhist* schools in the Asian continent. Basically all the oriental sciences aim at salvation, may be due to the deep and through understanding of the learned cadre regarding the life process. They guide each knowledge-seeker through practicality to the end swiftly and then considering what he will feel when on the highest achievement they offer a solution for 'peace within self' by inducting oneself towards spirituality. This vision develops after a true long hard work, which we find reflecting in ancient Hindu scientific works, and ***Rasa Shastra*** being no expectation to the rule. The only difference is that ***Rasa Shastra*** is opts for *'Jeevan mukti'* i.e.

salvation not after death but during the life span as well.

Another point of marvel is when a new idea originates or comes from outer world and germinates in this philosophy it is made apply suitable for the land and people who are the end-users here. Mercury originates in other parts of continents and Sulphur is less abundant in Indian subcontinent, as research confirms, it's use flourished here in all the directions.

Development of *Rasa Shastra*

The word *Rasa Shastra* literally means the 'science of Mercury'. ***'Rasa'*** means the elixir of life and the word is attributed to the most important factor responsible for life in various fields of knowledge. The same meaning is implied to Mercury by denoting it as '*Rasa*' of the metal mineral kingdom or in other words the metal of atmost importance having distinct properties and unique nature is given. Hence the science, which develops with the central theme of rasa(mercury), is *Rasa Shastra*. *Rasa aushadhies* are widely used in india.

The term *Siddha* is derived from the Sanskrit root *siddhi* meaning "achievement". The historical documents give an account of 84 *Siddhas*, the *Natha Siddhas*, *Maha Siddhas* and the *Rasa Siddhas*. Rasa *Shastra* developed initially from the practice of *Deha-bedha(*metabolic transformation) and *Loha-bedha* (Alchemy or metallic transformation). When the concept of *Deha-bedha* was developed through mercury, mercurial processing wand byproduct, the medicinal aspect of this knowledge become more popular as a result of which an important branch of Ayurveda known as Rasa Chikitsa. During the development of rasa chikitsa, various pharmaceutical processes such as *Shodhana, Marana* and *Satvapatana* were evolved to purify the metal, to reduce them to *Bhasma* and to extract the principal metal from their ores, respectively.

After evaluation of these procedures *Rasa chikitsa* (Mettalic/herbomineral formulations) began used in Ayurved Chikitsa since 8th century. In the medieval period the practice of *Rasa-chikitsa* increased and got the upper hand.Many important text on *Rasa chikitsa* like *Rasa Ratna Samucchya, Rasendra Sara Sangraha, Ananda Kand, Rasendra Chintamani* etc. were written in this period. The comprehensive texts like *Yoga Ratnakar, Bhaishajya Ratnawali* etc. were written after 16th century

Source Materials

Out of the three categories of drugs used in Ayurveda, ***Rasa Shastra*** predominantly deals with 'metal and minerals'. Plants and animal products are mainly used as processing for the metals. The drugs are classified into eleven main categories depending on their importance graded on the scale of reaction with mercury, as depicted in the Table:

S.No.	CLASSIFICATION	METALS AND MINERALS
I	*Maharasa*	Mica, Tourmaline, copper pyrite, Iron pyrite, Shilajit, Blue Vitriol, Bismuth, Calamine.
Ii	*Uparasa*	Sulphur, Heamatite, Green vitriol, Potash alum, Orpiment, Realgar, Collyrium, Ruhbarb
Iii	*Sadharana Rasa*	Kampillaka, White Arsenic, Cowries, Ammonium chloride, Ambergris, Red oxid of mercury, Cinnabar, Litharge.
Iv	*Dhatuvarga*	Gold, Silver, Copper, Iron, Lead, Tin, Zinc, Brass, Bronze, Vartaloha.
V	*Ratnavarga*	*Ruby, Pearl, Coral, Emerald, Topaz, Diamond, Sapphire, Cinnamon*, Cat's eye.
Vi	*Upratnavarga*	Toumaline, Sun stone, Moon stone, Lapis lazuli, Turquoise, Quartz, Amber.
Vii	*Sudhavarga*	Lime, Oyster Shell, Conch shell, Cuttlefish bone, Gypsum, Silicate of lime,Stag Horn, Chalk, Hen's egg shell etc.

Viii	*Siktavarga*	Silica, Talc, Serpentine, Jade, Asbestos, Agate.
Ix	*Ksharavarga*	Borax, Barley Alkali, *Sajjikshar*, Potassium nitrate.
X	*Vishavarga*	*Halahala, Kalkoota, Shringaka, Pradeepana, Saurashtrika, Brahmaputra, Haridra, Saktuka, Vatsanabha.*
Xi	*Upavishavarga*	Nuxvomica, Opium, Croton seed, Dhattura, Indian Hamp, Abrus seed, Marking nut, Oleander, Gloriosa, Arka Ksheera, Snuhi Ksheera.

Mercury, the most important drug of *Rasa Shastra* that preserves its mystical links with *Tantra* and Alchemy, is considered as a living substance or a living being. In the process of converting it into a rejuvenating medicine it goes through many processes. '*Sankhya darshan*' hypothesizes the the '*prakriti-purush* theorem', which forms the basis of *Ayurvedic* principal. This is because the time span covered by this science is huge though such differences are observed in the theoretical framework, at practical level *Rasaushadhies* work on the principles of *Ayurveda.* A new term is introduced at this stage '*Rasa Vaidhya'.*

Rasa-vaidyas have tried to classify the functions into two aspects; treatment of diseases and rejuvenation (*Rasayana*) of the body to achieve "*Jeevanmuki*" and they have succeeded to some extent in separating the '*Dehavad*' aspect from alchemical '*Dhatuvada*'(transmutation of lower metals into noble metals)though it is not easy. *Rasavaidyas* direct that instead of all the eighteen stepwise reactions called as *Ashtadashasamskara* performed on mercury only the first eight steps, *Ashtasamskara* are sufficient to use the mercury for treatment of diseases.

Apart from the Mercury, Sulphur, Mica, Gold and Diamond are considered in the top cadre. Description of individual drug is well formatted covering its synonyms, selection and exclusive criteria, types, *shodhana, maran, bhasmapariksha, satvapatana, druti*, desired effects, properties, dose, associated other medicines, administration method, adverse effects, antidote, dietary and behavioral instructions to the last detail.

A list of processing drugs, which contains medicinal plants and animal product, is also long. Specific drugs are grouped together in particular proportions to facilitate the process.

Drugs from the *Ratnavarga* and *Upratnavarga* are described using two approaches; internal medicinal use and external wearing as an ornament to give protection from adverse planetary effects.

Manufacture of artificial drugs was also practiced and drugs were also prepared from these in the ancient times. Description of substitute drugs due to non-availability of the original ones in later texts is indicative of the contemporary nature or live tradition of *Rasa Shastra*. A well-organized description of technical terms is also available to facilitate new learner of the science.

Processing methods

A. Identification and processing of drugs: For selection of proper raw materials from its types one has to select a specific sample depending on the physical characteristics and some tests described; to be more precise taught to the disciple in the living tradition of *Rasavaidyas*. Once the right material is selected, it is processed according to the nature of the material and desired end product is obtained. Basically, four methods are elaborated which can be used alone or in combination as per the need.

i. *Shodhan*

ii. *Maran*

iii. *Satvapatan*

iv. *Druti nirman*

Generally '*Shodhana*' is employed to all the drugs and then the drug is exposed to any one of the remaining processes depending on the requirement. Complex procedures such as *Nag, Vanga* and *Yashad jarana* are also described.

B.Measuring system: For the preparations of various medicines '*Rasa Shastriya Mana'* was used. The unit value of the measure is a little less than the measure system adapted for general and herbal use, but the measuring instruments were the same. E.g.:

1 *Karsha* = 72 *ratti* = 9gm in *Rasa Shastra*; whereas

1 karsha = 96 ratti =12gm in *Magadha* system.

C. Equipments: Various equipments were used to process the metals and minerals. These are classified into four groups' viz. *Yantra, Puta, Musha* and *Koshthi.*

YANTRA*: Yantra* are the instrument which are used for the controlling parada by performing the process like *swedana* (Boiling), *Patana* (Sublimation) etc. *Yantra* is made up of various shapes and sizes by earthen vessel, iron pots etc., which are similar to modern apparatus. The selection of apparatus depends on the process for which any particular *yantra* is to be used.

PUTA*: Puta* indicates the source and amount of the heat required for the incineration of *Rasa, Maharasa, Uparasa*, sudha varga, metals etc. drugs. *Puta* is carried out inside the ground in a well constructed pit. Cow dung, small fragment or powder is used as the major fuel. *Puta* indicates the process of repeated heating to converts metals and minerals onto bio-assimilable substance known as '*Bhasma*'. The amount is substance specific and measured in terms of number or weight of fuel. The classification of *Puta* available in texts is according to size and heat type used, such as direct or indirect heat. It is mentioned that more putas make a metal highly effective.

MUSHA *: Musha* is the particular apparatus, which takes away any unwanted impurity of the material, or element. In modern terminology *mushas* may be called crucibles. In *Rasa* texts different types of *mushas* having different shapes and sizes are described which could resist different degrees of temperature depending upon the type of material from which these are made.. It is evident that *mushas* are a part of an assembly, are used to melt metals, to extract satva of minerals, to prepare amalgams, to convert precious stones into liquid from (*druti*) and occasionly to prepare *bhasma* of some metals.

KOSHTHI*:Koshthi* is used to extract '*Satva'* of minerals. These are modifications of '*Chulhas'* to suit the specialized procedures and are comparable with modern furnaces. Fuels like charcoal of *Vansa, Khadira, Madhuka, Badari* are used in the *Koshthi*. It is constructed in the soil or sometimes above the ground level depending on the requirement. The processes that take place in a *Koshthi* are to extract the soft as well as hard material like mica, chalcopyrite, *harital,* to separate the ingredients from a mixed metal and to prepare *Kupipakwa Rasayanas.*

Formulations

The finished products are developed into complex dosage forms such as *Khalvi Rasayan, Parpati Rasayan, Pottali Rasayan* and *Kupipakwa rasayan* targeted towards specific organs, systems like GI Tract, Nervous system etc..

Quality parameters

In all the processes, general and specific rules are led down so as to maintain the quality of the product right from raw material selection up to finished product levels. Some physico-chemical tests like colour, *Nishchandratva, Vaaritar, Unama, Rekhapurnata, Slakshnatva, Sukshma, Anjansannibham, Niswadu* (tasteless), *Apunarbhavata, Niruttha* are described to ascertain the quality of finished product. Procedures like *Amritikaran* are described as a safety measure for possible chance of adverse effects. Concepts of good color and appealing nature of the medicine is evident from *'Lohitikaran'* process.

Administration of *Rasaushadhies*

The most important characteristic of *rasa*-drugs is their small dosage of 125-250mgs as compared to herbal medicine (3-6gms). The dosage varies according to the drug and type of finished product whether it is *shuddha, bhasma or satva bhasma*. Description of '*Suchikabharan Rasa*' is indicative of the first try of parenteral administration of drug through the scalp vein. It is said that specific dietary restrictions are necessary while administering these medicines. These concepts are indicative of not only drug interaction but point towards drug-food interaction as well.

Conclusion

Rasa Shastra started and was developed as a separate science since vedic period, in later period completely merged with *Ayurveda*. The study of Rasa Shastra reveals the metals and minerals identification, *Shodhana* process, *Marana* process, formulations, therapeutic uses and toxic symptoms.. Today there are some living traditions those are dealing in *Rasushadhies*. The typical 'teacher disciple' system is on the verge of extinction. Pharmaceutical companies are manufacturing these medicines and they generally are following the traditional rules. In today's scenario to collaborate the science more accurate methods are to be adopted to check the adulterants and in proving the safety and efficacy of the Rasaudhies by adopting modern biological and analytical tools in validating the formulations.

The manufacture of the *Bhasmas* are region specific in terms of raw drug, processing drugs, equipments and therapeutic uses making it cost effective and therefore affordable by the local population. Majority of such good and potential medicines cannot be made available to a wider section of population very easily. On the other hand all the above said things are subjective and one has to relay on the manufacturing person's words for quality standards and use, which vary considerably in person to person and reason as the surveys reveal.

Rasa Shastra, becomes contemporary by using new technological advances such as nano molecules to further develop and refine drug delivery systems, then the future is bright. At the same time Quality assurance system needs to be strengthened and be more rigorous, considering the hazardous potential of the raw materials.

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Literary Review

Suran Kanda (*Amorphophallus Campanulatus* Roxb.)- A Review

*Dr. Aarif Khan, **Dr. Prasant Saini, ***Prof. Pawankumar Godatwar, ****Dr. Bilal Ahmad

Abstract:

Amorphophallus campanulatus (Roxb.) Blume Commonly known as "*Suran Kanda/Jimikand*", "Elephant foot yam" is one of the underutilized aroid of araceae family. It is tuberous, stout indigenous herbs used in ayurvedic medicine system for treating various human ailments. In recent years the popularity of complementary medicine has increased. Complete information about the plant has been collected from various books, journals and Ayurvedic classical texts like *Samhitas,Nighantus etc.* The present review compiles the existing literature related to botanical description, propagation, nutrient composition, phyto-chemical constituents, traditional uses, pharmacological actions.

Keywords: *Amorphophallus campanulatus* (Roxb.), *Suran Kanda*, Traditional Medicinal use.

सारांश–

एमोर्फोफेलस कम्पैनुलेटस (रोक्सब.) को सूरणकन्द, जमीकन्द व एलिफेन्ट फुट याम के नाम से जाना जाता है। यह अरेसी कुल का द्रव्य है। इस औषध का प्रयोग बहुत कम हुआ है। इसके कन्द का प्रयोग मनुष्यों में बहुत से रोगों में आयुर्वेदिक औषध के रूप में होता है। कम्प्लीमेन्टरी औषध का प्रयोग कुछ वर्षो से बहुत होने लगा है। इस औषध के वर्णन मे बहुत सी पुस्तको, जर्नल व आयुर्वेदिक साहित्य जैसे संहिता व निघण्टु का सहयोग लिया गया है। इस प्रबन्ध में सूरणकन्द का वानस्पतिक वर्णन किया गया है। इसमे उपस्थित पौष्टिक तत्वो, रासायनिक घटको व इसके घरेलु उपयोग का सम्पूर्ण वर्णन किया गया है।

* Ph.D. Schlor, P.G.Deptt. of Roga Evam Vikriti Vigyan, National Institute of Ayurveda, Jaipur E-mail – aarif23788@gmail.com , Mobile – 09214505954 **Ph.D. Schlor, P.G.Deptt. of Shalya tantra, National Institute of Ayurveda, Jaipur ***Professor and Head, P.G. Deptt. of Roga Evam Vikriti Vigyan, National Institute of Ayurveda ****P.G. Scholar, P.G.Dept. of Roga Evam Vikriti Vigyan,National Institute of Ayurveda,Jaipur

Literary Review

Suran Kanda (*Amorphophallus Campanulatus* Roxb.)- A Review

Dr. Aarif Khan, Dr. Prasant Saini, Prof. Pawankumar Godatwar, Dr. Bilal Ahmad

Introduction:

The majority of people in developing countries still rely on herbal medicines to meet their health needs, especially in cases where synthetic medicines cannot provide relief from hard-to-cure illnesses. *Amorphophallus campanulatus* (Roxb.) Blume. (Family: Araceae), locally known in India as *Suran*, is a perennial herb with rounded tuberous root stock (corm) that is widely distributed in India, Bangladesh, and Africa. The tuberous roots of the plant are used traditionally for the treatment of piles, abdominal pain, tumours and enlargement of the spleen, asthma and *rheumatism*[1]**.** The roots of the plant also possess tonic, stomachic and appetizer *properties*[2]. The tuber has been reported to have antiprotease activity[3], antibacterial, antifungal and cytotoxic as well as analgesic activities[4]. Some of its traditional uses, including treatment of tumours, enlarged spleen and rheumatism suggest that the tuberous roots of the plant might possess immunomodulatory activity.

Local Names Of Plant:

English (Elephant foot yam, Whitespot Giant Arum, Sweet Yam, Telinga Potato); Hindi name (*Suranakanda, Zimikanda*); Bengali name (Ole); Fijian (Suran); Japanese (Koniaku, Konjac, Konnyaku); Thai (Buk Khang); Tamil (*kizhangu*); Kannada (*suvarna gedde); Oriya (oluo)*; telugu (*kanda gadda).*

Scientific Classification:

Kingdom: Plantae

Division: Angiosperms

Class: Monocots

Order: Alismatales

Family: Araceae

Genus: *Amorphophallus*

Species: *paeoniifolius*

Synonyms**:** *A campanulatus*

Ayurvedic Properties:

Rasa- Katu, Kashaya

Guna-Ruksha, Tikshna, Guru, Vishada, Laghu

Vipaka-Katu

Veerya- Ushna

Karma- external-*Shothahara, Vedanasthapana Arshaghna, Vatahara, Kaphahara, Yakrit-Uttejaka*[5].

Synonyms:

Amorphophallus paeonifolius or Elephant foot yam or Whitespot giant arum or Stink lily,

Botanical Description:

Amorphophallus is a perennial, terrestrial underground hemispherical depressed dark brown corm of approximately 20-25 cm in diameter which bears flowers and fruits in the month of April-May 6, 7 It bears leaves that are solitary which are 30-90 cm broad; Inflorescence consist of a foliar organ, the spathe, which usually envelops a stalk–like organ, the spadix. The flowers are tiny, monoecious and strongly reduced and are found at the base of the spadix. Raphides of the *Amorphophallus campanulatus Blume* (syn. paeonifolius) *isolated* from tuber are pointed at one end and square at other end, cross section is 'X'-shaped at pointed end and they areasymmetrical[6].

Propagation, Cultivation And Storage:

Hot and humid climate provides better growth of Elephant foot yam. Humid climate supports in the initial stages of crop growth where as dry climates facilitate tuber bulking. Well-distributed rainfall of 1000-1500mm is helpful for good crop growth and tuber yield. Welldrained, fertile, sandy-loam, black soil is ideal for elephant foot yam cultivation. Elephant foot yam is a long duration crop and generally matures in 6-7 months. Crop can be harvested at different stages of development starting from 6-7 months of plantation

up to 4 years as per requirement. The crop is cultivated as a mixed crop in the fields of banana, ginger; groundnuts[7]. Cut tuber pieces are used as planting material and take 3-4 weeks time for the development of sprouts. Plants can be vegetative propagated through corms which can be planted in the prepare pits (40cm x 40 cm x 40 cm) filled with decomposed cow dung compost and sandy loam soil[8]. Tubers start sprouting after 2-3 months of storage .Tubers are stored in shaded, cool and ventilated place in single layer or in two –three layers with monitoring and removal of infected tubers, otherwise heavy rotting of tubers occurs.

Known Hazards:

Although no specific mention has been seen for this species, it belongs to a family where most of the members contain calcium oxalate crystals. This substance is toxic fresh and, if eaten, makes the mouth; tongue and throat feel as if hundreds of small needles are digging in to them. However, calcium oxalate is easily broken down either by thoroughly cooking the plant or by fully drying it and, in either of these states; it is safe to eat the plant. People with a tendency to rheumatism, arthritis, gout, kidney stones and hyperacidity should take especial caution if including this plant in their diet[9].

Traditional Uses:

Suran has great medicinal as well as nutritional value so being used for medicinal as well as edible purposes. In Ayurveda the dried corms of this plant is used in *Arsha* (Piles), *Pliha* (splenic disorders), *Gulma* (lump), *Shwasa* (Bronchial Asthma) and *Ashtila* (Enlarged Prostate) etc disease conditions[10].

The tubers of *Amorphophallus paeoniifolius* are acrid, astringent, thermogenic, irritant, anti-inflammatory, antihaemorrhoidal, liver tonic, appetizer, anthelmintic. They are used in elephantiasis, tumors, asthma, bronchitis, hepatopathy, slenopathy, anemia, anorexia, constipation, snake poisoning and migraine. The roots are ophthalmic and used in opthalmia and boils. The petiole is used in scorpion bite and dysmenorrhoea. The plant is used in piles, dyspnoea, spleenomegaly, and cough[11].

Major Nutrient And Chemical Constituents:

Amorphophallus is a good source of energy, sugar, starch, proteins as well as minerals Average nutritional profile contains Starch (11-28%), sugar (0.7-1.7%), protein (0.8- 2.60%), fat (0.07-0.40%)mean energy value (236- 566.70KJ/100g). The most abundant macro mineral is potassium (327.83 mg/100 g) Phosphorus (166.91 mg/100 g), calcium (161.08 mg/100 g) and iron (3.43 mg/100 g). Macro mineral and soluble oxalate ranges between different varieties :K (230-417mg/100g)P(120- 247 mg/100g) Ca (131-247 mg/100g) Fe(1.97-5.56 mg/100g) Mn (0.19-.65mg/100 g) Zn(.12-1.92 mg/100 g) Soluble oxalate(6.65-18.50 mg/100g).12 The mean soluble oxalate content (13.53 mg/100 g) was safe from the viewpoint of accumulation of urinary oxalate leading to kidney stone[12].

Phyto-Chemical Screening:

Qualitative assay of different solvent extracts of *Amorphophallus paeoniifolius* was carried out for the presence of phytoconstituents. Extracts were taken of Petroleum ether, Chloroform, Methanol and water and tested for the presence of different phytoconstituents. The petroleum ether extract contain alkaloids, steroids, fats & fixed oil. The chloroform extract contain alkaloids. The methanol extract contain alkaloids, steroids, flavonoids and carbohydrates. The aqueous extract contains flavonoids, tannins, proteins and carbohydrates[13]. Ethyl acetate and Hexane extract extracts contains Alkaloid, flavones, carbohydrate and saponins[14]. Methanolic extract (ME) and 70% Hydroalcoholic extract (AE) of *Amorphophallus paeoniifolius* was analysed for flavonoid content (FC) in terms of Rutin and Total Phenolic Content (TPC) was measured in terms of catechol equivalent. Thin Layer Chromatography (TLC) study of methanolic extract was conducted. The flavonoid content of ME and AE were found to be 46.33 mg/g and 36.88 mg/g respectively. Similarly TPC of study extracts (ME and AE) were found to be 12.67 mg/g and 6.25 mg/g. ME showed higher contents of flavonoid and phenolic. Upon TLC of the ME it was observed that there were seven spots at different Rf values. A flavonoid (Quercetin) from the ethylacetate fraction of corm of *Amorphophallus paeoniifolius* was isolated by

column chromatography using gradient elution method. The isolated flavonoid was characterized by spectral studies[15].

Pharmacognostical Evalution:

Results showed raphids, rosette crystals of calcium oxalate, presence of lignine, starch grains etc. Preliminary physicochemical analysis revealed loss on drying (0.75%), ash value (0.6%), alcohol soluble extract (6.8%), and water soluble extract (13.3%). These observations can be considered as standard in future studies[16].

Medicinal uses of corm:

gastroprotective ability: Free radical spices plays important role in gastrointestinal ulcerogenesis. Phytochemical constituents has showed the presence of polyphenols, which also posses anti ulcer activity. Methanolic extract of *Amorphophallus* has the gastro protective ability against pylorus ligation induced gastotoxicity in albino rats. Methanol extracts of the corm has shown the increased GSH levels and inhibition of lipid peroxidation in dose dependent manner i.e. 250 and 500 mg/kg. Treatment with methanol extracts showed reduction in gastric volume, free acidity, total acidity, pH and ulcer score. The protection percentage in dose dependent manner was, 250 mg/kg showed 67% and 500 mg/kg showed 85.5% activity respectively in comparison with standard Lansoprazole 80.50%[17].

Analgesic Activity: Oral dose of 250 and 500 mg/kg of methanol extract, showed significant analgesic activity in mice. The methanol extract suppressed dose dependently the frequency of acetic acid-induced writhing in mice.18 Analgesic activity was also confirmed by tail flick method and acetic acid induced writhing response method by using diclofenac sodium as standard. The intraperitoneal administration of methanol extract of *Amorphophalluspaeoniifolius* tubers (250, 500 mg/kg) induced a significant analgesic activity in a dose-dependent manner[18].

Anticonvulsant Activity: Petroleum ether extracts of *Amorphophallus paeoniifolius* at the dose of 200, 300, 400 mg/kg were used for theeffects on the onset of convulsion in isoniazid (INH)induced mice model. Diazepam at the dose of 4 mg/kgwas used as the standard drug. The group pre-treatedwith standard diazepam had late onset of convulsion.Petroleum ether extract of *Amorphophallus paeoniifolius* in doses of 200, 300, 400 mg/kg significantly increasedthe latency of onset of convulsions. Petroleum etherextracts showed dose-dependent activity regarding onsetof convulsion[19].

Anti-Inflammatory Activity: Anti inflammatory activity was observed by using carrageenan induced paw edema model in rats[20]. Among the petroleum ether, chloroform , methanol and water extracts the Methanol extract of *Amorphophalluspaeoniifolius* has prominent anti-inflammatory activity while the chloroform extract has milder activity. Diclofenac sodium at the dose of 5 and 10 mg/ kg were used as standard drug. 3 hours after the carrageenan injection, the methanol extract at the dose of 200 and 400 mg/kg produced 37.5% and 45.83% inhibition when compared to the control group represents the index of swelling. In case of control group where the maximum swelling index reaches up to 59.2 at 5th hour where as incase of groups received diclofenac sodium 10 mg/kg and methanol extract 400 mg/kg the maximum swelling index were 16.02 and 23.29 at 2nd and 3rd hour respectively. Methanol extracts of 200mg/kg and 400mg/kg with standard drug aspirin at the dose of 100 mg/ kg also found to produce Anti-inflammatory activity. The effect of*Amorphophallus Campanulatus* tubers extracts was dose as well as time dependent, both extracts shows maximum inhibition at 180 minute [(200 mg/kg) 48.44 % and (400 mg /kg) 60.35%)[21].

Antimicrobial Activity: Antibacterial, antifungal and cytotoxic activities of ethanol extract of tuberous roots of Amorphophallus campanulatus were assessed. Disc diffusion technique was used to determine in vitro antibacterial and antifungal activities. Cytotoxicity was determined against brine shrimp nauplii. In addition, minimum inhibitory concentration (MIC) was determined using serial dilution technique to determine antibacterial potency. The extract showed significant antibacterial activities against four gram-positive bacteria (Bacillus subtilis, Bacillus megaterium, Staphylococcus aureus, Streptococcus haemolyticus) and six gram-negative bacteria (Escherichia coli, Shigella dysenteriae,

Shigella sonnei, Shigella flexneri, Pseudomonas aeruginosa, Salmonella typhi). The MIC values against these bacteria ranged from 16 to 128 ?g/ml. The antifungal activity was found weak against the tested fungi. In cytotoxicity determination, LC50 of the extract against brine shrimp nauplii was 7.66 µg/ml[22].

Further antifungal and antimicrobial properties of the various crude extracts of the drug by using cup-plate diffusion method against common pathogens viz., E.coli, S. aureus, E. faecalis, K. pneumoniae, C. albicans and A. fumigatus. Among the different extracts, the methonolic extract of A. paeoniifolius was found relatively effective[23]. A phytoconstituent amblyone, a triterpenoid from A. paeoniifolius and assessed its in vitro antibacterial, antifungal and cytotoxic activities. Disc diffusion technique was used for in vitro antibacterial and antifungal screening. Cytotoxicity was determined against brine shrimp nauplii. In addition, minimum inhibitory concentration (MIC) was determined using serial dilution technique to determine the antibacterial potency. Large zones of inhibition were observed in disc diffusion antibacterial screening against four Gram positive bacteria (Bacillus subtilis, basillus megaterium, Staphylococcus aureus and Sreptococcus pyrogens) and six Gram negative bacteria (Escherichia coli, Shigella sonnei, Shigella flexneri, Pseudomonus aerogenosa and Salmonella typhi). The MIC values against these bacteria ranged from 8 to 64 microgram/ml. In antifungal screening the compound showed small zones of inhibition against Aspergillus flavus, Aspergilus niger and Rhizopus aryzae. Candida albicans was resistant against the compound. In cytotoxic determination, LC50 of the compound against brine shrimp nauplii was 13.25 microgram/ml[24].

Hepatoprotetive Activity: Shashtry et al. in 2010 isolated a flavonoid (Quercetin) from the ethylacetate fraction of corm of Amorphophallus paeoniifolius and screened for hepatoprotective activity on CCl4 induced model. The flavonoid was subjected to various biochemical parameters such as SGOT, SGPT, SALP, bilirubin, total protein and histopathology of rat liver were studied. The results were found to be significant by reducing the elevated enzyme levels, increasing the protein level and attenuating the damaged hepatocytes toward the normal texture. The results were further supported by histopathology of isolated rat liver[25].

Antioxidant Activity: Antioxidant has a characteristic ability to trap free radicals. *Amorphophallus* species contains some kind of phytochemicals like polyphenols and flavonoid with antioxidative effect. Hexane extract and methanolic extract of *A. campanulatus* tuber were evaluated for phytochemical screening and in vitro antioxidant activities using DPPH, hydroxyl radical, reducing power and total antioxidant capacity assays. The total phenolic and flavonoid contents were also investigated. The protective potential of two different doses of methanolic extract (125 and 250 mg/kg) was also evaluated against thioacetamide (TAA) induced oxidative stress in rats. Silymarin used as a standard drug control. In vitro studies revealed that methanolic extract has higher antioxidant and radical scavenging activity than hexane extract, which may be attributed to its higher phenolic and flavonoid content. ACME significantly prevented the elevation of serum AST, ALT, ALP, LDH, and tissue malondialdehyde levels ($P < 0.05$). Hepatic and renal GSH, GST, GR, GPx, and catalase levels were remarkably increased by thetreatment with the extract. Quantification of histopathological changes also supported the dose dependent protective effects of metahonic extract[26]. Antioxidant activity and radical scavenging potential of ethanolic extracts of *Amorphophallus paeoniifolius* was studied for the inhibition of lipid peroxidation estimated in terms of thiobarbituric acid reactive substances (TBARS) and the levels were reduced by 4.3% to 67.2% in a dose-dependent manner. Methanolic extract was analyzed for scavenging capacities based on DPPH assay (1, 1-diphenyl-2-picrylhydrazyl-2-radical) and percentage inhibition activity based on 2,2-azinobis-(-3-ethyl) benzothiozoline- 6-sulfonate (ABTS+) and H2O2. The *A.paeoniifolius* extract showed a maximum of 68.6% of DPPH scavenging activity and the maximum inhibition of 74% and 67.2% in the case of ABTS and H2O2, respectively. The antioxidant efficiency and inhibition of oxidation of the extract was found to be dose-dependent at the tested concentrations of 1-50 microg/mL. High performance thin layer liquid chromatography (HPTLC) profile of the extract suggests the presence of polyphenols such as gallic acid, resveratrol, quercetin and two unidentified

compounds. The results suggest that the ethanol extract of *A. paeoniifolius* has apotent antioxidant activity in vitro and can be utilized as an effective and safe source of antioxidants[27].

Anti Tumour Activity: The ethanolic extract of Amorphophallus Paeonifolius has shown significant antitumor and antioxidant effect in animals. Effect of ethanolic extract on RBC, WBC, Hb & Neutrophils as a-P< 0.001, b-P<0.01, c-P<0.05, ns-non significant, Effect of AP-extract on tumor latency and tumour burden were found as extremely significant at P<0.001The present preliminary investigation suggests that Amorphophallus paeonifolius tuber stimulate both cellular and humoral immunity[28].

CNS Depressant Activity: It was found that petroleum ether extract at doses of 100, 300 and 1000 mg/kg showed significant CNS depressants activity in mice the intra-peritoneal administration of petroleum ether extract of Amorphophallus paeoniifolius tubers (100, 300, 1000 mg/kg) induced a significant decrease in locomotor activity and grip test in a dosedependent manner. The percentage decrease in locomotor activity are 16.53 (P>0.05), 56.77 (P<0.01), 73.36 (P<0.01) (n=6) and percentage decrease in activity in grip test are 10.38 (P>0.05), 62.67 (P<0.01) and 70.78 (P<0.01) (n=6) 1 hour after the intra-peritoneal administration of Amorphophallus paeoniifolius at the doses of 100, 300, 1000 mg/kg respectively[29]. A significant synergistic effect of the petroleum ether extract of Amorphophallus paeoniifolius was seen with diazepam as compared to that of phenobarbitone[30]. Effective dose (ED 50) for petroleum ether extract for the CNS depressant activity was calculated to be 250 mg/kg. Both of the phenobarbitone and diazepam exert their CNS depressant effect by acting on the GABAA receptor. So it was concluded that the components present in the petroleum ether extract may bind with α subunit and facilitate the GABA mediated Cl- channel opening, thus hyperpolarizing the cell and show CNS depressant action. Diazepam is a benzodiazepine receptor agonist it was concluded that extract has agonistic activity with benzodiazepine receptor, which might similar to that of diazepam Further investigations need to be done to understanding of molecular mechanism of action and signal transduction of the components present in petroleum ether extract of A. paeoniifolius regarding CNS depressant activity.

Conclusion:

Amorphophallus corm has been explored for their phytochemical, pharmacological .This review highlights the importance of *Amorphophallus* having multiple therapeutic potential. This crop has the ability to provide nutrition security to the developing countries along with their medicinal aspects. Thorough screening of literature available on *Amorphophallus* depicted the fact that it is a popular remedy among the Ayurvedic and traditional practitioners for treatment of various ailments.

The plant was found to be potent analgesic, anti-inflammatory, CNS depressant, anthelmintic, antibacterial, antifungal and cytotoxic agent. It was also seen that the benzodiazepine receptors may be involved for the CNS depressant activity. The phytoconstituents which are present in the plant are mainly steroids and flavonoids which are responsible for the actions. More research is needed to isolate the constituents responsible for the biological actions. It was also observed that no clinical trials have been done so far. So from the current review of literature and ayurvedic text it was concluded that the plant is having high medicinal value. The traditional and ethnomedicinal literatures showed that the plant is very effective and safe for medicinal uses. By using the reverse pharmacological approaches in natural drug discovery a potent and safe drug can be investigated from the plant for various chronic diseases like liver diseases, cancer, arthritis, and other inflammatory diseases.

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Literary Review

Etiopathological Study of *Avabahuka*: A Review

*Dr.Jeuti Rani Das, **Dr.Hemanta Bikash Das, ***Dr. Surendra Kumar Sharma, ****Dr. Sisir Kumar Mandal

Abstract :

Avabahuka is a *Vatavyadhi*, which in contemporary science can be correlated to frozen shoulder on the basis of sign and symptoms. Though not major disease but hamper the routine domestic activities, like combing, brushing and mostly affect the sleeping which bring the patient to physician. Which prevalence is 1 among 50. In *Avabahuka*, there are- pain, stiffness , restricted movement of shoulder joint, wasting of muscle etc. the site *Amsasandhi* may correlate with shoulder joint. Though it is self limited , but recover within 3 years. But this period is unbearable. So by evaluating the exact pathogenesis of *Avabahuka* it can prevent and treat. According to *Ayurveda* it is *Vata Vyadhi*, so come under *Astamahagada*. *Susruta* and *Vagbhatta* mention *Avabahuka* directly under *Vatavyadhi*. though *Caraka* mention 80 types of *Nanatmaja Vyadhi*, but clearly mention that it is innumerable and produce many disease according to site where aggravated *Vayu* located. On the basis of these it is try to find out the etiology and pathogenesis of *Avabahuka* which can give a preventive measure and early intervention

Key words- *Avabahuka*, frozen shoulder, *Vatavyadhi*

साराशं –

अवबाहुक एक वातव्याधि है। इसके लक्षण के आधार पर समकालिन विज्ञान में पारस्परिक संबन्ध फ्रोज़ेन शोल्डर से की जा सकती है। यद्यपि यह बहुत घातक व्याधि नहीं है, लेकिन दैनिक काम- काज जैसे कंघी करना, ब्रश करना, नींद नहीं आना इन सब में वाधा आती हैं जो रोगी को चिकित्सक के पास लाते है। इसकी व्यापकता 50 जन साधारणों में से 1 को होता हैं। अवबाहुक में शूल, अंस सन्धि में कठिनता, गति में कष्ट ओर अंसशोष होता हैं। अंस सन्धि का पारस्परिक संबन्ध शोल्डर जाइन्ट से की जाती है। यद्पि ये आत्मपरिसीमित है लेकिन ठीक होने में 3 साल लगाते है। लेकिन ये समय असह्य है। सम्प्राप्ति का सही मुल्यांकन करके इसकी चिकित्सा ओर रोकथाम कर सकते है। आयुर्वेद के अनुसार ये वात व्याधि है इसलिये अष्टमहागद के अन्तर्गत होते है। सुश्रुत ओर वाग्भट्ट ने अवबाहुक को वातव्याधि में शामिल किया है। यद्पि चरक ने इसे 80 नानात्मज वातव्याधि में नहीं गिना है लेकिन उन्होने इसे अनगिनित हैं ओर दूषित वायु जहा आश्रय लेते है वहा रोग पैदा करते है। इसके आधार पर अवबाहुक की निदान ओर संप्राप्ति निकालने की कोशिश की जा रही है। जो रोग होने में वाधा प्रदान करे है ओर जल्दी रोग थाम की व्यवस्था करे।

*PG Scholar,,Department of Roga Evam Vikriti Vijanana,National Institute of Ayurveda, Jaipur, Rajasthan, **PG Scholar, Department of Prasuti evam Striroga, Govt. Ayurvedic college, Assam, ***Prof. Department of Roga Evam Vikriti Vijanana, National Institute of Ayurveda, Jaipur, Rajasthan, ****Assistant prof. Department of Roga Evam Vikriti Vijanana, National Institute of Ayurveda, Jaipur, Rajasthan

Literary Review

Etiopathological Study of *Avabahuka*: A Review

Dr.Jeuti Rani Das, Dr.Hemanta Bikash Das, Dr. Surendra Kumar Sharma, Dr. Sisir Kumar Mandal

Introduction

Avabahuka, it is such a disease which is under *Vatavyadhi* and in contemporary science can be correlated with frozen shoulder on the basis of sign and symptoms. The disease *Avabahuka* is not mentioned by *Caraka* directly under the 80 types of *Vatavyadhi* but *Susruta* and *Vagbhatta* mentioned it.[1,2] It occurs in *Amsasandi* (shoulder joint). In this ultra modernized era due to change in life styles, sedentary work and food habits, people are unable to follow the *Dinacharya* and *Ritucharya* which are explained in our science. Most of us spend a lot of time in front of computer, TV, riding motor vehicle etc. and this posture doesn't allow a good movement of the shoulder. This lead to an increased prevalence of *Avabahuka* (frozen shoulder), about 2-5%.[3,4] It is a *Vatavyadhi*, so the etiopathogenesis of *Avabahuka* is same as *Vatavyadhi*.

So with the help of *Nidana* and *Samprapti* of *Vata Vyadhi* it is try to find out the *Hetu Samprapti* of *Avabahuka* .

Conceptual study

Etiological factor of *Avabahuka* : *Avabahuka* is a *Vatavyadhi* so etiological factor of *Avabahuka* is same as *Vatavyadhi*.

The etiological factor, some are predisposing factor, some are precipitating factor and some are provocating factor

predisposing factor **precipitating factor** **provocating factor**

provocating factor **predisposing factor** **precipitating factor**

⇩

Aharaja	***Viharaja***	***Kalaja***	***Manashika***	***Anya hetuja***	***Agantuja* (traumatic)**
Aadhaki	*Ashma, Loha, Kastha,*etc. *Bhramana*	*Varsha ritu*	*Bhaya*	*Dhatukshaya*	*Marma-bhighataja*
Chanaka	*Ashma, Loha, Kastha* etc. *Chalan*	*Sayankala*	*Chinta*	*Rogatikarshanat*	Sport injury
Masoor	*Ashma, Loha, Kastha* etc. *vikshepa* (throwing stone)	*Aparahna*	*Soka*	*Atiraktasravn*	Bike riding On uneven road
Mudga	*Balavatvighatana*	*Sisira* (wrestling)	*Utkantha*	*Atiyoga of*	*Prapatan virechana*
Sushka Saka	*Duhkhkshaya* (uncomfortable sitting)	*Sitakala*	*khobha*	*Atiusshabhasana*	
Vistambhi	*Duhkhasana* (uncomfortable sleeping)		*krodha*		

Pramitasana	*Bharbahana* (loading)				
Alpasana	*Vichesta* (wrong posture)				
Vishamaghana	*Ativyama* (excessive exercise)				
Abhojana	*Ativyavaya* (excessive coitus)				
Adhyasaa	*Atipradhavana* (excessive jumping)				
Atishitata	*Plavana* (swimming)				
Ballur	*Atibhasya*				
Katu, Tkta, Kashaya Rasasevan	*Atilangana*				
Laghu Dravya	*Adyasan*				
Shitavirya	*Atiadhayan*				

Samprapti : The *Samprapti* is one among *Panchanidana*. It is the way in which the *Dosha* gets vitiated and the course it follows for the manifestation of disease[5]. A proper understading of *Samprapti* is vital for the treatment, because *Cikitsa* described in the *Ayurvedic* text is nothing but *Samprapti Vighatana*[6]

The disease *Avabahuka* is under *Vatavyadhi*. So, the *Samprapti* of *Avabahuka* is like the *Vatavyadhi*. A common pathogenesis is described for every *Vatavyadhi*. But, according to site its description is necessary.

In the scapular region the *Upadhatu* of *Rakta*, the *Sira* and *Snayu* (kandara), are the cause of tieing the muscle, for unrestricted movements in a painless situation but when *Keval Vata* and *Samanyaja Vata* aggravated with properties like *Ruksha* due to various *Vata Prakopa Nidana* given in above paragraph cause the *Soshana* and *Samkocha* of *Sira* and cause painful and restricted shoulder movement. It is well known factor that all the muscles are nourished by veins and tight by *Snayu* or tendons. Tendon or *Snayu* and *Sira* are the *Upadhatu* of *Rakta*.[7] And *Mamsa* or pesi is the next *Dhatu* of *Rakta*. Smooth movements of pesi are governed and nourished by *Sira* or veins(nourished by arteries and rejected/ ejected/ excessive blood is carried out by *Sira*). This is very important factor of about how the muscle, tendon are working smoothly when the circulatory energy of *Vata* is normal. The kinetics of *Vata* fill with aggravated *Ruksha Guna* is the main cause of *Avabahuka*. by *Ruksha Guna* it dry up the *Sleshak Kapha*, for which *Sira* and *Snayu* gets no nutrition, so *Shosan* and *Samkocha* of muscle takes place.

As *Avabahuka* is considered as a *Vata Vyadhi* and *Vata* having *Ashukari Guna* the *Poorvaroopa* like *Bahupraspanditahara* and *Sula* may manifest mildly or are totally absent. But the above symptoms are clearly manifested in the *Vyaktha Avastha* or in *Roopa Avastha* of the *Vyadhi* in the *Vyakta Sthana* i.e in the *Amsa Pradesha*. In this stage the *Amsa Pradesha* gets affected by aggravated *Vata* for which *Amsasoch* occurs in the initial stage by the decrease of *Shleshaka Kapha* and further leading to manifestations of *Avabahuka* by the symptoms like *Bahupraspanditahara* and *shula*.

Morbid *Vyana Vata* in other way may cause *Abhyantara Marmabhighata* or any external trauma to *Amsapradesha* may cause *Bahya Marmbhighata* to the *Amsa Marma* present in *Amsadesha*. Because this is a *Snayu*[8] and *Vaikalyakara Marma*,[9] by afflicting *Snayu* will manifest *Bahupraspanditahara*.

In *Vatavyadhi* the common pathology is though same but it vary according to site , because different *Anga Pratyanga* are present in different site, according to that *Samprapti* occur and produced different sign and symptoms. In *Avabahuka* the disease occurred in *Sandhi*, where *Slesaka Kapha* is remain,[10] when the *Vata* get not physiological movement and increased than its normal level then it dry up the *Sle?aka Kapha* and *Anga-Pratyanga* nourished by it become *Ruksha*. In *Sandhi* there is *Snayu*, *Sira*,etc.[11] which abstain from getting nutrition and *Vayu* is increases in these organ. So , the symptoms produced in *Avabahuka* is like *Stambha* (stiffness), *Sula* (pain), *Sira Akunchan* which leads *Bahupraspandanhara* etc. Gradually, the *Slesaka Kapha* is dry up then *Sandhigata Vata Lakshana* occur as *Atopa* (crepitation).[12]

Discussion:

The disease *Avabahuka* implies here bad arm, the exact location of which is in *Amsasandhi*. These occurs mainly in the age group 40-60 yrs.

Etiology:

The etiology of *Avabahuka* is same as *Vatavyadhi* but all the etiology is not working in all the *Vatavyadhi* similarly. Some act as predisposing, some are precipitating and some are provocating factor. Here dietic regimen act as predisposing factor, but these alone cannot developed *Avabahuka* because these factors not make any *Kha-Vaigunya* in *Amsasandhi*. *Viharaja* and *Agantuja* (external factor) act as precipitating factor, these make *Khavaigunya* in *Amsasandhi* (shoulder joint), which is a important factor to develop a disease again *Kalaja* (seasonal factor) and *Manasika* (mental factor) act as provocating factor because the disease increases according to change of the climate and mental factor. All the mental factor mentioned here are increases *Vata*.

A . *Aharaja* :

I. *Dravya* : The all *Dravya* which are mentioned in the table are not used these days except some *Dravya*. And all the *Dravya* are used as per availability in respected areas. The continuous taking of this *Dravya* produces *Vatavyadhi*. They have increased *Vata* by *Rasa*, *Guna, Vipak,Virya* or *Prabhava*.

II. *Guna* : Here the *Guna Ruksha, Laghu, Sita* increases *Vata*, becaused *Vata* has these qualities. The *Acharya* simply mention that the *Ahara* (diet) which has these *Gunah* increase *Vata*. These days it can say that the diet which is without ghee, oil all are *Ruksha* (ununctous) e.g. continuous taking of chapatti or rice without any ghee or oil. Most of the time taking dry biscuit etc. *Laghu* diet means which are digest easily, it may be diet which has less nutrition or diet in very less amount. These *Laghu Ahara* are unable to make *Dhatu*(body tissue), so *Vata* is increase here. *Sita*(cold) substances has the property to increase *Vata*, so these days the excessive use of chill water, cold drinks can increase *Vata*.

III. *Rasa* : The taste pungent, astringent, bitter increase *Vata*. Now-a-days excessive spicy foods are taken by people as chat, chowmin which has pungent *Rasa*.

IV.*Karma* : The diet which can produced *Vistambha* increase *Vata*. These diet make upward direction of *Vata* during its digestion. Now the pizza, burgar, hot dog, sandwich etc. come under *Vistambhi* diet. They make constipation.

V.*Virya* : Here *Sita Virya* means the drugs which has potency of *Sita*. It act in the body by *Sita*(cold) property. Here same diet comes as mentioned in the *Sita* quality *Dravya*.

VI. *Matra* : *Abhojana* (fasting) are done by people for a long period, these days also used to do fasting. But *Alpabhojana* means dieting, which girls are used to do these days to maintain the figure. And due to proverty also people used to take less amount of food which is a provocative factor to increase *Vata*. Irregular food habit due to work load increase these days. There are many jobs where, there are field works, e.g. in different type of representative worker, in ferry workers also there

is chance of *Visama?ana*.

VII. *Kala* : In case of taking diet *Kala* (time) has a prime role, *Adhyasana* is such a factor where people used to take food before digestion of previous food. These days people has more social network, so attendindg different kind of party frequently in same day create *Adhyasana*. Which produced *Ama* and by making obstruction produced *Vata Vyadhi*. Again after digestion of food *Vata* increases, gap shouldnot be more between two diet. These days this occur due to engaged in study, work in office, householdwork of women etc.

B. *Viharaja* (behaviour)

.I *Mithyayoga* : *Asmabhrama*, *Asmachalana*, *Asmavikshepa*, *Asmautksepa* etc. are seen in people who work in road making, building making, where stones are mainly involved. *Balavatvigraha* is found in professional wrestler, accidently who fight with someone who is more stronger than him. *Divaswapna* (day sleep) is mostly found in housewife, these days who used to keep maid for household work for which they get time for day sleep. These form *Ama* due to improper digestion. *Damygajanigraha* was found in ancient time, these is very rare these days. *Duhkhasana*, *Dukhkshaya* (Uncomfortable sitting, uncomfortable sleeping) etc. are found in case of who travel frequently in bus, train for which he has to sit or sleep for 1 or 2 night very uncomfortable, in case of businessmen e.g. sometime sit very uncomfortably for whole day, working as gold maker, people sleeping without mattress etc. In this way *Asma*, the *Kastha*, *Loha*, *Sila Bhramana*, *Chalana, Vikshepa, Utkshepa* are takes place these days e.g. the people who work in wood industry, who work in forest deptt. as labour the *Kastha* related *Bhramana*, *Chalana, Vikshepa* and *Utkshepa* takes place. *Loha* related takes place in case of blacksmith, *Sila* related takes place in case of the person who work in cutting hill. *Bharbahana* found in these days mostly kuli in railway station, some ferrymen loading head, person work in loading and unloading industry etc. *Vegdharana* these days takes place due to busywork life , people has no time to maintain daily routine work due to competitive lifestyle. Due to growing technology population increase , so competition also increases. *Vishesta* these days is very common causes for *Vata Vyadhi*, people drive car, auto, truck etc. continuously for many hrs., gold maker doing their job continuously by hand, tailor, cobbler, some ferryman holding their things by hand, painter, watching T.V. continuously, doing work in front of computer, studying in a uncomfortable manner etc. all do their work in wrong posture which come under *Vichesta*.

II. *Atiyoga* : *Atibhasya* is seen in teachers, some representative under different job, political leader, which increases *Vata*, *Atiplavana* (excessive swimming) is seen in professional swimmer, *Atiadhyana* (excessive study) is generaly found these days in competitive examination, final examination etc. *Adysana* (excessive sitting) is seen in case of shopkeeper, where there may be *Ama* formation due to lack of physical activity or may be wrong posture. In ancient time there was elephant , horse, chariot etc. but these days different vehicle like car ,bike, truck etc are available and continuous using of these may produced different *Vatavyadhi* because these produced abnormal movement of the body, *Atiratrijagarana* (awkening at night) is found in professional singer, night watchman, hospital nurses at night duty, police on night duty, call centre worker on night etc.all these vitiate *Vata*.

C. *Agantuja*(external factor):

I. *Abhighataja* : Different kind of injury, fracture etc.

II. *Gajaustraswasighrayanpatansanata* (falling from the running vehicle ride by elephant, camel, horse): These days though these type of vehicle is not found but falling from other available running vehicle is found common for which injury can takes place.

III.*Marmabhighata* : Injury in the vital organ, like headinjury in different accident

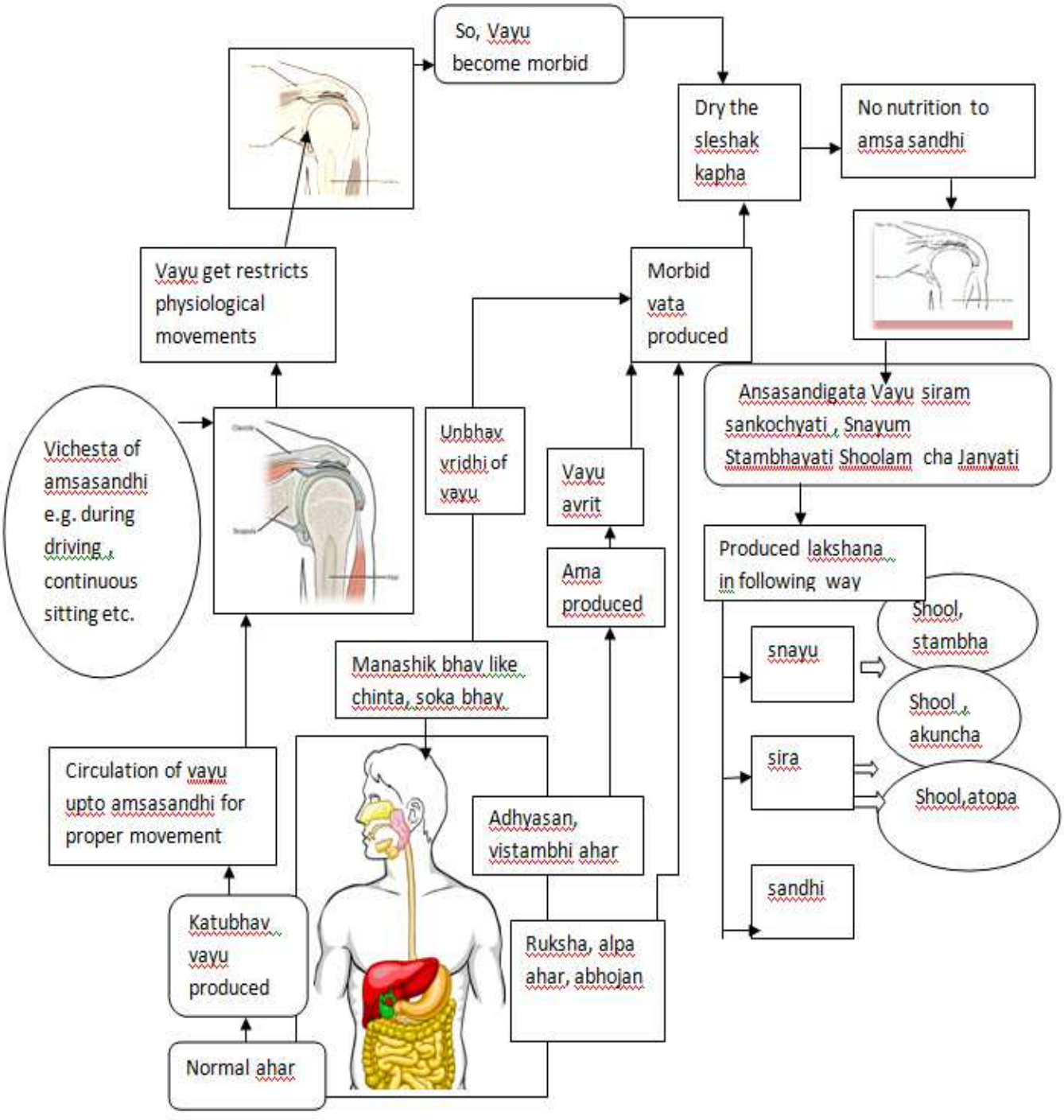
D. *Manasika* (Mental factor):

Mental factors include Bhaya (fear), *Chinta* (worry), *Krodha*(anger), *Shoka*(grief), *Utkantha* (anxiety). These factors are increasing day by day though these factors are same as ancient time but the causes are different and huge, due to more competition in society, lack of time for over working which leads more anger etc. *Caraka* said that *Shoka*,

Bhaya etc increases *Vayu*, again he said in *Soshanidana* chapter that *Krodha* decreases the *Hridaysthita Oja* and by this *Pratiloma Kshaya* of *Dhatu* takes place.

E. *Kalaja* (Seasonal factor): *Vata* is increased in some respective time, like – *Abhra* (during cloudy seaseon), *Aprahna* (evening), *Grishma* (summer season), *Pravata* (windy day), *Sisira* (winter day), *Sitakala* (early winter), *Varsha* (rainy season).

Samprapti of Aavabahuka in chart form



F. Anya hetu(Miscellaneous causes):

Ama : *Ama* is the undigested material, which may occur due to day sleep, due to regular taking of *Vishambhi Dravya*(which is difficult to digest) etc., *Asriksrava* (blood loss) due to various accident may lead *Vatavriddhi*, *Dhatukshaya*(loss of body elements), *Doshaksaya* (according to commentatory *Purisha* and *Mutrakshaya*) leads to *Vatavyadhi* like in diarrhoea, diabetes mellitus etc. *Rogatikarshana* (emaciation due to diseases) leads to *Vatavyadhi*.

Pathogenesis : The *Guna* among the *Rukshadi* 7 atribute is lone cause of the pathology, remaining factor are uninvolved or may be in physiological status.It is seen in *Avabahuka* that the structures around the *Amsasandhi* dry up and not get any nutrition, for which the organ abstain away from its normal function, pain is develop. There is a lack of synovial fluid, which normally helps the shoulder joint, a ball and socket joint, move by lubricating the gap between the humerus (upper arm bone) and the socket in the scapula (shoulder blade). The shoulder capsule thickens, swells, and tightens due to bands of scar tissue (adhesions) that have formed inside the capsule. As a result, there is less room in the joint for the humerus, making movement of the shoulder stiff and painful. This restricted space between the capsule and ball of the humerus developed painful, stiff shoulder. Here all the active and passive movements of shoulder are loss equally.

Conclusion:

Avabahuka is a common musculoskeletal problem in todays life, though not a major problem but it hamper daily activities. To prevent it is very necessary to know the etipathogenesis of the disease, because in these days use of steroid, pain killer, and at surgery is the choice of treatment which are still not fruitful. So early diagnosis of *Avabahuka* and its prevention is found effective if there is a well known pathogenesis.

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Literary Review

Role of *Shamana Chikitsa* in *Arbuda* with Special Reference to Cancer

*Dr. Sumitha.L, **Dr. R R Hiremath

Abstract:

Cancer has attracted an attention of physicians and surgeons of the world. It is a challenge to the medical profession as it is not easy to cure by several methods of treatment being followed by different system of medicine. As it stands today, one of the most dread full diseases of the 20th century and further spreading continuously with increasing incidence in 21st century and there is no permanent remedy for cancer of long standing duration. And it accounts for 25% of all the deaths in humans presently.

Validations of anti-cancerous property of various medicinal plants have been screened worldwide. The new findings about anti-cancerous drugs of plant origin which is not mentioned in ancient literatures add up to *Ayurvedic* science that has been developed through ages. The researches conducted on medicinal plants of Ayurvedic preparations for their anticancer efficacy strongly emphasize *Ayurvedic* therapy as a scientifically motivated one. Such integrated approach is necessary to manage cancer using the growing body of knowledge gained through scientific developments. Hence, an attempt is made in this review to discuss about anticancer drugs of plant origin as well as the Ayurvedic line of managements like *shamana, shodhana, rasayana* etc. strategies for various cancers.

Key Words: *Arbuda, Cancer, Ayurveda, Rasayana.*

सारांश–

सम्पूर्ण विश्व में कैंसर ने सभी चिकित्सकों तथा शल्य विशेषज्ञों का ध्यान आकर्षित कर रखा है। यह चिकित्सा व्यवसाय के व्यक्तियों के लिए एक चुनौती बन चुका है। चिकित्सा की विभिन्न पद्धतियों द्वारा चिकित्सा करने पर भी इसे ठीक करना आसान नहीं है। आज के समय में 20वीं शताब्दी में कैंसर से सबसे अधिक मृत्यु हुई है तथा 21वीं शताब्दी में यह तेजी से फैल रहा है अभी तक इसके लिए कोई ठोस चिकित्सा नहीं खोजी जा सकी है। वर्तमान समय में होने वाली मृत्यु में से 25% मृत्यु कैंसर से हो रही है।

संसार भर से बहुत सारी औषधियों में कैंसर विरोधी गुण खोजे गए है तथा आयुर्वेदीय विज्ञान में कई नई औषधियों को भी शामिल किया गया है। आयुर्वेदीय वैज्ञानिक कैन्सर की चिकित्सा में आयुर्वेदीय औषधि के पौधों को बहुत कारगर मानते हैं। अत: वैज्ञानिक दृष्टिकोण को ध्यान में रखते हुए कैंसर की चिकित्सा करने का प्रयास करना चाहिए। इस लेख में औषधीय पौधों के कैंसर विरोधी गुण तथा आयुर्वेदीय चिकित्सा के सिद्धान्त शोधन, शमन, रसायन का कैंसर की चिकित्सा में उपयोगिता पर विचार किया गया है।

*PG Scholar, Dept of Bhaishajya Kalpana, KLEU Shri.BMK Ayurveda Mahavidhyalaya, Shahapur, Belgaum. **Reader, Dept of Bhaishajya Kalpana, KLEU Shri.BMK Ayurveda Mahavidhyalaya, Shahapur, Belgaum Corresponding Author: Dr.Sumitha.L, Pg Scholar, Dept of BhaishajyaKalpana, KLEUShri BMK Ayurveda Mahavidhyalaya, Shahapur, Belgaum. Mob No.9738282903,9482826277, E-Mail: drsumitha.sukumaran123@Gmail.Com

Literary Review

Role of *Shamana Chikitsa* in *Arbuda* with Special Reference to Cancer

Dr. Sumitha.L, Dr. R R Hiremath

Introduction

The word *Arbuda* means an abnormal glandular growth within or of any bodily tissue or organ. This word describes cells believed to have no natural function in the body. The words *Granthi, Arbuda, Gulma* and *Ashtila* etc. are the words chosen for different abnormal growths. *Ayurveda* points out that the tissues of the inner layer of the dermis, or the same kind of tissues lining any part of the body, are regarded as the original birth place of *Granthi* or *Arbuda*. According to *Ayurveda* the tissue of the inner 6th layer of the skin is called "*Rohini"* means tissue which has the nature of growth. It seems clear that the word *rohini* is a synonym for the word epithelium, thegroup of cells found lining the skin, and surface layers of the mucous membranes. Pathogenic injuries to muscular tissues and blood can be caused physical trauma, or imbalances of *Vata, Pitta* and *Kapha*. This result in injury to the *rohini* tissue, and the formation of abnormal branches of blood vessels. In this stage, early *Granthis* or *Arbuda* scan develop, in the form of bubble shaped glandular growths.[1]

Several studies have been conducted on herbs to evaluate its anti-cancerous properties. The survey study on 3000 plants by Hartwell conveys the knowledge of potent anticancer drugs. *Ayurveda* emphasizes prevention or suppression of various tumors by various lines of treatment by using these natural drugs. There are many case reports of cancer patients, were treated with only *Ayurvedic* principles. This creates a confidence not only in patients but also in physicians.

Arbuda/Cancer

A tumor or neoplasm is a growth of new cells, which proliferate without relation to the needs of the body. *Vataja/Pittaja/Kaphaja* and *dwandwaja* (By combination of two) signify a benign neoplasm. One or two of the three bodily systems are out of control and is not too harmful because the body is still trying to coordinate among these systems. *Tridosaja*, abnormal growth - indicate the malignant stage of the neoplasm; Are very harmful because all the three major bodily systems lose mutual coordination and thus cannot prevent tissue damage, resulting in a deadly morbid condition.Some cancers grow quickly while others can take years to become dangerous to the patient.[1]

Cancer is a process of uncontrolled multiplication of body cells. Cell losses control on its natural degeneration (death) and regeneration (rejuvenation). Without its natural degeneration (death), no cell can be regenerated (rejuvenated).

Materials and methods

Ayurvedic concepts of treatment:

A patient's natural resistance is one the essential factor that should be preserved for the arrest of the progress of the disease.[3] In *Ayurveda Bala*(immunity) is classified into *Sahaja*(Natural), *Kalaja*(Periodical) and *Yuktikruta*(Acquired). Ayurvedic concept of *vyadhikshamatva* or immunity/Resistance power involves both *Vyadhi utpada prathibandhakatva* i.e., the capability to prevent the onset of a diseases and *Vyadhi bala virodhitva* which fight against developing diseases. Even the *Ojas*(Essence of body) which imparts strength to various tissues in the body to resist diseases. *Pratyanika bala*(Induced immunity) is responsible for increasing immunity of the host to prevent diseases before its onset;every person has some *Sahaja bala* or natural immunity too. One could enhance this capacity or *Pratyanika bala* and Ojas by taking appropriate *Rasayana* herbs which help in building optimum quality tissues which fight diseases. Because, According to *Ayurveda* un-equilibrium within the body and mind as diseases. Therefore always the aim of *Ayurveda* to bring back altered equilibrium within the body and mind to harmony with nature.

action, Anabolic action, Nutritive action and Neuroprotective action.

Rasayana/Anti-oxidants[16-17]

Anti-oxidants are the substances that reduce oxidative damage such as that caused by free radicals. Researches show that, it possibly reduces the risk of cancer. Vitamins – E,C, Certain enzymes like Superoxide dismutase (SOD), Catalase, Glutathione paroxidase, Phytochemicals are considered as antioxidants. Phytochemicals are biologically active naturally occurring chemical compounds in plant productpresent in –Fruit, Vegetables, and Legumes, Whole grain Nuts, Herbsand Spicesetc.

Antioxidant therapy also acts in three ways

1. By inhibiting the generation of reactive oxygen species. This can be achieved by removing causative factors i.e., *langhanakarma*.
2. By increasing action of antioxidant enzymes, like SOD or catalase. This is done by the use of certain drugs which enhance the action of these enzymes i.e.,*dipana karma*.
3. The use of certain substances, which help in neutralizing free radicals by either donating or accepting electrons from free radicals. Vitamin C and vitamin E i.e. by *Pachana*.

Rasayana drugs like *amalaki* and *ashwagandha* act as antioxidants. Main constituents in *amalaki* such as riboflavin, vitamin C, carotene which have a role in cellular oxidation reduction in collagen fibrin synthesis and absorption of iorn. The natural antioxidants like super oxide-dismutase, catalase and glutathione peroxidase increases by withanolide in *Aswagandha*.[15]

Immunomodulatory And Adaptogenic Activity

Rasayana drugs also act as immunomodulators by promoting bodily defense mechanisms such as increasing the WBC count, improving immune function by increasing number of T & B cells to fight against infections. *Rasayana*, much emphasizes about administration of the right kind of the diet to the diseased and healthy individual as well as a medicine. ie, it need not be only herbal formulation, may be a dietary regimen or special health promoting behavior also.

Withaniasomnifera and Tinosporacordifolia are also proven to be powerful immunostimulants, which could increase body resistance power during cancer-associated immunosuppression.Asparagus racemosus, Ocimum sanctum, Picrorhizakurroa, Emblica officinalis, Piper longum, and Terminalia chebula are other herbs frequently used either singly or in combination. Research works shows that reduced side effect of chemotherapy and radiotherapy by *Ashwagandha* (Withaniasomnifera) and *Haritaki* (Terminaliachebula) and prevention of reoccurrence by *Guduchi*,[9] and Radioprotection and Chemoprotection action by administration of *brahmarasayana*, Besides bael, turmeric, ginger, *triphala*, and Podophyllumhexandra the other immunomodulating herbs also show these properties. Other herbs, such as *Neem, Amalaki*, Plumbagorosea, and curcumin, and semecarpuslehyam have been shown radio- and chemosensitizing properties.

Habitual intake of Basellarubra or application of alkali preparation of Musa paradisiacal, Conch shell ash, Elaeocarpus tuberculatus, Sulphur, Potassium carbonate, Embeliaribes and ginger were used to cure *Arbuda* traditionally.

Anti-cancer herbs commonly used in *Ayurvedic* treatment[10]

The mixture of *Haritaki* (*Terminaliachebula)*, grape juice and*sugar cane juice* has been used. Resveratrol, a natural product derivative from grape juice has beenproved to possess cancer chemopreventive activity. *Tulsi* (*Oxoxylumindicum)* the drug *Oxoxylumindicum* prescribed in treatment of *Granthi.*

Local application: The paste comprising of *Baliospermummontanum Plumbagozeylanica*, *Euphorbia neriifolia*, *Calotropisprocera*, jaggery, *Semecarpusanacardium* applied over the tumours. The barks of *Madhucaindica*, *Syzygiumcumini*, *arjuna Terminaliaarjuna* and *Salix caprea are* prescribed. A paste of *Pandanusodoratissimum or Pterospermumacerifolium* flowers with sugar was applied locally. *Raphanussativus* powder paste with the radish ash was considered effective

against *kaphaja Arbuda*. *Barleriaprionitis* oil prepared with whole plant is indicated for external application during acute stages of cyst in blood vessels. *Prosopis cineraria*seeds, *Raphanus sativa*, *Moringaoleifera*, barley and mustard with sour buttermilk were applied locally for disintegrating cysts. *Amorphopalluscampanulatus*, the mature tuber is first burnt and then mixed with butter and jaggery and applied for tumour destruction. *Flacourtiaromantchi, Cassia fistula*, *Capparissepiaria*, is recommended for *kaphaja* tumours. *Moringaoleifera* seeds, *Solanumxanthocarpum*, *Sinapisdichotoma*, *Holarrhenaantidysenterica* and *Neriumodorum* roots prepared with buttermilk is used for *arbuda* tumours. *Ficusbengalensis* and *Saussurealappa* pacify tumour growth on bone. *Curcuma domestica* powder in combination with *Symplocosracemosa*, *Soymidafebrifuga*, is mixed with honey is used.Poultice prepared of *Basellarubra,* the plant andleaves are ground with sour buttermilk with salt indicated for *arbuda*.

Therapeutic enhancement potential of ayurvedic herbs on cancer chemotherapy/ radiation[24]

Allium sativum **-** S-allylmercaptocysteine (SAMC) (Water-soluble derivative of garlic) inhibited proliferation and cell cycle progression in two human colon cancer cell lines, Suggest usefulness alone or in combination with other chemo preventive agents.

Aloe vera- The protective effect of adding aloe to the soapregimenincreases during long time radiation exposure. Patients with advanced solid tumours,Aloe vera extracts produced therapeutic benefits in terms of stabilization of disease and survival rate.

Alstoniascholaris- The *Alstoniascholaris* extract increased the effect of radiation as by enhancement of cell killing in HeLa and KB cells. In in vivo studies, mice with Ehrlich ascites carcinoma extract caused increased life span of animals. The combination treatment of *Alstoniascholaris* extract was also foundto be most effective against Ehrlich ascites carcinoma as it caused thehighest tumor regression and enhanced thesurvival time.

Curcuma longa **-**When radiation and curcuma were applied together, curcuma showed a radiation sensitising effect. Curcumin (active constituent of *Curcuma longa)* also enhances the anticancerpotential of Cisplatin and reduces its nephrotoxicity in fibrosarcoma.

Heliotropiumindicum **-** Patient of solid tumour who have undergone prior chemotherapy/ radiation therapy, Indicine N-oxide (alkaloid from *Heliotropiumindicum)* have shown improvement against skin melanoma and ovarian carcinoma.

Moringaoleifera **-**The leaf extract of *M. oleifera* exhibits significant radiation protection to the bone marrow chromosomes in mice and are useful to overcome side effects of radiation therapy.

Nigella sativa- In Ehrlich ascites carcinoma, thymoquinone (TQ), (the constituent of the *Nigella sativa* oil) significantly enhanced the therapeutic efficacy, less body weight loss by improvingitsantitumour effect and reducing its nephrotoxicity.

Ocimum sanctum- Orientin and Vicenin (water-soluble flavonoids of leaves of *Ocimum sanctum)* have shown significant protection to the human lymphocytes against the clastogenic effect of radiation, radiation lethality and chromosomal aberrations there by radioprotection associated with their antioxidant activity .

Taxusbuccata- Taxol (active constituent of *Taxusbuccata*), ifosfamide, and carboplatin has proved active, safe, and easy to deliver in patients with advanced stage lung cancer. Taxol significantly improves the overall response rate, increases the time to progression and the overall survival in breast cancer patients. Taxol also exerts a weak radiosensitising effect on breast and cervical carcinoma cells.

Withaniasomnifera-*Ashwagandha* has shown significant reversal of neutropenia of paclitaxel in mice. It can be used as an adjuvant during cancer chemotherapy for the prevention of bone marrow depression associated with anticancer drugs. Withaferine (active component) showed significant antitumor and radiosensitising effects, without any noticeable systemic toxicity. In Ehrlich ascites carcinoma, the extract showed dose dependent inhibition on tumor growth and increased

the survival rate. It also reduces cyclophosphamide induced myelo suppression and leucopoenia, can be useful in combination with chemotherapy.

Importance of *Rasaushadhi*

Being a preventive medicine, *Ayurveda* has protective influence over the killing disease. It improves the immune system of the body against the disease due to its immunomodulatory activity. Prevents the multiplication of the cells by *lekhana karma*(scraping action)Eg: *VajraBhasm*, *Abhrak Bhasma*, *Swarnabhasma*, *Rajatabhasma*, *Naag bhasma, Tamra Bhasma, Rasasindoor Hiraka bhasma, Raudra bhasma, Somanatha rasa, Arbudahara rasa Gandhadilepa, Ramabana rasa, Suvarnavangeshwara rasa, Suvarnamalinivasantha rasa, Nityananda rasa* etc.

There are many *Rasaushadhis* used in the management of *Arbuda* in early stage of disease and are helpful in the prevention of spreading of disease in further stages. As *Rasa* preparations can be administered even in incurable diseases, Preparation of *Rasoshadhis* are essential for treatment of ailing humanity, provided these are produced without compromising the fundamentals of the *Ayurvedic* pharmaceutical operations (like shodhana, *marana*, etc).

Pathya

Time tested life science emphasizes the importance of the right kind of food for the formation and sustain of body. Body is the product of food and that humans attain pleasure and sorrow [health & diseases] because of wholesomeness and unwhole someness of the diet. Exercise and diet are important adjuncts to the primary treatment.Without wholesome diet medicines are of no use and with proper diet medicines are not required. Use of herbs every day in the diet (eg, ginger, turmeric, garlic, pepper, cloves, tulsi, and saffron) and taking seasonal detoxifiers and antioxidants such as *triphala, neem, amalaki*, piperine from black pepper, has been shown to be a bioenhancing principle.

Avoiding a non -vegetarian diet has been shown to be preventive for tumorigenesis.Cancers is most prevalent in the Western World and in India comparativelyit's very low. For example, the incidence of prostate cancer is 50-fold less in India compared with the United States. The cause of the lower incidence, mortality, and morbidity could be lifestyle and diet related; the question of whether it is due to Ayurvedic principles leading to a better diet and lifestyle is difficult to pinpoint. The 70% of the Indian population is vegetarian, and this may also contribute to the lower incidence of cancer.

The concept of *Aarjasrikarasayana* [general rejuvenation] deals with pathya for improving quality of life by offering protection from external and internal stressors.

Discussion and conclusion

Mamshajanamtusamshuddhi: shastraksharaagni karma cha ||

Surgical management in *Ayurveda* includes fomentation by means of external application, cleansing by internal medication, opening the tumour surgically for evacuation of its contents, cauterisation to avoid recurrence and post-operative care for healing the wound. *Arbuda* is excised completely from its deep root seat by cauterisation to destroy any of the remaining cell particles by using herbal and mineral medicines. Even *agni karma, kshara sutra* and *jalukacharana* have a great role in managing a disease like cancer.In the unripe stage of granthi, a treatment recommendes as same as that of shopha. Different kinds of *sweda* (fomentation), *upanaha* (poultice), and *lepa* (pastes) were recommended. Once the granhi got ripens it should be cut open and drained of pus and the ulcer washed with the herbal decoctions and purified, followed by *ksharaagni karma* by heat or alkalis and medicated oil application.

***Ayurvedic* concepts of chemotherapy**

Chemotherapic drugs can be considered as *vishadravya* (toxins) as they are cytotoxic and produce symptoms same as *Garavisha*. They are *Ushna* in *virya, Tikshana, Laghu, Ruksha, Vishad, Vyavayi, Vikashiguna*. Most of the properties are opposite to *Rasa, Rakta, Shukra dhatu, Ojus* and *Prakrit Kapha*. *Ayurveda* is exploring the treatment of malignanciesby clinical evidence through various research works. Management of complication of chemotherapy can be well managed by the principles & line of treatment mentioned in *Ayurveda*. In *Ayurveda* these set of medicines (chemotherapeutic

Drugs) can be understood as *Tikhsna Aushadhas* and their properties are almost similar to properties of *visha* (poison). The drug which cures the disease and at the same time will not produce any other disease or discomfort is *uthamabheshaja* (best medicine). So this review illustrates the same concepts.

Though from the lateral half of management of cancer, one should escalate our self to the former half of the management of cancer. Modern medicine also uses cytotoxic, chemotherapy, radiotherapy and surgical removal of tumors, which are mainly *shodhana* (Purificatory) measures and mainly *kapha* reducing.

Ayurvedic treatment of cancer is a holistic approach and is currently preferred. The new wave of ''system biology'' and ''genome revolution'' is expected to provide a holistic approach to the treatment of cancer. In spite of it, this approach tends to ignore the relationship between mind, body, and spirit. It is our hope that *Ayurveda* can help fill this gap.

Overall, it provides a glimpse of the *Ayurvedic* approach to cancer and treatment. This review also an attempt to reveal, how these approaches can be applied in today's world. The current treatment tends to be focused at the molecular level and symptomatic relief; it is highly unfocused at the whole organism level. This way of approach diminishes the side effects noted with modern treatments that substantially impact the quality of life of cancer patients. These *shamanaushadhis* have been shown to improve appetite, food intake, malnutrition, fatigue and sensation of well-being, which could elicits body-weight gain. Thus itrejuvenates the body tissues, tones up the body systems, and acts as a tonic to the body against cancer cachexia. Attention should be given not only to the evaluation of safety and examination of effectiveness in treatment strategy, but also to the consideration of community practice settings, patient expectations, compliance and cost effectiveness. Because of this holistic approach towards total healing and health promotion, Ayurvedic treatment has a great deal of promise in cancer therapy.

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Literary Review

An Analysis of Neuroanatomical Consideration in *Ayurveda*

*Dr. Tikendrajit Sarma, **Dr. Kamal Kr. Barman

Abstract:

Neuroanatomy entitle with structural configuration and organization of nervous system. Structures form with the help of Gray matter and White matter represented voluntary and involuntary aspect include Neuron, Nerve tissue, Neurogalia and Schwann's cell i.e supporting tissue. Tract, laminiscus with the functional area of Cerebral cortex will also come under the preview. In Ayurveda significant range of terminology are used for nervous component as well as its functional aspects. The terminologies extend from *sira, mastishka, nadi* etc highlight both structural and functional preview. Mostly these are discussed in relation with structural, localization, character as well as with therapeutic aspect. Most widely used term "*Sira*" identify brain matter while "*Mastishka* or *Mastishkagata sneha*" emphasis brain substances totally. Nerve cell enrich with lipid structurally similar with "*Ghrita*" stressed by *Dalhana*. The present study tries to discuss all these aspect of nervous system specifically in relation with morphological consideration and therapeutic aspect.

Keywords- Neuron, Brain matter, *Mastishka*.

सारांश–

Neuroanatomy को रचना संबंधी रूप आर तन्त्रिका तन्त्र का संगठन कहा गया है। Neuron, nerve tissue, Neuroglia और Schwann's Cells से रचित Grey matter और White Matter को ऐच्छिक और अनैच्छिक पहलुओं में वर्णन करता है। आयुर्वेद में स्नायुभाग और उसके कायत्मिक पहलु का वर्णन विशेष शब्दावली के रूप में की गई है। कुछ शब्द इस प्रकार विस्तृत है, सिरा, मस्तिष्क, नाड़ी आदि जो विशिष्ट रूप से रचनात्मक क्रियात्मक पहलुओं के आधार पर की गई है। सिरा शब्द अधिकांश मात्रा में उपयोग होता है जो brain matter को समर्थन देता है और मस्तिष्क या मस्तिष्कगत स्नेह पूर्णतः brain substance पर महत्व देता है। डल्हण ने स्नायुकोश को वसा से समृद्ध माना है, जो रचनात्मक दृष्टि से घृत से तुल्य है। वर्तमान काल के अध्ययन से तन्त्रिका तन्त्र के सभी पहलुओं पर विचार करने की चेष्टा की जा रही है। यह लेख विशेष रूप से तन्त्रिका तन्त्र के रुपात्मक विचार और चिकित्सकीय उपचारात्मक दृष्टिकोण को दर्शा रहा है।

*Associate Professor, Sharir Rachana Department, Govt. Ayurvedic College, Guwahati **Senior Scientific Officer, State Drug Testing Laboratory (AYUSH), Assam

Literary Review

An Analysis of Neuroanatomical Consideration in *Ayurveda*

Dr. Tikendrajit Sarma, Dr. Kamal Kr. Barman

Introduction:

Neuroanatomy deals with morphological and organisation of nervous system includes brain, spinal cord, ganglia, nerve, etc. which is structurally composed by grey matter and white matter. The fundamental components with morphological entities are present scattered in *Ayurveda* in different context. A wide range of terminologies are available in text which emphasizing structural entities, location and composition highlighting functional and applied approached. Analysis of these components in above arena is essential for better understanding of human anatomy.

Aims:

1. To the present study aim to elucidate the structural entities related to nervous phenomena.
2. To interpretation of the component with the nearest structures of nervous system will be highlight.

Material And Method:

The study is designed to evaluate the terminology used for nervous system from the structural and functional preview. Emphasis is given in context relating to morphological identity with applied aspect insight .Histological interpretation will also tried with the available references.

Review & Discussion:

In text specific terminology are incorporated as bellow-

1. Sira (Shira)- Most widely used component. *Sira* includes 3 structures/divisions

a) Head & Neck (collectively)

b) Head

c) Skull

a) Head & Neck:

i) In context of *sadangam*, 6th division (*sastha sira iti*) of the body is defined as *Sira*[1].

ii) Headache, hemicrania, disease of oral cavity, nose, eye and ear, facial paralysis, lockjaw etc. are the morbidity of *Sira* which indicate it as Head & Neck.[2]

b) Head:

i) In relation to *Dasa Pranayatana, Cakrapani* includes *Sira* as *Trimarma* indicates Head.[3,4]

ii) 5 types of *Siraroga* imparts diseases of head. [5]

iii) "Roga *Sirasi Sambhutat*"- Head is the place for generation of disease.[6]

c) Brain and Cranium:

Pranah Pranabhrit Yatrashritah Sarvendriyani ca Yadutamangamanganam Sirastadabhidhiyate.[7]

The vital part of the body is defined as *Sira* where *Prana* along with organ sustains. This clearly indicates the Head with cranium which regulate. Control and govern all the function of human being.

2. Mastak* or *Mastiska:

Widely used terminology for Brain matter and Cranium.

a) Brain matter:

i) In relation to amount which is measured as *Ardhajali* (1/2 *anjali*) and same with *Sukja* & *Oja*.

ii) *Dalhana* highlights '*Panchamastika', Parswamastak*' and '*kalamastak*' that represents Occipital lobe, Parietal lobe and Temporal lobe respectively.[8]

iii) *Indu* used the term '*Antarmastak*'.

b) As Cranium:

i) In context of discussion of different body parts Susruta counted it as *Pratyanga*.[9]

ii) Vagbhata I mentioned in relation to *Adhipati marma*.[10]

3. Mastaka Sneha*: Mastiska* is better to understand as *Mastakasneha* exhibiting '*Ghrita*' in appearance[11]. Here white colour is due to the presence of fatty materials. However a neurolema sheath is absent here.

This indicate the outer Grey matter and inner White matter studded with Cell body and Nerve fibre which are basically lipid in predominant.

4. In the treatment with '*Talupat*' here i.e. depression of anterior fontanelle occurs due to diminish of "*Mastulunga*", where *Ghrita* prepared with *Madhur dravya* is beneficial. Applied through internally and externally.[12]

Commenting on *Dalhana* says it (*Mastulunga*) appears as *Mastaka majja* ("*Mastulungabilen-ghritakara Mastakmajja*").

The *Mastakmajja* or *Mastulunga* can be identified as 'Brain matter'.

5. *Murdha* – It is synonym of *Sira*.[13]

6. *Mastakarandhra*- It is mentioned by "*Sarangadhara*" [14] and "*Bhavaprakash*' [15]

In human body 10 opening persist, 9 external passages and one internal present *Mastaka* which is also defined as *Brahmarandhra*. This *randhra* can be understood with Anterior fontanelle which is an unossified area present at the antero-superior angle of parietal with superior angle of Frontal bone.

7. Mastak Maija: It is synonym of *Mastulunga* which clearly indicate Brain substance.

8. Pacchyad Griva or Parswa Mastiska- *Dalhana* mentioned this 2 term indicate occipute/ occipital lobe or Parietal lobe respectively.[8]

9. Cudasthanam - on '*Bhagnanidana*' and '*Madhavanidana' Srikantha Dutta* quoted this term which can be understood as synonym of *Sira* (Head).[16]

10. Urdha Hriday - In "*Urdhada-samuliyadhyaya*" *Bhela* mentioned it which can be understood with Brain.

11. Urdhakaphasaya - *Acharyajeevak* mentioned that *provocated vayu* produces "*Pratichaya*" (Rhinitis) involving *urdhakaphasaya* which indicate Head. [17]

12. Uttamanga - It is used for Head or Head & Neck mentioned collectively by *Susruta* and *Caraka*.[18]

13. *'Sirastalu'* -In *Bhela samhita* it is used for '*Brahmarandhra*' indicate fontanelle.

14. *'Sangyavahasrotangsi'* - Terminology emphasized sensory nerve or ascending tract. However in control of sleep it exhibit reticular formation. [19,20]

15. Cestabahasrotangsi -This can be understood with Motor nerve.

16. Nadi - Commonly used term available in different context means for Vessel Cord, Meatus, Canalli or Tube. In relation to nerve following references maybe highlighted

i) Sabdavahinadya- Understood with cochlear nerve.[21]

ii) Netra Nadi- Optic nerve.

iii) Medhyanadi- Dalhana mentioned in the context of sleep which can be understood with white fibres of Cerebral Cortex or Spinal cord.

iv) In '*Shiva Samhita*' *Dr Dhirendranath Banerjee* mentioned that among the 3,50,000 nadi, following 14 are important -

a) Ida- The left sympathetic chain

b) Pingala- The right sympathetic chain

c) Sushumna- The spinal cord

d) Gandanari- Sympathetic nerve to the left eye.

e) Hastijihwa- left sympathetic spinal system of Cervical, Brachial and lumbosacral plexus on the left side from left eye to left great toe.

f) Kuhu- Pedendral nerve

g) Saraswati- Sympathetic fibre of cervical plexus supplying the tongue.

h) Pusha- Sympathetic nerve to the right eye.

i) Sakhini- Left auricular branch of cervical plexus

j) Payaswini- Right auricular branch of cervical plexus

k) Baruni- Branch of sacral nerve

l) Alambusha – Coccygeal nerve to anus and urogenital organs.

m) Bisabara- Sympathetic nerve of lumber plexus.

n) Yasaswii – Stretching from right thumb to right leg, brachial and lumbosacral plexus.

Thus it exhibit that in *Yoga* and *Tantra* – the term *Nadi* clearly emphasised for nerve. *Sira, Dhamani* and even *Srotas* are seldom used to highlight different nerve activities specially '*Vatavaha sira*' point out motor and sensory aspect of nervous system. *Gananath Sen* in relation with genesis of *sira* refer as medulla and spinal cord. *Dalhana* commenting in the function of *vatavahasira* says "*Kayakriyanam Prasaranakuncchanadinam Vakakriyanam bhasitadinam*[22]……." signified voluntary action of limbs and involuntary function of viscera and organ. This can be understood with volitional and autonomous function of Nervous system. *Dhamani* another terminology used normally for vascular structure while sometime corroborates with nerve due to is wide spread functional presentation e.g. in *sabda vaha dhamani, rupavaha dhamani* etc. represent cochlear and olfactory nerve respectively. In this connection srotamshi indicate motor activity in receptor of musculoskeletal component.

Conclusion:

The morphophysiological description of nervous component has sporadic mentioned in classics. Different terminologies are found elsewhere which gives a glimpse of neuroanatomical component. Often the higher functions are attributed to *Hridaya*. It is interesting to observe the function of above mentioned structures bear limited description, though they are emphasized in therapeutic approach.

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Case Study

Ayurvedic Management of *Medo Vriddhi* w.s.r. In Hypercholesterolemia – A Case Report

*Dr. Yadav C.R., **Dr. Pareek Pooja , ***Dr. Chudasama Hardik Y

Abstract -

Hypercholesterolemia, also called Dyslipidemia, is the presence of high level of cholesterol in blood. It causes excessive adhesion of lipid and fat in the internal wall of hollow visceral organs and specially arteries. Although Hypercholesterolemia itself is asymptomatic, long standing elevation of serum cholesterol can lead to Atherosclerosis. In *Ayurveda*, It can compare with a disease *Medoj Vriddhi*, characterized by *Snigdha-angata, Udar-parshwa vriddhi, Dourbalyata.* A 46 year old male patient reported to the outdoor department of Sharir Kriya NIA, Jaipur, with the complains of *Udar Parshva Vridhhi, Dourbalyata, Shramahani* for last 6 month and other associate complaints were debility, lethargy, excessive sleep for one month. The patient was diagnosed as Hypercholesterolemia. A combination of *Arogyavardhini vati* (500mg), *Punarnava Mandoor* (500mg), *Vidangadi Loha* (250mg), *Yavakshar* (500mg), *Choshath Prahar Pipili* (500mg) along with *Raktasodhak Avaleha* (10mg) two times in a day. Along with *Vyoshadi Guggulu* (2 Tab), *Triphala Guggulu* (2 Tab) twice a day, along with *Avipattikar churna* (3g), *Kutaki Churna* (2 g), *Amalaki Churna* (1g) twice a day with water after meal for two months. After two month of treatment a significant response was found.

Key Word– Hypercholesterolemia, *Medo Vriddhi, Shaman Aushadhis,* Dyslipidemia

सारांश–

हाईपर कोलेस्टेरोलेमिया, जो की डिसलिपिड़ेमिया है, वो रक्त में कोलेस्ट्रोल की मात्रा को सूचित करती है। इसका मुख्य कारण कोष्ठीय अवयवो एवं धमनियों की भीतरी दीवारों पर मेद एवं चरबी का अधिक जमाना है, जो कि हाईपर कोलेस्टेरोलेमिया खुद ही एक लक्षण रहित व्याधि है किन्तु ऐसी परिस्थिति लम्बे समय तक रहे तो वो धमनीप्रतिचय होने की संभावना को बढ़ा देती है। आयुर्वेद में इस व्याधि की मेदोज वृद्धि के साथ तुलना की जा सकती है, जिस में स्निग्धांगता, उदर पार्श्व वृद्धि, एवं दोर्बल्यता आदि लक्षण मिलते है प्रस्तुत शोध में एक पुरुष जिनकी उम्र 46 वर्ष, निरंतर 6 माह से उदर पार्श्व वृद्धि, स्निग्धांगता एवं दोर्बल्यता आदि समस्याओं से परेशानी थी इस रोगी को 2 महिना आयुर्वेद की शमन औषधि आरोग्यवर्धिनी वटी, पुनर्नवा मंडूर, विडंगादि लौह, यवक्षार, चोषठ प्रहरी पिप्पल, व्योषादि गुग्गुलु, त्रिफला गुग्गुलु एवं पंचसकार चूर्ण दी गयी। 45 दिन में उपरोक्त लक्षणों में अच्छा परिणाम और शारीरिक बल, वर्ण में भी अच्छा लाभ प्राप्त हुआ।

*Assist. Professor, PG Department of Sharir Kriya, NIA, Jaipur, **MD Scholar, PG Department of Sharir Kriya, NIA, Jaipur, ***MD Scholar, PG Department of Sharir Kriya, NIA, Jaipur

Case Study

Ayurvedic Management of *Medo Vriddhi* w.s.r. In Hypercholesterolemia – A Case Report

Dr. Yadav C.R., Dr. Pareek Pooja , Dr. Chudasama Hardik Y

Introduction:-

Hypercholesterolemia, also called Dyslipidemia, is the presence of high level of cholesterol in blood. Elevated levels of non-HDL cholesterol and the LDL in the body may be consequence of diet, obesity, inherited disease or the presence of the other disease such as Diabetes and an underactive thyroid. About 34 million adults in the U.S. have high blood cholesterol[1].

According to ayurved it can be co- related to the disease *Medo vriddhi*[2] which manifests in the form of *Snigdha-angata*, *Udar-parshwa vriddhi, Dourbalyata, Shramahani.* In the conventional part usually the treatment is started by administrating drug with Hypolipidemic agents include bile acid sequestrants, Niacin, Fibric acid and HMG-COA reeducates inhibiters[3].

Looking in to these limitations in the treatment and prognosis of Hypercholesterolemia, a single case of *Medo vriddhi* was observed by using *Deepan Pachan* (Digestive- Carminative), *Rakta shodhak* (blood purifier) and *Medohar dravyas* to analyze its effect in the management of the disease.

Case Report-

A Hindu, married 46 year old male patient visited (April 21, 2017) the outdoor department of Sharir Kriya of NIA, Jaipur with OPD no 21221042017 for the chief complains of *Snigdha-angata, Udar-parshwa vriddhi, Dourbalyata, Shramahani* and *Udar gauravata* (Heaviness in abdomen) for last 6 months, and other associated complains were *Kshudha vriddhi* (Excessive hunger) *Nindra vriddhi* (Excessive sleep), *Vibandha* (constipation), *Klama* for last 1 month.

Personal history revealed that the patient is vegetarian and used to take extra oily and fatty diet, with regular habit of intake of Homemade food, Excessive sleep, frequency of micturation 7-8 times/ day and patient have no addiction. The patient has constipation and urge of defecation in 1 time/ 2day.

Past history – There is no any significant past history.

Family history – There is no any significant family history.

The General examination of the patients showed paleness in conjunctiva and vitals being pulse rate 78/min, respiratory rate of 20/min, blood pressure of 120/70 mm of Hg and body weight is 80kg. Pre abdominal examination showed fullness of abdomen and tenderness in Right hypochondriac region, epigastric and umbilical region. The impression of Lipid profile on March 29, 2017 implies Total Cholesterol 239.0mg/dl (00-200 Normal), Triglycerides 172 mg/dl (0-150 Normal), HDL-Cholesterol 45.0mg/dl (40-60 Normal), and LDL 159.0mg/dl (0-100 Normal), VLDL 34.0mg/dl (0-50 Normal), CHOL/HDL Ratio 5.26 (< 4.5 Normal).[4] Based on clinical presentation, Patient was diagnosed as a case of *Medo vriddhi.*

The Following oral medicines were administrated for 2 month.

- A combination in powder form of *Arogyavardhini Vati* (500mg), *Punarnava Mandur* (500mg), *Vidangadi Loha* (250mg), *Yavakshar* (500mg) and *Choshath Prahar Pipili* (500mg) are administrated with *Rakta sodhak avaleha* (10g-10g) twice a day before Meal.
- A combination in powder form of *Avipatikar churna* (3g), *Kutaki Churna* (2g), *Amalaki churna* (1g) are administrated with luke warm water twice a day after meal.
- *Vyoshadi gugglu* tab And *Triphala guggulu* tab. Two tablets twice a day with water are administrated after Meal.

- *Panchsakar Churna* (5g) is administrated orally at night with Luke warm water.

On the first follow up (after 10 days of the treatment) patient reported reduction in previous mentioned symptoms. Improvement was noted in weakness, sleep, and appetite and bowel habit. On the second follow up digestion power of patient was improved. On the third follow up appetite of Patient was improved and patient feel lightness and energetic in routine activity on the fourth follow up. At that time he again advised for Lipid profile test.

The patient was on follow up till 2nd month without any single episode of replace.

In this case study, assessment was done on the basis of sign and symptoms as well as Lipid Profile test. After 2nd month of drug intervention Total Cholesterol 239.0mg/dl reduce to 210.0mg/dl. Triglyceride 172.0mg/dl reduced to 127.0mg/dl, LDL 159.0mg/dl reduced to 141.0mg/dl, CHOL/HDL Ratio 5.26 reduced to 4.82 after 2 month. This indicates that after orally medication and restriction of the food relief was noted. A very little change was observed in HDL value.

TABLE: Assessment before and after treatment

Investigation	Before Treatment	After Treatment
1) Total Cholesterol	239.0 mg/dl	210.0 mg/dl
2) Triglyceride	172.0 mg/dl	127.0 mg/dl
3) LDL	159.0 mg/dl	141.0 mg/dl
4) CHOL/HDL Ratio	5.26	4.82
5) HDL Cholesterol	45.0 mg/dl	44.0 mg/dl

Discussion:-

Clinical presentation of Hypercholesterolemia shows resemblance with different clinical conditions described in Ayuvedic classics up to some extent it looks closer to Medo Vriddhi because the sign and symptoms of Hypercholesterolemia mentioned in modern medicine shows that the proper digestion and fat metabolism play a major role in the cure of this disease. Due to the improper digestion and fat metabolism in this disease the drugs which correct this problem were being selected here. By the act of Agnideepan and srotosodhan this combination corrects the sang[5] or *Margaawaran janya samprapti*. *Vyosh* (*trikatu*) has *Ushna virya* propertices that's way it works as *Kaphahar, Medohar* and *agni deepan*.[6]

Arogyavridhani vati is broad spectrum ayurveda drug. But here it is worked as medodoshhar.[7]

Triphala has *Kaphanashak*, *deepaniya* and *Agnimandhya nashak* propertices.[8]

Punarnava mandoor has *trivrut, trikatu, chitrak, chavya, danti, gomutra, Panchkola* etc.. *ushna dravya* component. That's way it work as *medohar*.[9] *Panchasakar churna* works as *Anuloman* and *vibandhnashak*.[10]

Guggulu has *Laghu, ruksha, tikshna* and *tridosh shamaka* properties and also well known as medohara drug.[11]

Conclusion:-

In this study it's proved that *Deepan – Pachan*, purgative, hepato protective, along with *Medhohar* Drugs corrects the digestion and improve the fat metabolism. If a person follows the proper routine along with these medicines it might be good for such cases **(Hypercholesterolemia)** with nil/ negligible side effects.

Financial Support And Sponsership:- Nil

Conflicts Of Interest:- There are no conflicts of interest.

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Case Study

A Case Report: Management of *Yakritdalyaudar* (Cirrhosis of Liver) & *Jalodar* (Ascites)

*Dr. Khajuria Narind, **Prof. Dadhich Om prakash, **Dr. Singh Bhanu Pratap

Abstract

Background: In the present times, Liver Cirrhosis is one of the most difficult diseases to treat. Ascites is the most common complication of liver cirrhosis. The modern treatment provides relief but the chances of recurrence are high as the liver parenchyma shows marked changes. Cirrhosis can be taken as *Yakritdalyudar* & Ascites has been mentioned as *Jalodara* in *Ayurveda* with specific line of treatment.

Case: A 49 year old male, with cirrhosis of live, massive ascites & bilateral pedal edema since 2 years came to the OPD of SSBH, Jaipur. The patient was a known Diabetic since 4 years, with no h/o HTN. He was started on *Maarkandeyadi Hima* and was advised to follow a restricted dietary pattern.

Results: The patient responded well to *Ayurvedic* line of treatment, with his abdominal girth being reduced, pedal edema gone and improvement in his liver functions. Also, his last USG report showed "Homogenous Liver Parenchyma' & "No evidence of Ascites" after 6 months of treatment with *Ayurveda*.

Keywords: *Yakritdalyudara*, *Jalodara*, Liver Cirrhosis, Ascites, *Virechana*.

सारांशः

वर्तमान समय में यकृत विकारों में यकृत्दाल्युदर व्याधि असाध्य रोगों में से है। इसी रोग के उपद्रव स्वरूप जलोदर व्याधि की उत्पत्ति होती है एवं यह एक जटिल व्याधि के रूप मे व्यक्त होता है। आधुनिक चिकित्सा पद्धति में इसका सीमित उपचार है एवं इस व्याधि का बार-बार पुनरावर्तन होकर असाध्यत्व को प्राप्त होता है। तथा रोगी की मृत्यु सुनिश्चित होती है। आयुर्वेद चिकित्सा के द्वारा इस व्याधि का उपचार किया जा सकता है।

प्रकरणः एक 49 साल का पुरुष, यकृताल्युदर एवं जलोदर तथा पादशोथ के साथ एस.एस.बी.एच., जयपुर के बहिरंग विभाग में प्रस्तुत हुआ। रोगी को 4 साल से मधुमेह की शिकायत भी थी, जिसके लिये वह आधुनिक उपचार ले रहा था। रोगी को उच्चरक्तचाप का इतिहास नहीं था। रोगी को मार्कण्ड्यादि हिम के द्वारा आयुर्वेदिक उपचार आरम्भ किया गया तथा उपचार के दौरान पथ्याहार पर रखा गया।

परिणामः रोगी को आयुर्वेदिक चिकित्सा से यकृताल्युदर, उदरवृद्धि एवं पादशोथ में काफी लाभ हुआ। रोगी के प्रयोगशालीय परीक्षण में भी परिवर्तन हुआ तथा यकृत कार्य भी सुधरकर सामान्य हो गया।

*PhD Scholar, **Professor & HoD, PG Deptt of Sharir Kriya, ***MD (Ayu), PG Deptt of Sharir Kriya, NIA, Jaipur – 302002, Corrspondance: Dr.Narind Khajuria, Email: khajuria.narin@gmail.com Mobile: 8729040806

Case Study

A Case Report: Management of *Yakritdalyaudar* (Cirrhosis of Liver) & *Jalodar* (Ascites)

Dr. Khajuria Narind, Prof. Dadhich Om prakash, Dr. Singh Bhanu Pratap

Introduction:

Liver is a very important organ of the body performing a plethora of functions. It is continuously being exposed to multitude of organisms and other toxins; and so it is quite prone to many diseases[1]. Alcohol is an important cause of Liver cirrhosis[2]. Many obese patients have Non Alcoholic Fatty Liver Disease (NAFLD) [3].Ascites is the filling of peritoneal cavity with fluid. It mostly occurs as the complication of cirrhosis, which may be due to chronic alcohol abuse/hepatitis (viral/NASH)[4]. Most of the cases coming for *Ayurveda* consultation are pre-diagnosed as Cirrhosis of Liver & may or may not be associated with Ascites, which mostly are of grade 2 or 3(massive ascites). Development of Ascites makes the process worse and is associated with increased mortality in the patient[3].

Ayurveda says that all the diseases are due to *"Mandagni"* especially the *Udara Roga*[5]. Liver Cirrhosis can be taken as *Yakritdalyudar* & Ascites can be compared to *Udakodar/Jalodara* in *Ayurveda*. The chronic usage of etiological factors causes the vitiation of *Rakta* & *Kapha*, which get localised in the *Dakshina-Parshava* and lead to *Yakritdalyudar*[6]. Also, this localisation of *Dosha* further causes obstruction in *Sweda&Ambuvaha Srotas*[7]. This obstruction pushes the *Ambu* out of its place i.e. *Vimargagamana* of the *Ambu* and hence *Jalodara*ensues.

Acharya Charaka says that all the *Udararoga*, if left untreated, lead to *Jalodara*.The management of *Udara Roga* involves *Nitya Virechan*[8] (daily purgation), and drugs should have *Deepan, Kaphnasaka*[9]*, Balprapti, Balsthirita*, and *Yakrut Uttejaka* properties. As the incidence of *Yakritdalyaudar* & *Jalodara* is increasing due to multitude of reasons, it is pertinent to evaluate the role of relief provided by *Ayurvedic* therapy in the disease.

Case Report:

Name: XYZ

Age: 49 yrs.

Present complaints:

Patient came with complaints of distension of abdomen, b/l pedal edema, anorexia, generalised weakness, dyspnoea, orthopnoea, but denied having nausea or vomiting or diarrhoea.

History of present illness:

Patient was apparently Normal before 1&1/2 yr. Then he gradually developed distension of abdomen. He showed tomany doctors and was diagnosed as having Bloating due to excess Gas; and so was treated accordingly. But the patient did not get any relief even after showing to multiple doctors. His abdomen kept increasing in size. One doctor advised him for USG. The report showed Liver Cirrhosis &Ascites. He was then treated accordingly but got minimal relief. He then went to Ahmedabad for treatment. There the doctor gave him injections and he excreted nearly 5 – 8 lts of water as urine. His weight and abdominal girth also reduced. He came back to Jaipur. But after one month the problem started to reappear once again. Patient took Modern Treatment once more but with no relief.He was advised to try Ayurveda by his relatives. And so with the above present complaints came to OPD of SSBH, Kishanpol, Jaipur.

Past History:

K/c/o type 2 DM since 3&1/2 year, on medication.

No h/o HTN or Thyroid disorder or Trauma or RTA.

Occupation:

Share market, used to work in Dubai. Now

worked from home but found it difficult to concentrate on work.

Personal history:

No h/o smoking or alcohol intake. Habit to take tea 4 times a day; vegetarian, sedentary lifestyle.

Family history:

One sister, alive & healthy. Father is alive. Mother and brother are expired, they had type 2 DM. Sister has type 2DM. Patient has 2 girls and a son. None of them has DM. spouse is alive and healthy.

On examination:

PR: 90/min, BP: 130/80 mmhg, RR: 20/min

Pallor: present

Edema: b/l pedal edema present

Weight: 96 kg, Height: 165cm

RS: lung fields clear.

CVS: S1, S2 heard,no murmurs.

CNS: Patient conscious, well oriented, remembers the events very clearly.

P/A: abdomen distended and painful, fluid thrill present, shifting dullness present, umbilicus everted, and skin over abdomen is glossy.

Treatment plan:

Markandyadi Hima [Katuki(2g) + *Manjishtha*(2g) + *Sanaya*(2g) + *Pinda Khajura (5 in no)*]; with 100 ml of Siddharka (*Punarnava*, *Makoya*, *Kasani*, *Sounf* & *Manjishtha Arka*); boiled once and taken warm. This is done every day, twice daily, in the morning& evening.

Patient was advised to abstain from salt diet. Patient was put only on cow's milk during the treatment period.

Observation & Result:

Table No. I - Investigations: Before & After treatment

Test	Before treatment	After treatment
Hb %	9.8	12
WBC	6500/cumm	6200cumm
Platelet	1,82000	1,86000
Urine Analysis	Albumin trace, Pus cells – 3-4 hpf	Albumin absent, Pus cells absent.
RFT	S. Creatinine = 1.4mg/dl	S. Creatinine = 0.9 mg/dl
LFT	SGOT = 54, SGPT = 86 T. Bilirubin = 6.97 mg/dl, Direct Bilirubin = 5.39 mg/dl, Indirect Bilirubin = 1.58 mg/dl	SGOT = 30 , SGPT = 39 T. Bilirubin = 1.2 mg/dl, Direct Bilirubin = 0.76 mg/dl, Indirect Bilirubin = 0.45 mg/dl
USG Abdomen	Massive Ascites with hepatomegaly (liver parenchyma isheterogenic in texture) and mild splenomegaly; Portal Vein & CBD Dilated. Mild pleural effusion.	No Ascites. Homogenous Liver Parenchyma, Portal Vein & CBD Normal in Diameter. Mild Splenomegaly. Mild pleural effusion.

Table No. II - Abdominal Girth Assessment

Before treatment (in cm)	After completion of Treatment (in cm)
110	90

Table No. III - Weight assessment

Before treatment (in kg)	After completion of Treatment (in kg)
96	83

Patient also got relief from his symptoms, leads an active life now, and has included 5 km of morning walk daily to his routine.

Discussion:

The treatment involves fluid elimination from peritoneal cavity and simultaneously stopping the process of fluid formation along with recovery of liver cells.In *Ayurveda*, *Nitya Virechana*[8] has been advised as the line of treatment in *Udara Roga*. The *Ayurvedic* Drugs selected for this case were chosen with the aim to improve the function of liver, protect hepatocytes from damage, to reduce fibrosis and to reduce the abdominal distension. These drugs improved the functioning of epithelial lining of the vessels, caused *Virechana*, thereby breaking the pathogenesis of the disease. These drugs also removed the derangement from the *Ambuvaha Srotas*, leading to its proper functioning and hence an improvement in the patient's condition.

Table No. IV

S.No.	Drug	Properties
1.	*Katuki*	*Bhedniya& lekhniya*[10]*, Kaphahara,* Potent liver stimulant
2.	*Manjishtha*	*Vishahara, Shothahara, Kaphahara*[11]*, Rakta shodhaka*[12].
3.	*Markandika (Sanay)*	*Urdhwa-Adhahkayashodhini, Vishahara, Gulma& Udarahara*[13]
4.	*PindaKhajura*	*Kshata-Kshayahara, Rakta-Pittahara, Tarpana*[14]
5.	*Punarnava*	*Shothahara, Dipan, Gara& Vishahara*[13]
6.	*Makoya*	*Shothahara, Rasayana*[14]
7.	*Kasani*	Potent Hepato-protective action[15]
8.	*Sounf*	*Agnimandhyahara, Ushna, Pachani, Shleshma-Vatahara*[14]

Conclusion:

Yakritdalyudara (Liver Cirrhosis) & *Jalodara* (Ascites) is becoming more frequent now a day due to sedentary lifestyle and intake of more fatty foods. Its management is challenging because it presents itself mostly as the complication of Liver cirrhosis. The pathological factors which cause *Udara Vyadhi* are aggravated *Dosha* and reduced condition of *Agni*. *Virechana* is a unique treatment mentioned for *Udara Roga*. Removing the Dosha specifically *Pitta-Kapha*, reducing the *Yakrit Dushti* and improving its function are the main targets of the treatment. By adopting this line of treatment there was significant improvement in the condition of the patient, which is evident by changes in the lab findings (Table 1) as well as by the reduction of abdominal girth and complete remission of pedal edema. *Ayurveda* can play a very important role in the management of *Yakritdalyudara* & *Jalodara* and further studies to systematically analyse its efficacy & mode of action in *Yakritdalyudara & Jalodara* are needed.

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Case Study

Effect of *Kati Basti, Patra Pinda Sveda* and *Bastikarma* In The Management of *Gridhrasi* (w.s.r To Sciatica) -A Case Study

*Bhavna Kumari, **Dr. Gopesh Mangal, ***Alka, ****Surya Prakash

Abstract-

Sciatica is defined as the pain in the distribution of Sciatic nerve or its component nerve roots. In this hectic life sciatic pain is a very common disorder that hampers people from doing their routine activities. Most of people suffering from this complain about moderate to severe pain in buttock region which then radiate to thigh, calf and down to the foot even toes. The main cause of Sciatica can be a herniated or slipped disc, spinal stenosis, spondylolisthesis. In modern medicine there are conservative and surgical treatments on Sciatica but with limitations. Classics of *Ayurveda* have references related sciatica, according to *Ayurveda* signs and symptoms of sciatica are much similar to *Gradhrasi Vataroga*. *Ayurveda* provides a range of treatments for *Gradhrasi*, especially from *Panchakarma*, like external application of *Snehana* and *Svedana* in the form of *Kati Basti*, *PatrapindaSveda* and internal administration like *Basti Karma* to correct the *Vata Dosha* and to nourish the *Asthi Dhatu*. Keeping this in view a female patient-presenting with clinical features of sciatica and MRI findings suggesting of disc bulge and protrusion at the level of lumbar vertebrae was given *Panchakarma* treatment. The patient was treated with classical treatments like *Kati Basti, Patrapinda Sveda* and *Erandmuladi Kala Basti* with certain conventional oral medication. The patient markedly recovered and able to do her routine activities.

Key words: - Sciatica, *Gridhrasi, Erandmuladi Kala Basti, Patra Pinda Sveda, Katibasti.*

सारांश–

साईटिका को साईटिका तंत्रिका व उसके घटक तंत्रिकीय वितरण में होने वाले शूल के रुप मे परिभाषित किया गया है। इस व्यस्त जीवन मे साईटिका एक बहुत सामान्य विकार है जो लोगो को नियमीत दैनिक कार्यो में व्यवधान उत्पन्न करता है। इससे पीडित अधिकाशं लोग निंतब प्रदेश से जाघ पिण्डलियो और नीचे पैर की तरफ मध्यम से गंभीर शूल से ग्रसित रहते है। साईटिका का मुख्य कारण हर्नियेटिडया स्लिपडिस्क, स्पाईनलस्टनोसिस, स्पान्डिलोलिस्थीसिस आदि हो सकता है। आधुनिक चिकित्सा में इसका उपचार सीमित है। आयुर्वेद मे वर्णित गृध्रसी वातरोग लक्षणो के आधार पर साईटिका से समानता रखता है। आयुर्वेद शास्त्र में गृध्रसी की चिकित्सा हेतु विशेषरुप से पंचकर्म में कटिबस्ति, पत्रपिण्डस्वेद, बस्तिचिकित्सा आदि वर्णित है। इस शोध कार्य मे गृध्रसी से पीडित महिला रोगी की पंचकर्म द्वारा चिकित्सा की गई जिसमे प्राभावी सुधार हुआ।

*Final year PG Scholar, Dept. of Panchakarma, NIA, Jaipur, ** Assistant Professor, Dept. of Panchakarma, NIA, Jaipur, *** Final year PG Scholar, Dept. of Panchakarma, NIA, Jaipur, **** Ph.D Scholar, Dept. of Panchakarma, NIA, Jaipur

Case Study

Effect of *Kati Basti, Patra Pinda Sveda* and *Bastikarma* In The Management of *Gridhrasi* (w.s.r To Sciatica) -A Case Study

Bhavna Kumari, Dr. Gopesh Mangal, Alka, Surya Prakash

Introduction-

Sciatica is aterm that describes symptoms of pain, numbness, and weakness that radiate along the sciatic nerve through the hip to the back of the thigh and down the inside of the leg. Sciatic can be occurred suddenly or it can be occurred gradually. The pain can be associated with numbness, burning sensation and tingling sensation. It is more accurate termed as lumbar rediculopathy. People suffer from sciatica as a result of 'pinched nerve' affecting one or more of the spinal nerves[1]. The causes of sciatica can be herniated disc or slipped disc, spinal stenosis, spondylolisthesis.

Sciatica prevalence from different studies ranged from 1.2% to 43%[2]. Although low back pain is a common condition that affects as many as 80-90% of people during their lifetime, true sciatica occurs in about 5% of cases. Sciatica is more common between 30 to 50 years of age.[3]

This condition can be clinically correlated to *Gridhrasi* described in *Ayurveda*. It is described as one of the *Vata Vyadhi* characterized with radiating pain from hip to thigh, knee, calf and feet in order, associated with stiffness and difficulty in movement and numbness.[4]

The present day management includes administration of anti inflammatory analgesics, surgical correction and physiotherapy each of them is having its own limitations. On the other side *Ayurveda* looks into the correction of basic pathology particularly through *Panchakarma*, like external application of *Snehana* and *Svedana* in the form of *Kati Basti*, *Patrapinda Sveda* and internal administration like *Basti Karma* to correct the *Vata Dosha* and to nourish the *Asthi Dhatu*.

Case Report:

A female patient aged 43 years presented with the complaint ofPain and stiffness in back region, radiating pain, and parasthesia in both lower limb, difficulty in walking and sitting and changing the posture since 6 months.Before 06 months she was quite well,acute onset due to heavy weight shifting.Patient took allopathic treatment like analgesic, anti-inflammatory etc. and got temporary relief. Now again she is suffering with same complains.

Observations:-

Subjective Criteria-Pain, Parasthesia, Stiffness, Posture

Objective Criteria-Walking time, Walking distance, SLR, Lasegue's sign

Table No. I

Subjective criteria	Gradation	Objective criteria	Gradation
Pain (VAS)	8cm	Walking time	Took around five minutes to walk 100 steps
Parasthesia	4 (Serious problem)	Walking distance	severe pain after walking 100 mts.
Stiffness	5(A great deal)	SLR	Rt-30 degree,Lt-60 degree
Posture	Difficulty in changing the posture	Lasegue's sign	Positive
		MRI findings	Disc protrusionL3-L4,L4-L5,L5-S1.

Symptoms: - Pain and stiffness in back region, radiating pain, and parasthesia in both lower limb, difficulty in walking and sitting and changing the posture since 6 months.

- Gait: - Slow.
- *Prakriti: - Vata-Pitta.*
- *Vaya: -Madhayama*
- *Bala: - Madhyama*
- *Agni: - - Madhyama*
- *Koshta: - Madhyama*

Treatment given:

Kati Basti: - The procedure of applying heat to the sacral or lumbar region by retaining warm medicated oil with in a specially formed frame on this area is known as Kati Basti. It is indicated in painful condition of low back region.[5] The procedure was done with *Dashmoolam Tailam* for 30 minutes for duration of 14 days.

***Patra Pinda Pottali Sveda*:-** Application of heat and there by inducing perspiration by using heated pack of specified herbal leaves is known as *Patra Pinda Sveda.* It is efficacious in painful clinical condition where vitiation of *Vata Dosha* is predominant.[6]

The procedure was done with leaves of *Nirgundi* and *Eranda* along with *Ajamoda* 50gms, *Rasona* 10-15 pieces, *lemon* and *Dashmoola Taila* for 30 minutes for duration of 14 days.

Basti Karma:-

Niruha Basti: - The composition of the medicine administered in the form of *Basti* contains *Kwath* (herbal decoction), *Sneha* (medicated oil), *Madhu* (Honey), *Saindhava Lavana* (rocksalt) and *Kalka* (herbal powder).[7]

Erandamuladi Niruha Basti was given in *Karma Basti* schedule (30 days) with the following contents.

Madhu -60gms

Saindhavalavana -05 gms

Guggulutiktaka ghrita-90ml

Shatapushpa Kalka -30gms

Erandamuladikwatha -240 ml

The contents of *Kwatha* are *Erandamula, Palasha, Laghu Pancha Mula, Rasna, Ashwagandha, Atibala, Guduchi, Punarnava, Aragwadha, Devadaru, Madanaphala*

AnuvasanaBasti:-Administration of medicated oil or other fat through the rectal route in a prescribed dose is called as *Anuvasana Basti.* In this case study *DashmoolaTaila* was used for *AnuvasanaBasti.*

Shamana Aushadi: - Palliative treatment with

Yograja Guggulu - 2 pills (500 mgm) three times a day

Rasna Saptaka Kwath – 40ml + *Dashmool Kwath* – 40ml two times a day

Ashwagandha Churna - 3gms + *Chopchini* - 500mg three times a day

Ajamodadi Churna - 3gms three times a day.

Nagaradya Vati 1 pill three times a day

Ksheerabala 101 times *Avartita* -10 drops with milk two times a day.

Panchasakara Churna - 5gms at bed time.

The results observed after the treatment were:

Subjective criteria	Gradation	Objective criteria	Gradation
Pain	2cm	Walking time	Took three minutes to walk 100 steps.
Parasthesia	2 (Minor problem)	Walking distance	walk without pain about 200 mts
Stiffness	3(Mild amount)	SLR	Rt-60 degree,Lt-80degree
posture	Markedly improved	Lasegue's sign	Positive
		MRI findings	No significant change

Discussion-

Acharya Charak describes *Basti* as a treatment for *Gradhrasi*.[8] Pain is mainly produced by *Vataprakopa*and *Basti*is best treatment for *Vata "BastiVataharanam"*.[9] *Basti* is the best treatment for correcting *Vata Dosha*, further *Erandamuladi Niruha Basti* was selected here as it is specifically mentioned for the treatment of *Jangha, Uru, Pada, Trika, Prushta, Shoola*.[10]

By virtue of the drugs of ***Erandamuladi Niruha Basti*** the *Avarana* of *Vata* may be reduced in turn makes the free movement of *Vata* 10 which may be reason for reduction in pain, numbness etc. and improvement in gait. *Basti* and *Ksheerand Ghrita Siddha* with *Tikta Rasa* should be given in *Asthipradosaja Vyadhi*.[11]

Especially *Guggulu Tiktaka Ghritam* used as *Sneha* in *Basti* is specifically mentioned for *Asthi Sandhigata Vikara* due to its *Tikta Rasa* helps to reach *Asthi Sandhi* and corrects the degeneration that took place at the level of disc by virtue of *Snigdhaguna* and *Balya* and *Brimhana* action.

Kati Basti is a combination of *Snehana* and *Svedana* which is the first line of treatment for *Vata Dosha*.[12,13] The *Dashmulataila* is *Vata kaphasamaka* and *Snehana* in nature helps to overcome the accumulation of *Vata* at the site of pathology and may nourish the underlying tissue.

Patrapinda Pottali Sveda: - This is a kind of *Snigdha Sveda* which was done over the back and in the limbs helps to regulate the movement of *Vata* and sooth the irritated nerve resulting in relief in complains of pain, numbness, tingling sensation etc.

***Shamana* drugs**: - Mainly *Amapachana, Shothahara,* reduces the *Shotha* and *Avartita Ksheera Bala Taila* is *Brimhana* and *Vatahara* might have helped to overcome degeneration of disc and *Vata Prakopa*.

Conclusion:-

On the basis of this single case study it can be concluded that *Panchakarma* treatments like *Kati Basti, Patrapinda Sveda, Erandamuladi Niruha Basti* had been effective in the management of *Gridhrasi* (Sciatica).

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Case Study

Ayurvedic Approach in the Management of *Avabahuka* (adhesive capsulitis stage 2) in a Diabetic patient with *Panchatiktaka prasratika basti* - A case report

*Dr. Suketha Kumari, **Dr. Laxmikant

Abstract:

Adhesive capsulitis often referred to as frozen shoulder, is one of the long term complication of Diabetes mellitus which causes gradual loss of motion in shoulder. Frozen shoulder explained in classics as Avabahuka, a disease that usually affects amsa sandhi (shoulder joint) produced by vitiated vata dosha. 52 years female patient, with diabetic history of 10 years came with the complaints of pain, stiffness and limited range of motion in right shoulder joint which was diagnosed as frozen shoulder. To manage this, an attempt has been made with Panchatikta prasratika basthi which is indicated in madhumeha and vatavyadhi was administered. There was marked percentage of improvement seen in clinical features i.e pain (80% relief), stiffness (60% relief) and Range of motion (90%). Hence, Panchatiktaka prasratika basthi is found to be effective in the management of adhesive capsulitis (Frozen shoulder) in Diabetic patient.

Key words: *Avabahuka, Adhesive capsulitis, Frozen shoulder, Panchatiktaka prasratika basthi, Amsa sandhi.*

सारांश–

अवबाहुक (एडेसिव, केपसुलाइटिस) प्राय: फ्रोजन शोल्डर के नाम से प्रसिद्ध है। यह मधुमेह व्याधि के उपद्रव के रूप में वर्णित है जिसमें धीरे–धीरे अंस संधि (कंधे) की गति का ह्रास हो जाता है। यह व्याधि वात दोष के प्रकोप से होता है।

एक 52 वर्षीय महिला जो कि पिछले 10 साल में मधुमेह से पीड़ित थी। कंधे में दर्द, खिंचाव और दांये कंधे की गति में ह्रास के लक्षणों के साथ आई। इसकी चिकित्सा के लिए पंचतिक्त प्रासृत बस्ति, जो कि मधुमेह और वात व्याधि में निर्देशित है रोगी महिला को दी गई। बस्ति चिकित्सा के बाद उसके लक्षणों में 80 प्रतिशत दर्द में आराम हुआ, खिंचाव के बाद उसके लक्षणों में 80 प्रतिशत दर्द में आराम हुआ, खिंचाव में 60 प्रतिशत आराम हुआ और गति में 90 प्रतिशत आराम हुआ। अत: पंचतिक्त प्रासृत बस्ति अवबाहुक (फ्रोजन शोल्डर) की चिकित्सा में प्रभावी सिद्ध हुई।

*Assistant Professor, KLE's BM Kankanawadi Ayurveda Mahavidyalaya, Belagavi, Karnataka **Associate professor, KLE's BM Kankanawadi Ayurveda Mahavidyalaya, Belagavi, Karnataka

Case Study

Ayurvedic Approach in the Management of *Avabahuka* (adhesive capsulitis stage 2) in a Diabetic patient with *Panchatiktaka prasratika basti* - A case report

Dr. Suketha Kumari, Dr. Laxmikant

Introduction

Long term complications of Diabetes mellitus may include changes in connective tissue that occur as a result of high glucose levels. Adhesive capsulitis, often referred to as frozen shoulder refers to a pathological condition of the shoulder joint which causes a gradual loss of motion usually in just one shoulder. Adhesive capsulitis has a prevalence of 2% in the general population, but is reported to occur in 10 to 29% of those with Diabetes. Studies have shown that it is caused by glycosylation of the collagen within the shoulder joint triggered by the presence of high blood sugars. There are 4 stages of adhesive capsulitis, Stage 1 called as initial stage has a duration of 3 months with pain and reduced range of motion(ROM) and person can no longer do things like comb their hair or reach a shelf above their shoulder etc. Stage 2 called the Freezing Stage, which lasts from 3 to 9 months, presents itself with chronic pain and further reduced ROM. This stage moves from the inflammatory stage to the fibrotic process. X-rays reveal decreased joint space. Stage 3 (Frozen Stage) has a duration from 9 to 14 months with minimal pain, but a significantly limited range of motion in the shoulder. Stage 4 (Thawing Stage) is from 15 to 24 months and shows minimal pain and progressive improvement in ROM. At this stage the pain and active fibroplasia in the shoulder have completely subsided. Avabahuka is considered to be a disease that usually affects the shoulder joint (*amsa sandhi*) and is produced by the *Vata dosha*[1]. *Madhumeha* patient due to more indulging in *katu, tikta, kashaya rasa* predominenet aharas and viharaja nidanas like inactivities (Asyasukha), day sleep(Swapna sukha), Avyayama (not indulging in any exercises) etc leads to vitiation of Vata. There are two types of samprapti manifest in Madhumeha i. e *Avarana* and *Dhatu Kshaya*. In *Avaranaja samprapti*, there is Avarana to vata by Pitta and *Kapha* leading to *laxanas* like *Shoola* (pain), *Chesta Sanga* (restricted movement) and *sthirata* (stiffness) etc. Due to *Avarana, Medodatvagnimandyata* takes place. *Avarana* hampers the nutrition to later *dhatus* leads to dhatu kshaya causing Vataprakopa, hence there will be development of angashosha (Wasting), dourbalya (weakness) etc symptoms of Dhatukshaya

Treatment goals in contemporary science are to lessen pain and inflammation by use of nonsteroidal anti-inflammatory drugs (NSAID) like aspirin. These NSAIDs have some common side effects like Stomach pain, heart burn liver and kidney problems etc. Early detection, proper staging, and appropriate treatment can allow the patient with diabetes to avoid the painful and disabling consequences of Adhesive Capsulitis. Ayurveda recommends various treatment modalities which act at root cause of the disease and prevent from further recurrence. The general line of treatment mentioned for *vatavyadhi* in Ayurvedic classics include Snehana (both internal and external), *Swedana*, *Mrudusamshodhana*, *Basti, Sirobasti*, *Nasya*, and so on.

A Female patient with diabetic history of 10 years visited to *madhumeha* OPD of KLEs BM Kankanawadi Ayurveda hospital, Belagvi, Karnataka had complaints of pain, stiffness and restricted movement in right shoulder joint for a duration of 6 months, which was diagnosed as Avabahuka. Basthi treatment which was said to be best in Vataja disorders i.e *Panchatiktaka prasratika Basti*, which had indication in *madhumeha* been planned. Hence, an attempt has been made in this article to enlighten the management of Avabahuka in *Ayurveda*.

Discussion

History and Examination

A female patient name XYZ ,aged about 52 years from Upper middle class with occupation as

homemaker from Belagavi, Karanataka admitted in KLEs BMK ayurveda hospital Belagavi on 8/2/17 with OPD no and IPD no as 345 /17,22 respectively, had chief complaints of pain in the right shoulder joint since 5 months, painful and difficult to raise the hand above shoulder since 4 months ,stiffness of shoulder joint since 5 months. Associated complaints as muscle weakness since 2 months, burning feet on and off since 4 years. Patient had history of diabetes mellitus since 10 years on medication (Metformin 500 mg once daily). Patient was not a known case of hypertension or no any history of chronic illness.

Details of the cardinal features

Pain

Onset: Sudden

Site: Right shoulder joint

Type of pain: Shooting, sometimes pricking type

Radiation: no radiation

Restricted movement

Onset: Gradual

Site: Right shoulder joint

Type of pain: Shooting, sometimes pricking type

Range of movement:

Flexion- not possible

Extension-not possible

Raising the hand above shoulder –not possible

Aggravating and relieving factors: Nothing specific

Burning extremities

Site –lower extremities

Distribution – bilateral symmetrical

Onset – gradual

Progression - progressive in nature,

Diurnal variation- worsens in nig

Aggravating and relieving factors: Nothing specific

Table No. I : Assessment parameters of cardinal manifestation of Avabahuka

Pain	Points	Stiffness	Points	Burning feet	Points
No pain	**0**	No stiffness	**0**	No	**0**
Mild pain ,particularly on moving the shoulder,	**1**	Mild stiffness, during movement, able to do work	**1**	Mild/occasional	**1**
Moderate pain –on movement and rest interfere routine work	**2**	Moderate, stiffness at movement and rest, interfere with routine work	**2**	Moderate/continuous at rest	**2**
Sever pain - pain felt on movement, also at rest, disturbing sleep, unable to carry out most of the routine work	**3**	Severe- stiffness at rest, no movement	3	Severe/disturbs sleep	**3**

Table No. II : Assessment parameters of cardinal manifestation of Avabahuka

ROM		Points
Flexion	No- 0-180	**0**
	Mild- 0-135	**1**
	Moderate-0-90	**2**
	Severe- 0-45	**3**
Extension	No- 60	**0**
	Mild-45	**1**
	Moderate-30	**2**
	Severe-0 to 10	**3**
Abduction	Possible	**0**
Adduction	Not possible	**1**

Total points (SUM): 31

Investigations- FBS

PPBS

Discussion on Treatment

From 8/2/17 to 24/2/17

A course of basti (in Kala basti patten i.e for 15 days**)**

Panchatikta prasratika basti[2]

Anuvasana basthi with Moorchita ghrita **90 ml**

Niruha basti

Makshika **30 ml**

Saindava **5 grams**

Moorchita ghrita **90 ml**

Sarshapa kalpa **30 grams**

Patola, Nimba, Bhunimba, Rasna, Kiratatikta churna **100 grams (*Kwatha* 350 ml)**

After treatment, there was significant improvement observed in clinical parameters.Overall treatment showed marked percentage of improvement i.e 90% of improvement observed in pain and stiffness and 100% improvement observed in Restricted movement.

Table no: III : Assessment of clinical parameters after treatment (Sum points)

Total points (Before treatment)	Total points (After treatment)
28	8
FBS(BT)	FBS(AT)
230 mg/dl	152 mg/dl
PPBS(BT)	PPBS(AT)
405mg/dl	278mg/dl

Discussion on Results

Madhumeha patient due to indulgence in various etiological factors such as intake of *Ruksha* (dry), *Laghu* (light), *Kashaya* (Astringent), *Tikta* (bitter) *Ahara* (food articles), indulging in viharas like excessive fasting, day sleep, excessive walking, injury etc, *Manasika Nidanas* like *Bhaya* (worries) *Krodha* (anger), *Mada* (intoxication) *chinta* (worries) etc. leads to the accumulation of the *Vata Dosha* in the *amsapradesha* and cause the *shoshana* of the *amsabandhan* or *siraakunchana*, which in turn leads to manifestation of *kevala vataja Avabahuka*[3] Further *kshaya* of the *dhatu* causes the *prakopa* of the *vata* and then leads to the *amsa shosha*.[4] This unique pathology is described as *dhatukshayaja Avabahuka*. *Sula* and *sosha* at the shoulder joint in patients suffering from *Avabahuka* indicates the morbidity of *vyana vayu*. This is true in case of *dhatukshayaja* and *swanidanaja Avabahuka*. Impairement of *Bahupraspanda* is one of the cardinal features in *Avabahuka* and this affects *Utkshepana, Apakshepana, Prasarana* and *Akunchana* etc activities of the shoulder joint. These are the activities that are attributed to *Vyana Vayu*.[5] Hence it is evident that out of five types of *Vata*, morbid *Vyana Vayu* is the primary cause of the disease in *kevala* and *swanidanajanya Avabahuka*. In *kevala vataja* and *Dhatukshayaja Avabahuka*, the *samanya Vataja chikitsa* like *snehana, Swedana, Abhyanga, Basti*, etc. are the choice of treatment. As mulasthana of *Vata* is *pakwashaya*[6]. It is said that *Basti* is very helpful in pacifying *Vata*[7,] Among *Niruha Basti, Erandamuladi Niruha* and *Dashamuladi Niruha* are the best choices. *Anuvasana Basti* using *Vatahara Taila* like *Bala Taila, Kshirabala Taila* etc., is beneficial in *dhatukshayajanya* and *swanidanajanya Avabahuka*.[8] In this case, *Avahahuka* in a *madhumeha* patient was treated with *panchatiktaka prasratika basthi* which had indication in both madhumeha and vatavyadhi had given beneficial affect without causing side effects.

Conclusion

Avabhahuka (Frozen shoulder) is one of the commonly encountered problem with *Madhumeha* (diabetic) patients, where morbid *Vata dosha* is the prime reason. This morbidity happen due to *dhatuksaya*. Morbid *vata dosa* invariably involves the *sira, snayu, kandara, mamsa* and *asthi dhatu* at the shoulder joint. Restricted movements, Pain and stiffness of the shoulder joint are the cardinal features of *Avabahuka*. *Amsa Shosha* may manifest during the later course of the illness. A course of *Kala basthi* with *panchatiktaka prasratika basthi* is found to be effective in the remission of the illness in patients suffering from diabetes mellitus

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Case Study

Management of jaundice with *Ayurvedic* medicine – A Case Study

*Dr. Ekta, **Dr. Mahendra Prasad

Abstract:

Liver is an important organ and performs a lot of functions regarding metabolism. Any problem in liver and other organ that affects the normal functioning leads to disturbed homeostasis. *Ayurveda* is a science which have the capability to revert the condition to maintain homeostasis without causing any harm and overload on liver.

A twenty years old female patient has complaint of loss of appetite, pain in right upper hypochondrium, nausea, fever and pale urine for 4 days. Investigations SGOT, SGPT, total serum bilirubin direct and indirect, urea, creatinine, hemoglobin %, TLC, DLC, ESR, HB_sAg were done to diagnose the specific disease. On Physical examination icterus, tenderness in upper right hypochondrium was found. So on the basis of physical and laboratory investigations jaundice was diagnosed. The case was treated with *jwarahara kashaya, Kutakivati, Mulethi Churna, Aamlaki churna, Triphala Churna* for 7 days. Significant relief was found in sign (liver functions test as marker) and symptoms.

Key words: Jaundice, Hyperbilirubinemia, *Pitta, Kamala*.

सारांश–

यकृत एक अत्यन्त महत्वपूर्ण अंग है जो कि चयापचय संबधित बहुत सी क्रियाएँ करता है। यकृत या किसी अन्य अंग में कोई विकार/समस्या हो तो वह सामान्य क्रियाओं को प्रभावित करता है तथा होम्योस्टेसिस को खराब कर देता है। आयुर्वेद ऐसा विज्ञान है जो यह सामर्थ्य रखता है कि बिना यकृत को नुकसान पहुँचाये और यकृत पर अधिकार किये बिना विकृत होम्योस्टेसिस को पुनः स्थापित कर सकता है।

एक 20 वर्षीय महिला रोगी को 4 दिन से क्षुधानाश, दाये हाइपोकोण्ड्रीयम में दर्द, जी मिचलाना, ज्वर तथा पीला मूत्र आने की शिकायत थी। व्याधि जाँच हेतु एस.जी.ओ.टी, एस.जी.पी.टी, डी.एल.सी., ई.एस.आर, एच.बी.एस..एजी आदि परीक्षण करवाये गये। शरीरिक परीक्षण में इक्टेरस, दाये हाईपोकाण्ड्रीयम में टेण्डर बेस इत्यादि किये गये। उपरोक्त परीक्षण के आधार पर, कामला का निदान हुआ। तथा इस स्थिति को ज्वर कषाय, कुटकी वटी, मुलेठी चूर्ण, आमलकी चूर्ण, त्रिफला चूर्ण द्वार 7 दिन में चिकित्सा की गयी। लक्षणों में सार्थक परिणाम (आराम) प्राप्त हुए। (लीवर फंक्शन टेस्ट को आधार मानते हुए)

*Ph.D. Scholar, P.G. Dept. of Swasthavritta, NIA, Jaipur, **Assistant Professor, Dept. of Sharir Kriya, NIA, Jaipur

Case Study

Management of jaundice with *Ayurvedic* medicine – A Case Study

Dr. Ekta, Dr. Mahendra Prasad

Introduction

Liver is a largest gland in the body. It is made up of hepatocyte cells, kupffer cells, stellate cells and other supporting structures. Hepatocytes perform numerous functions like synthesis of essential serum proteins, formation of bile, metabolism of glucose, fat and protein, conjugation of upophilic compounds for excretion in the bile or urine. So liver performs various functions regarding metabolism of food and drugs. It is prone to various acute and chronic diseases i.e. viral and drug induced viral hepatitis, drug induced liver injury, Cholangitis, alcoholic liver diseases etc. Serum bilirubin (Total, Direct, Indirect), albumin, serum alanine and aspartate aminotransferases, alkaline phosphate , prothrombin time these are bio marker to assess the liver function.

Jaundice is the hallmark symptom of liver disease[1] and yellowish discoloration of tissue resulting from the deposition of bilirubin. Tissue deposition of bilirubin occurs only in the presence of serum hyperbilirubinemia, normally the the bilirubin level is less than 1mg/dl. Bilirubin level more than the normal level is diagnosed as jaundice.

Patient's profile and history:

A female patient was 20 years old belonged to middle class, hindu family, student by occupation. She came with the complaint of nausea, fever, pain in upper right hypochondrium, loss of appetite and pale urine for 4 days back. There was no any history of exposure of any chemical or medication either physician, prescribed over the counter and alternate medicine. There was no history of blood transfusion, travelling and occupation exposure to hepatotoxins as well as taking contaminated food.

Physical examination

On abdominal examination tenderness was found in epigastric region and upper right hypochondrium and no splenomegaly. It may be due to stretching or irritation of Glisson's capsule which surrounds the liver and rich in nerve endings (pressure symptom). There was no sign of ascites, bulbar conjuctive (sclera) was yellow. This condition is normally appears in hyperbilirubenemia (more than 2.5 mg/dl).

Diagnostic Criteria

Hemoglobin in gram percent (Hb gram%), Serum glutamate oxaloacetic transaminase (SGOT), Serum glutamate pyruvate transaminase (SGPT), Serum bilirubin (total , Direct, Indirect), Cholesterol, ESR, Serum Blood sugar, Urea, Creatinine, Hepatitis B surface Antigen, urine test were done before and during the treatment to diagnose the disease and to evaluate the effect of treatment as well as prognosis.

Table No. I : Test done before the treatment on dated 20/02/2017

Name of the test	SGOT	SGPT	S. Bilirubin			Cholesterol	S. Blood sugar
			Total	Direct	Indirect		
Result	567.4	482.2	3.6	2.0	1.6	132	99.18

Table No. II

Hb gram %	S. Urea	S. Creatinine	ESR	TLC	Widal Test	HB_sAg
10.2	32.38	1.0	46	10,200	-ve	-ve

Table No. III

Urine test	Albumin	Sugar	R.B.C	Pus cells	Colour
Result	Trace	-ve	-ve	4-6	Yellow

Significance of these tests:

Hb 10.2 gram % showed patient was anaemic. This investigation was repeated again to rule out the hemolytic anaemia. Increase in SGOT and SGPT reflects damage of hepatocytes because these enzymes are released in greater amount when there is damage to the liver cell membrane. Increase in SGOT is found in other pathologies also but SGPT primarily increases only in liver pathologies. Increase in serum bilirubin level indicates Jaundice. For confirmation of hepatitis, HB_sAg is bio marker, gives negative sign for hepatitis. On the basis of above tests jaundice was diagnosed of unknown origin.

Intervention given:

1. *Jwarahara Kshaya* : 50 ml BD
2. *Kutki Vati/* Powder : 2 Tab/ 3 grams BD
3. *Mulethi churna* : 2grams (BD)
4. *Aamlaki Churna* : 2grams
5. *Triphala churna* : 3 grams (HS)

Result: The subjective parameter nausea, loss of appetite and color of urine improved. Significant relief was seen within a week in sign (biomarker) and symptoms.

Table No. IV : Test done during the treatment on dated 25.02.2017 and 28.02.2017

Name of the test	SGOT	SGPT	S. Bilirubin			Hb gram %
			Total	Direct	Indirect	
25.02.2017	206.3	214.8	2.80	1.50	1.30	10.2
28.02.2017	78.19	108.6	1.05	0.8	0.7	-

Discussion

Jaundice was diagnosed due to hepatitis of unknown origin. In ayurveda this condition is homologous to *Kamala*. According to ayurveda when an anaemic person use to take *Pitta Vardhaka Aahara* in excess then aggravated *Pitta* vitiates the *Rakta* and *Mansa dhatu* and leads to *Kamla*.[2] The line of treatment is *Mridu virechana* with *tikta dravya*.[3] Keeping this principle in mind aforesaid medicines were prescribed to the patient. *Kutki* is *katu* in *Vipaka*, *Tikta*, *Laghu* (light), *Bhedini*, *Deepani*, *Hridya, Kaphapittahar* and *Jwaraapaha*.[4] Apocynin catechol is present in *Kutki* has been studied to inhibit neutrophil oxidative burst along with anti inflammatory property.[5] Extract of P. kurroa roots and rhizomes has hepatoprotective activity. *Madhuyashti* is *madhura, sheetala, balya, rasayana, shothahara* and *vranaropka*. [6] It has anti viral, antioxidant and immune-stimulant activities.[7] Liquirice constituents exhibit hepatoprotective property and lower the increased serum liver enzymes. [8] *Aamlaki* is rasayana, mild laxative, regulate the liver functions. [9] It prevents cellular changes in the liver and promote anti oxidant detoxification in liver. It assists the liver in repairing and recovering from early pathological manifestations. *Triphala* is *shothghana* and *rasanayana*. It is *deepana* and *shleshmapittaghana*, antibacterial,[10] antiviral, antibacterial[11] and antioxidant. *Jwarahara Kashaya* have *Musta*, *haridra*, *kutaj*, *kutki*, *chirayata*, *raktachandana*, *tulsi, nimbi, madhuyashti, guduchi* and *triphala* as ingredients in equal amount.

***Haridra* is used in** *kamla* (Jaundice) and *Yakrita vikara* (Liver disorders).[12] *Haridra* suppress the inflammation by reducing the level of inflammatory cytokines.[13] It significantly protects the liver by reducing the activity of serum aspartate and alanine aminotransferases , alkaline phosphotase and by improving the histological architecture of liver.

By reducing the enzymatic level suggest the beneficiary effect of liver going to recover the injured part.[14] *Tinospora cordifolia* has immune modulatory activity due to active compound 11-hydroxymustakone, N-methyl-2-pyrrolidone, N-formylannoian, cordifolioside A, mangoflorine, tinocordiside and syringin.[15-17]

Tulsi (Holy basil) leaves have eugenol, cinnamylacetate and β-elemene.

Extraction of basil leaves yields cirsilineol, circimaritin, isothymusin, isothymonin, apigenin and rosamarine.[18] The alcoholic leaf extract has anti-fertility, anticancer, antidiabetic, antifungal, antimicrobial, cardioprotective, analgesic, antispasmodic adaptogenic actions and hepatoprotective activity.[19]

Antioxidants, vitamin C and E and carotenoids found in *Neem (Azadirachta indica)* neutralize the free radicals and prevent the damage to the liver hepatocytes.[20]

Chirayata possesses digestive, hepatic tonic and appetizer properties.[21]According to Ayurveda prescribed drugs are *Deepana* in nature, pacifies *Pitta* and *Rakta* and *shothaghana*. Drugs like *Kutki, Amalaki, Triphala* are *Virechana Dravya*. These drugs help in detoxification of body by removing the toxins from the body and decrease the load on liver. Due to *Rasayana* property it helps in repair and enhances the recovery from illness. The prescribed drugs have anti oxidant, antiviral, antibacterial and anti inflammatory and remodeling properties. Hyperbilirubinemia occurs due to inability of liver to reuptake of bilirubin in pathological condition. These drugs have enhanced process of detoxification and repair and have decreased the period of illness.

Aqueous and alcoholic extract of chirayata has phytochemicals mangiferin, amarogentin and swertiamarin and has properties such as antihypoglycemic, antilipidemic, antiatherogenic, cardioprotective, immunodilatory, cardiotonic, anti-inflammatory, analgesic, antioxidant, gastroprotective, hepatoprotective, anticholerogenic which may be responsible for its therapeutic action against diabetes, hypertension, chronic fever and their complications.[22]

Conclusion:

Tikta and *madhur* drugs should be used for the treatment of hyperbilirubenemia. No any supportive medicines were provided for this case. *Ayurveda* is not only a supportive or an alternative therapy but it can also be used as main stream of treatment in acute condition.

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While contributorship and guarantorship policies obviously remove much of the ambiguity surrounding contributions, it leaves unresolved the question of the quantity and quality of contribution that qualify for authorship. The International Committee of Medical Journal Editors has recommended the following criteria for authorship; these criteria are still appropriate for those journals that distinguish authors from other contributors.

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Increasingly, individual studies receive funding from commercial firms, private foundations, and government. The conditions of this funding have the potential to bias and otherwise discredit the research.

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Identifying details should be omitted if they are not essential. Complete anonymity is difficult to achieve, however, and informed consent should be obtained if there is any doubt. For example, masking the eye region in photographs of patients is inadequate protection of anonymity.

Informed consent is a must in prospective trials involving human beings. When informed consent has been obtained it should be indicated in the manuscript.

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Manuscripts will be reviewed with due respect for authors' confidentiality. Confidentiality may have to be breached if dishonesty or fraud is alleged but otherwise will be honored.

Information about manuscripts (including their receipt, content, status in the reviewing process, criticism by reviewers, or ultimate fate) will not be disclosed to anyone other than the authors and reviewers. This includes requests to use the materials for legal proceedings.

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When reporting experiments on human subjects, authors should indicate whether the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. If doubt exists whether the research was conducted in accordance with the Helsinki Declaration, the authors must explain the rationale for their approach, and demonstrate that the institutional review body explicitly approved the doubtful aspects of the study. When reporting experiments on animals, authors should be asked to indicate whether the institutional and national guide for the care and use of laboratory animals was followed.

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Editors will consider seriously for publication any carefully done study of an important question, relevant to readers, whether the results are negative (that is, convincingly allow the null hypothesis to be accepted) or positive (that is, allow the null hypothesis to be rejected).

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.

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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).

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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.

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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.
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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.

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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.

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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.
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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.
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6. The name and address of the author to whom requests for reprints should be addressed.
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equipment, drugs, or all of these.

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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.

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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
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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.

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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.
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B. Other Sources of Information Related to Biomedical Journals

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Demand draft to be made in favour of

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).

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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 Workshop on Research Methodology in Ayurveda, organized by Vishwa Ayurveda Parishad, Delhi.

  Date : 7th and 8th October, 2017.

- CME on Panchakarma for Doctors, organized by S.V.Ayurvedic College & Hospital, Tirupati.

  Date : 9th to 14th October, 2017.

- National Seminar: SROTO-VICHAR 2017, organized by Late Kedari Redekar Ayurvedic Mahavidyalaya, Gadhinglaj.

  Date : 12th October, 2017.

- The Ayurveda Day, organized by Ministry of Ayurveda, New Delhi. Date : 17th October, 2017.

- National Conference on "Chronic Alignments & Ayurveda", organized by Rajiv Gandhi Government Post-Graduate Ayurvedic College & Hospital, Paprola.

  Date : 27th and 28th October, 2017.

- International Conference on "Role of Basic Sciences in Translational Research in Ayurvedic Medicine", organized by Mahima Research Foundation & Social Welfare, Varanasi. Date : 28th and 29th October, 2017.

- International Seminar On Concepts & Recent Updates of Kriya Sameeksha, organized by Sri Dharmasthala Manjunatheshwara College of Ayurveda & Hospital, Hassan.

  Date : 3rd November, 2017.

- Ayurveda Sanjeevni 2017: "National Seminar & Workshop", organized by Maharashtra Ayurveda Congress.

  Date : 4th & 5th November, 2017.

- National Seminar on "Clinical Aspects of Triskanda Ayurved", organized by Vidyarthimitra Vaidya MV Kolhatkar Ayurved Pratishthan, Pune.

  Date : 5th November, 2017.

- National Conference on Recent Trends In Management Of Ano-rectal Disorders, organized by Banaras Hindu University, Varanasi.

  Date : 9th to 11th November, 2017.

- 24th International Conference: Ayurveda For Health & Wellness, organized by Global Ayurveda Conferences, USA.

  Date : 11th and 12th November, 2017.

- NIRAMAYA 2017 National Seminar on "A Holistic approach of Ayurveda & Yoga towards Psycho-somatic disorders", organized by R.D.Memorial PG College of Ayurved, Bhopal.

  Date : 17th & 18th November, 2017.

- SNEHA ACHARNAM 2017: Workshop on Snehana & Aromatherapy, organized by D.Y Patil University School Of Ayurveda, Mumbai.

  Date : 17th November, 2017.

- CME on "Management of Sandhigatha Vath", organized at Arya Vaidya Sala Kottakkal. Date : 19th November, 2017.

- Ayurved Mahakumbh, organized by Ayurved Sankul Anand &shri Swaminarayan Mandir Vadtal Sansthan.

  Date : 24th to 26th November, 2017.

- Workshop on "Excellence in Writing Skills for Ayurved Scholars", organized by Vishwa Ayurved Parishad State Unit of Rajasthan.

  Date : 26th November, 2017.

*Sr. Research Fellow-Journal of Ayurveda, NIA, Jaipur

- Prajna 2017: Continuing Medical Education Programme on Headache, organized by Government Ayurveda College, Kannur. Date : 28th to 30th November, 2017.
- AYURVEDANVESHAN-2017: National Seminar on Ayurvedic Perspective For Treatment of Diseases Related To Rheumatology, Endocrinology & Cardiology, organized by Arya Vaidya Sala, Kottakkal.

  Date: 3rd December, 2017.
- National Seminar on Prameha, organized by Swasthyam Ayurvedic Multispeciality Clinic & Research Centre, Satara.

  Date: 3rd December, 2017.
- International AROGYA-2017: 1st International Exhibition & Conference on AYUSH & Wellness, organized by Ministry of AYUSH.

  Date: 4th to 7th December, 2017.
- AROGYA 2017: "International Herbal Trade", organized at Vigyan Bhawan, New Delhi. Date: 6th December, 2017.
- ANVEEKSHIK-2017: International Seminar on Ayurveda Oncology, organized by Pankajakasthuri Ayurveda Medical College & PG Center, Thiruvananthapuram.

  Date: 7th to 9th December, 2017.
- 6-day CME for AYUSH Paramedics, organized by Shri N.P.A Govt. Ayurved College, Raipur. 11th December, 2017.
- Skill Development Workshop for Practising Ayurveda Surgeons, organized by Sri Dharmasthala Manjunatheshwara College of Ayurveda & Hospital, Hassan.

  Date: 12th December, 2017.
- National Seminar on Recent Advances in Parasurgical Procedures 'AYURCON UPDATE - 2017', organized by Government Ayurvedic College and Hospital, Allahabad.

  Date: 13th December, 2017.
- International Conference: "Ayurveda as a Medicine System To Address Contemporary Health Challenges In an Effective Efficient Affordable & Holistic Way-Perspectives on Policy & Practice", organized by Antar Rashtriya Sahyog Parishad, West Bengal.

  Date: 23rd & 24th December, 2017.
- Ayurved Parv 2017: National Seminar on "Prevention & Management of Diabetes with its Complications & Pain Management Through Ayurveda", organized by Akhil Bhartiya Ayurved Mahasammelan, Gujarat.

  Date: 22nd to 25th December, 2017.
- Pragati 2017: 24th International Conference on Kayachikitsa and Panchakarma, organized by Shri. B M Kankanawadi Ayurveda Mahavidyalaya, PG and Medical Research Centre, Belagavi.

  Date: 23rd and 24th December, 2017.
- National Seminar on ABHIGHATOPACHARA Trauma Care in Ayurveda, organized by Parul University, Gujarat.

  Date: 29th & 30th December, 2017.

CAMPUS NEWS:

A three day medical camp (from 14th to 16th of October 2017) was organized in the playgrounds of the institution to commemorate 2nd World Ayurveda Day whose theme was Ayurveda for Pain Managment. In the camp several specialized clinics were operated by various departments of the institute to highlight and prescribe pain management techniques in their respective fields of expertise, viz, Asthi sandhi unit of Shalya department highlighted agni karma and jalaukavacharana for managing pain in joint disorders. Panchkarma department highlighted role of kati basti and other panchkarma procedures in managing pain in elderly population and in auto immune disorders. Pain management in Adhimantha, various ENT and ophthalmic disorders and in dental practice were prescribed by Shalakya department. Special emphasis was given to management of pain associated with lifestyle disorders by employing different Yoga postures along with specific indications and contra indications of yogasanas in various diseases and in healthy

individuals. Patients were also educated about the importance of prevention measures for the diseases. On the last day of the camp, two lectures were organized for various senior administrative officers, advocates and professors in the auditorium of the institute on the measures to reduce stress caused by modern life style. Honourable Vice Chancellor of Rajasthan University Prof. R. K. Kothari graced the occasion as chief guest in this event.

NATIONAL NEWS EVENTS

This year's 2nd Ayurveda Day is celebrated on 17 October in New Delhi by the Ministry of AYUSH.

Prime Minister Narendra Modi will be the Chief Guest and will also inaugurate the country's first All India Institute of Ayurveda, Sarita Vihar, New Delhi. The All India Institute of Ayurveda, set up on a total area of 10.015 acres on a budget of Rs 157 crore, is the first medical institute under the AYUSH ministry to hold the coveted National Accreditation Board for Hospitals and Healthcare Providers (NABH) accreditation. To mark the 2nd Ayurveda Day, several events have been organized by the Ministry of AYUSH. The main function will be held at the All India Institute of Ayurveda (AIIA), Sarita Vihar, New Delhi. The Prime Minister of India will be the chief Guest of the function and will dedicate the AIIA to the Nation. The "Ayurvedic Standard Treatment Guidelines" developed by the Ministry shall also be released on this occasion. Nearly 1500 participants from across the country are expected to participate in the program. A national seminar on the theme "Ayurveda for Pain management" will be held on 16th October, 2017 at New Delhi. An AYUSH CII industry conclave shall also be held at New Delhi on the theme "Vision 2022: Widening horizons of Ayurveda for three-fold growth of market size".

"National Dhanwantari Ayurveda Award" comprising of Citation, Trophy (Dhanwantari Statue) and Cash reward of Rupees five lakh will be conferred on this day to 3 to 4 eminent Vaidyas and Ayurveda experts. On this occasion, the Prime Minister will also give away the Yoga Award to the Ramamani Iyengar Memorial Yoga Institute, Pune, which was announced earlier this year on the occasion of International Day of Yoga.

The Ministry of AYUSH has requested All the State Governments, State AYUSH Directorates, all Ayurveda colleges/ teaching institutions, AYUSH/ Health Universities, Associations of Ayurveda Practitioners, Ayurveda Drug Industries and all supporters/ well-wishers and stakeholders of Ayurveda in India and abroad to observe the Ayurveda Day on 17th October, 2017 for this year and undertake various activities like organizing Public lectures / Seminars / Exhibition / Radio Talks etc. as a part of Ayurveda Day celebrations.

National ayurveda day: Pain management by Ayurveda

On the First National Ayurveda Day ie 28th October 2017 , the Ministry of AYUSH launched "Mission Madhumeha through Ayurveda." The Mission Madhumeha was implemented throughout the country through a specially designed National Treatment Protocol for effective management of Diabetes through Ayurveda. The national treatment Protocol was also released on the occasion of a national seminar on the said day. The Second National Ayurveda Day ie 17th October 2017, the Ministry of AYUSH has set its sights with the them "Pain Management through Ayurveda". It is time to acknowledge ayurveda as one of the most important traditions of natural healing in the world. It is one of the greatest gifts of India's profound spiritual and yogic culture.

Pain can be described as any physical suffering or discomfort caused by illness or injury. No matter however mild the pain is anywhere in the body it lands you in a state of discomfort and affects your day to day activities. Pain can present in various ways as throbbing pain in toothache, eye ache or a colic pain which comes in spasm as in renal calculi, gnawing pain in abdominal discomfort, muscular pain as in sprain, sports injury, joint pain due to swelling and many more; and our answer to this is a pain killer which on frequent usage also kills our resistance power.

Ayurveda explains the origin of pain is due to vitiated Vata dosha, once vata dosha is treated

efficiently the pain subsides automatically. Many people have a false belief that Ayurveda is no good in times of acute pain, Ayurvedic medicines should only be consumed in chronic illnesses and it always gives very slow results but the thing is they are unaware of the wonder management. Here are the various ways to kill pain.

1.Snehan and Swedan: The procedure includes application of medicated oil which is selected according to type of pain followed by sudation therapy (steam, dry heat, patra pottali, pinda sweda, etc.) Usually done in cases of sprain, back ache, muscular injury as in sports injury.

In some cases of abdominal pain like renal colic or accumulation of gases Basti treatment works wonders. Lumbar pain can as well managed by Various types of Basti therapy.

Kati Basti, Janu Basti, Manya Basti, Hrid Basti, Netra Basti are organ related procedures performed at respective site to manage pain and at the same time strengthen them.

Internal oleation is one of the best way to control vata dosha, 2-3 tsp of ghee everyday will serve the purpose.

2. Agnikarma: Agnikarma is basically performed in two ways

a) Direct heat b) Indirect heat

A small rod of Panchdhatu Shalakha (rod made of five metals) with a blunt end, specially designed for this purpose is placed on the affected area and the heat is transferred through the other end by a candle, till the patient can bear the heat. It works effectively and gives immediate relief. Usually done in conditions like joint pain, pain due to cervical or lumbar spondylosis, spasmodic pain due to calculi, sciatica the procedure is done along the path of the nerve, frozen shoulder.

3. Blood letting: Blood letting again is performed in various ways the common methods used in practice are : –

Jalaukavcharan (Leech therapy)– The characteristic feature of leech is it only sucks the impure blood from the body. In conditions like painful cracked heels or soles and palms due to excessive dryness, headache due to vitiated pitta, some skin diseases, swelling in various tissues or joints, pain due to contused wound where blood capillaries get ruptured and the blood gets accumulated under the skin resulting in pain. Leeches are usually used where the cause of pain lies in blood tissue. The moment the impure blood is sucked out the pain disappears.

Blood letting by syringe or scalp vein: wherein blood is removed by puncturing the vein. In patients where blood pressure constantly remains high without any definite symptoms blood letting plays an efficient role.

Prachanna karma: This is a miniature of blood letting , a very small puncture is done with the help of an insulin needle. The knowledge of vital points and symptom related points is essential. this procedure serves many purposes but usually in headache, eyeache, tonsillitis, nasal blockage, renal colic, pain related to nerve defects, joint pain radiating pain, and much more. The treament gives its miraculous results in fraction of a second.

Lepa: Lepa literally means application of paste of herbs on the affected area and leave it to dry. Usually applied in cases of swelling, injury, sprain, etc.

Ayurveda, Homeopathy Doctors Can Practice Allopathy After Clearing A Bridge Course

Doctors pursuing Indian systems of medicine, including ayurveda, and homeopathy may be allowed to practice allopathy after clearing a bridge course, according to a bill introduced in the Lok Sabha. The National Medical Commission Bill, 2017, which seeks to replace the existing apex medical education regulator, the Medical Council of India (MCI), with a new body, was moved by the government in the House yesterday.

Clause 49 of the Bill calls for a joint sitting of the National Medical Commission, the Central Council of Homoeopathy and the Central Council of Indian Medicine at least once a year “to enhance the interface between homoeopathy, Indian Systems of Medicine and modern systems of medicine”.

It has also proposed that specific educational modules or programmes for developing bridges

across the various systems of medicine and promotion of medical pluralism, can be done with the approval of all the members present in the joint sitting.

"The joint sitting, may, by an affirmative vote of all members present and voting, decide on approving specific bridge course that may be introduced for the practitioners of Homeopathy and of Indian Systems of Medicine to enable them to prescribe such modern medicine at such level as may be prescribed," according to the Bill.

It provides for the constitution of four autonomous boards entrusted with conducting undergraduate and postgraduate education, assessment and rating of medical institutions and registration of practitioners under the National Medical Commission.

The commission will have a government-nominated chairman and members, and the board members will be selected by a search committee under the Cabinet Secretary, it says. A 25-member commission will replace the elected MCI, the Bill says.

The proposed measure has been strongly opposed by the Indian Medical Association (IMA) which claimed that it will "cripple" the functioning of medical profession by making it completely answerable to the bureaucracy and non-medical administrators.

"Regulators need to have an autonomy and be independent of the administrators. The National Medical Commission will be a regulator appointed by the administrators under their direct control," IMA's president K K Aggarwal said.

The Bill also proposes a common entrance exam and licentiate (exit) exam which all medical graduates will have to clear to get practicing licences. The licentiate (exit) examination will have to be conducted within three years after Parliament passes it. A medical advisory council, including one member representing each state and Union territory (vice-chancellors in both cases), the chairman, University Grants Commission, and the director of the National Accreditation and Assessment Council will make recommendations to the NMC. No permission would be needed to add new seats or to start post-graduate courses, it says. The Bill is aimed at bringing reforms in the medical education sector which has been under scrutiny for corruption and unethical practices, a senior health ministry official said.

Clear Exit Exam To Get Licence For Practising Ayurveda: Draft Bill

Medical graduates willing to procure a licence to practise Indian medicine systems, including Ayurveda, may soon have to clear an exit exam, according to a proposed legislation on the lines of the health ministry's National Medical Commission Bill. This is a part of a draft bill which seeks to create a new regulator, National Commission for Indian Systems of Medicine and Homoeopathy, to replace the two statutory bodies governing higher education in homoeopathy and Indian systems of medicine.

The AYUSH ministry, in consultation with NITI Aayog, has formulated the inclusion of integrative medicine in the proposed bill which will enable AYUSH practitioners to practise modern medicines and vice versa after undergoing a "bridge course".

Proposed by the NITI Aayog-led panel, the draft bill known as National Commission for Indian Systems of Medicine and Homoeopathy, which seeks to replace Central Council of Indian Medicine (CCIM) and Central Council of Homoeopathy (CCH), also calls for AYUSH National Teachers Eligibility Test to bring in quality teachers in the traditional systems of medicine.

The AYUSH National Teachers Eligibility will be conducted for appointment of all teachers in AYUSH institutions, a senior official in the ministry of AYUSH said.

A committee under the chairmanship of vice chairman, Niti Aayog, additional principal secretary to prime minister, Chief Executive Officer (CEO), Niti Aayog and secretary, Ministry of Ayush as members examined the working of the existing regulatory bodies of Indian Systems of Medicine.

It recommended the creation of National Commission for Indian Systems of Medicine and Homoeopathy.

There are two statutory regulatory bodies namely—Central Council of Indian Medicine (CCIM) and Central Council of Homoeopathy (CCH)—set up as per the provision of Indian Medicine Central Council Act, 1970, and Homoeopathy Central Council Act, 1973, respectively, that regulate education and practice of AYUSH systems of medicine through its regulations.

Further, from upcoming academic session, it will be mandatory for those seeking admission in AYUSH's undergraduate courses to clear the National Eligibility-cum-Entrance Test (NEET).

"However, we are still exploring whether to merge the entrance exam with NEET or to have our own common entrance exam," the official said.

For all system of AYUSH, minimum 50 per cent marks have to be obtained by the candidates to be eligible for admission in under-graduate courses.

The draft National Medical Commission Bill which seeks to replace the existing apex medical education regulator Medical Council of India (MCI) with a new body also calls for a licentiate exam which all medical graduates will have to clear to get practicing licences.

Prime Minister Narendra Modi Promises Ayurveda Hospital In Every District

NEW DELHI: Underscoring the importance of Ayurveda, Prime Minister Narendra Modi today said time has come for a "health revolution" led by the traditional medicine system and pitched for affordable and accessible healthcare. Addressing a gathering after dedicating the country's first All India Institute of Ayurveda to the nation, the prime minister noted that the world is heading "back to nature and wellness". Marking 'Ayurveda Divas' today, he described the medicine system as India's strength and urged those working in the sector to revive it. He also asked experts from the field to find medicines which can, like allopathy, give immediate relief to people but without side-effects. The prime minister also urged private players to use part of their corporate social responsibility funds to help strengthen Ayurveda. "We have seen the IT revolution in last 30 years. Now, time has come for a health revolution under the aegis of Ayurveda. Let's pledge to strengthen, revive Ayurveda," PM Modi said. Listing steps being taken by his government to revive and strengthen the system, PM Modi said Ayurveda-related hospitals should be set up in each district of the country. He said the Ayush Ministry would ensure that there was a good Ayurveda hospital in each district

Reduce arthritis pain with these Ayurvedic herbs

Winter is usually a difficult season for majority of our elderly folks. This is the season of the year when their Arthritis pain will be at its peak. Arthritis refers to joint pain or joint disease, due to inflammation of joints, affecting one or multiple joints.

Symptoms of arthritis are often seen in adults over 60 years of age. The cold weather further adds to excessive pain, stiffness and swelling in joints. Although there is no permanent cure to this condition, Ayurveda recommends some herbs that can help relieve joint pain. These herbs stem inflammation and help the body in its detoxifying efforts.

According to Ayurvedic experts, hot water fomentation is an excellent therapy to relieve Arthritis pain, as it soothes your joints and helps in better functioning. But, this may help only in mild cases. Although, the kind of medicines or herbs to be used may vary from one individual to another, depending on their severity and other health conditions, given below are some common herbs used by the majority for management of arthritis pain.

Nirgundi

This is among the most common herbs used for relief from joint pain. The plant also helps in reducing inflammation and excess pain, as it has anti-inflammatory, anti-oxidant and anti-convulsing properties. The leaves of the plant carry medicinal value, followed by the stem and seeds. Nirgundi oil can be applied on joints. Or, make a paste of the leaves and apply, or make a decoction with the leaves. But, Nirgundi oil is the most effective form for arthritic pain. Apply the oil on affected area and leave it for 10 to 15 minutes before washing in lukewarm water. It is more beneficial to apply nirgundi oil before bath to reduce inflammation and pain.

Burdock Root (Arctium lappa)

Burdock contains fatty oils, apart from the presence of sterols and tannins, which makes it a good anti-inflammatory. You can add burdock in your stir-fry recipes, or make decoction (by adding the root to boiling water and allowing it to simmer for 10 minutes. Strain and drink this lukewarm water thrice or four times a day). The herb is also available in capsule form.

Turmeric

There is no herb, which is as effective as an anti-inflammatory herb, as turmeric. It is also a great pain reliever. It contains curcumin, which decreases inflammation. This anti-inflammatory effect is also the reason behind turmeric being often recommended for treatment of cancer, cataract and Alzheimer's. However, to get the full medicinal benefits of turmeric, you will have to take it as a supplement, apart from adding to your daily diet. The herb can also be used topically to relieve pain.

Ginger

Ginger, which is usually found in every household, has excellent antiseptic and anti-inflammatory properties. It helps reduce joint pain and swelling. It improves blood circulation too. So it would do good to sip on ginger tea regularly. Also, its essential oil can be applied externally for relief from pain and inflammation.

Ajwain

Ajwain (carom seeds) is a natural aid to arthritis pain, as it has excellent anti-inflammatory properties. The presence of anaesthetic properties in ajwain helps in relieving excessive pain during winter. Add a spoonful of carom seeds into a tub of hot water. Soak your aching joints in the water and sit for 5 to 10 minutes. This will help ease pain and inflammation. This will help in cases of mild pain. Another option is to crush the seeds, make a paste and apply on the affected areas. You can do this, along with drinking ajwain water every day.

Dashmool

Dashmool is a mix of ten medicinal herbs that helps cure variety of ailments. Dashmool (also known as dashamoolam) is an effective anti-inflammatory, antioxidant, analgesic, and sedative, and helps cure joint pain effectively. It is available in the form of oil and powder.

Shallaki -

The herb keeps your joints strong and relieves pain and inflammation. It improves mobility too. It is used by Ayurvedic physicians as a substitute to pain killers. It is available in the form of essential oil and in the form of powder.

Eucalyptus -

Eucalyptus oil is a popular herbal remedy for arthritis. The tannin, present in the leaves of the plant, helps reduce inflammation and pain associated with arthritis. Moreover, the aroma of eucalyptus oil has a calming effect on the brain, while the oil helps relieve the pain and swelling in the joints.

Flaxseed - Due to the presence of Omega-3 in abundance in flax, it helps build immunity and fights inflammation. Include two tablespoons of flaxseeds into your daily diet. However, people with digestive conditions like IBS (Irritable Bowel Syndrome), should avoid it, as it may aggravate their condition.

Note: Although these herbs help in relieving pain associated with arthritis, it is important to consult your doctor before taking any ayurvedic medicines.

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