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Ayurveda Education at Graduate Level – Present status

Ayurveda the science of life originated from India and whole world looks towards our country for Ayurveda and Ayurvedic education. India has become the hub of Ayurvedic education. There are huge numbers of Ayurveda institutions on this land which are imparting Graduate, Post-graduate and Post-doctoral degrees. In the recent years a mushrooming growth of substandard Ayurveda institutions has been observed. Due to excess number of colleges thousands of Ayurveda graduates are being produced every year. Very few of them enter into private practice rather they choose either PG courses or jobs in public or private sector as their career. If we analyse the present status and standard of Ayurveda education particularly at graduation level the scenario is quite discouraging. Graduates are far away from the real knowledge of Ayurveda and are devoid of clinical skills. Plenty of reasons are responsible for this situation which may be: students related, institution related, teacher related and system related or combination of all these.

Very less number of students gets admission in Ayurvedic colleges by their own will. Mostly those students enter in Ayurveda who fail to get admission in Medical colleges. In BAMS 1st year they continue to prepare for the next medical entrance examination (now NEET) and do not show any interest in BAMS studies. Their ad hoc attitude and absenteeism from the regular classes remains a big problem. Furthermore the subjects and the way of teaching offered to the students just after their entry in the course is also very discouraging and does not attract the students. This leads to failure in understanding the very basic subjects of 1st year which otherwise are the base for the understanding of other subjects. In fact in BAMS 1st year and early part of 2nd year the student does not feel himself as a part of Ayurveda education and does not accept it as his ultimate goal. After subsequent medical entrance examination if he fails again to crack the medical entrance then he stabilises himself in the course but still remains frustrated and depressed. This all leads to poor grasping and understanding of the principles of Ayurveda science. When same student reaches in the pre-final or final year then he starts aiming the admission in PG courses. To achieve same he starts to attend separate PG preparation classes in which he gets the training of MCQ type question answers. This totally diverts him from actual learning and development of clinical skills. Even during internship he continues to prepare for PG courses and remains far away from real clinical learning and training.

There are institution related issues like: poor infrastructure, on paper teachers, ignorant attitude of the management and non-functional hospital or poor number of patients in the hospital. On paper faculty in private institutions is the biggest problem. CCIM and AYUSH are trying hard to combat the problem of such teachers but still desired results are awaited. Poor and minimal functional hospitals are other important issues need to be addressed. Most of the managements do not want to run the hospitals and present fabricated data whenever required. A medical student without patients cannot get the clinical training and remains poor in clinical skills. On the other hand the condition of Ayurvedic hospitals attached to the colleges is also not satisfactory.

Teachers of Ayurveda colleges are a major factor for the compromised Ayurveda education. In many Ayurveda institutions the standard of teaching is very poor. There are no provisions for teacher’s training and motivation. Teachers are entering with poor subject knowledge, without teaching attitude and proper training. They most of the times do
not connect with the students and a conventional type of teaching goes on. It is also observed that in the institutions where UG and PG courses are operational mostly PG scholars are sent to teach UG classes which further jeopardises the standard of teaching. Teachers themselves along with good subject knowledge require training and motivation for teaching.

It is also noted that an ignorant attitude is adopted by the governments for Ayurveda education. States generally fail to uplift the colleges and appoint proper teaching and supporting staff. Poor job availabilities and poor salary structure in the states are other major factors for the distraction of the teachers and students from Ayurveda teaching and learning. Managements of private organisation (barring few) seem to exploit the teachers resulting into poor outcome. For proper Ayurveda education and infusion of clinical skills amongst Ayurveda graduates all above mentioned issues need to be addressed at different levels. Otherwise dilution of Ayurveda and inclination of Ayurveda graduates towards practice of modern medicine will continue which will never be in the benefit of our centuries old Ayurveda science.

Prof. Sanjeev Sharma
Director
A Clinical Study on *Triphala Kwatha Gandusha* to Prevent *Dantamulagata Roga* w.s.r. to Periodontal Diseases as oral manifestations in *Madhumeha* (Diabetes mellitus)

*Dr. Ekta, **Prof. Kamalesh Kumar Sharma, ***Dr. Sharad Bhatnagar, ****Dr. Kuldeep Chaudhary, *****Dr. Girindra Kr. Bora, ******Dr. Kavita Vyas,*

*R.O.(Ayu), RARIGID, Guwahati, **Professor, Deptt.of Swasthvrita & Yoga, N.I.A , Jaipur, ***M.O.(Deptt.of Shalakya, N.I.A),


**ABSTRACT**

**Background:** Diabetes mellitus is one of the systemic risk factors for periodontal diseases which can play a major role in initiation and progression of the disease. To maintain oral hygiene only brushing is not sufficient, so various mouthwashes (in modern medicine) are available in market. But that cannot be used for long duration due to their side effects i.e. staining of teeth. **The aims and objectives of study were:** 1. To evaluate the efficacy of *Triphala Kwatha Gandusha* in prevention of *Dantamulagata roga* (Periodontal diseases) in Diabetes Mellitus, 2. To compare the efficacy of *Triphala Kwatha Gandusha* and Chlorhexidine Gluconate mouthwash. It was a randomized, parallel group, open label trial. Clinically *triphala kwatha* had showed statistically significant results on oral hygiene index (0.001), pain (0.0001), foul smell (0.001) and tooth mobility (0.001). It was concluded that administration of *triphala kwatha gandusha* is safe and effective for the primary and secondary prevention of *dantamulagata roga* w.s.r. to periodontal diseases as oral manifestations in *Madhumeha* (Diabetes mellitus).

**Keywords:** *Madhumeha*, Diabetes mellitus, *Dantamulagata roga*, Periodontal diseases.

**Address of Correspondence:**

**Dr. Ekta**  
Research officer (Ayurveda)  
Regional Ayurveda Research Institute for Gastro intestinal disorders, Barsojai, Beltola, Guwahati  
**Email ID:** dr.ektadogra@gmail.com  
**Contact No:** 7696863979

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**Introduction:**  
*Ayurveda* is a science of life[1]. It deals with prevention and treatment of various diseases[2]. Concept of prevention is not only limited to the prevention of diseases but it also arrest the progress of disease and its complications. *Ayurveda* is divided into eight branches...
known as Astanga Ayurveda i.e. shalya, shalakiya, kayachikitsa, bhutavidya, kaumarbhritya, agadtanta, rasayana tantra and vajikarana etc. Dantamulagata roga are explained in shalakya tantra branch of Ayurveda. On the basis of nidana, structures involved and sign and symptoms dantamulagata roga can be correlated with periodontal diseases. Periodontal diseases are caused by microorganisms present in dental plaque. When oral hygiene is compromised, oral bacteria may form a plaque biofilm, which is resistant to chemicals and immune cells.[3],[4] Dental plaque is an adherent intercellular matrix, composed primarily of proliferating microorganisms, along with a scattering of epithelial cells, leukocytes and macrophages.

The rate of formation and location of plaque vary among individuals and is influenced by diet, age, salivary factors, oral hygiene, tooth alignment, systemic disease and host factors. Literature consistently shows that diabetes mellitus is one of the systemic risk factors for periodontal diseases which can play a major role in initiation and progression of the disease[5],[6].

The inflamed periodontal tissue may serve as a chronic source of bacteria, bacterial products and many inflammatory mediators such as TNF-α, IL6, and IL1 that have been shown to have important effects on lipid and glucose metabolism.[7],[8],[9],[10],[11]. It have also been reported to be insulin antagonists and related to insulin resistance that is predominantly found in T2D and GDM.[12],[13],[14],[15]. To maintain oral hygiene only brushing is not sufficient, so various mouthwashes (in modern medicine) are available in market. But that cannot be used for long duration due to their side effects i.e. staining of teeth.

Aims and Objectives:
1. To evaluate the efficacy of Triphala Kwatha Gandusha in prevention of Dantamulagata roga (Periodontal diseases) in Diabetes Mellitus.

2. To compare the efficacy of Triphala Kwatha Gandusha and Chlorhexidine Gluconate mouthwash. Following materials and methods were adopted for conducting the present clinical trial:

The ethical clearance was taken by institutional ethical committee on 29-08-2016. The ethical clearance no. was No.IEC/ACA/2016/44.

A. Selection of cases:

The study was conducted on 90 clinically diagnosed and confirmed patients of Dantamulagata roga (Periodontal Diseases) on the basis of subjective and objective criteria. Patients were randomly selected from Dental OPD of Shalakya department at NIA Jaipur. A regular record of assessment of all patients was maintained in proforma prepared for study.

B. Inclusion criteria:

- Patient willing to give informed consent to participate for 90 days.
- Patients of either sex with age between 18 to 70 years.
- Patients with Type 2 Diabetes mellitus.
- Patients with controlled blood sugar levels having Dantamulagata roga (Periodontal Diseases).

C. Exclusion criteria:

- Abscess of Periodontium
- Periodontitis associated with endontic lesion
- Systemic diseases other than Type 2 Diabetes mellitus
- Pregnant woman
- Patients who had completed participation in any other clinical trial during the past six months
- Any other condition which the investigator thinks may jeopardize the study

D. Withdrawal Criteria:

The participant may be withdrawn from the trial if

- He/ She developed any serious condition or any serious adverse effect.
- Patient himself / herself wanted to withdraw from the trial

Patients and Methods:
If the patient withdrew the consent for any reason.

E. Groups and administration of Drugs:
The diabetic patients having the sign and symptoms of *dantamulagata roga* w.s.r. to periodontal diseases, given informed consent were selected for trial and randomly divided into two groups. The must have history of controlled blood sugar at least for last three months.

**Group A** - In this group, 45 patients were advised to do *triphala kwatha gandusha* after brushing twice a day for 90 days.

**Group B** - In this group, 45 patients were advised to do gargles with Chlorhexidine Gluconate after brushing twice a day for 90 days.

F. Trial Drug:
*Triphala Kwatha* powder was prepared by standard method in N.I.A. Pharmacy.

### Table No - I Composition of *Triphala Kwatha*

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Latine Name</th>
<th>Part Used</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Emblica officinalis</td>
<td>Fruit</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Terminalia chebula</td>
<td>Fruit</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Terminalia bellirica</td>
<td>Fruit</td>
<td>1</td>
</tr>
</tbody>
</table>

**Method of preparation of Drug:**

**Method of preparation** - All above drugs from 1-3 were taken in equal quantity in yavakuta (Coarse powder) form. The drug was prepared in GMP certified N.I.A. Rasayanashala. After making the coarse powder drug was packed in zip lock packets. Each packet contains 630 grams of *triphala*. Patients were asked to make decoction from it. For preparation of decoction patient was advised to take 90 gram coarse powder of *triphala* and this was boiled in 360 ml water till the ¼ part remained. Then it was filtered and luke warm *triphala kwath* was used for *gandusha*.

**Mode of Administration** - 45 patients were advised to do *triphala Kwatha Gandusha* after brushing twice a day for 90 days. Three aavritti were done. In each aavritti 30 ml *triphala kwatha* was taken.

### Study Design:
- Randomized, Parallel group trial
- **Method of randomization**: Lottery method
- **Blinding / masking method**: Open label
- **Type of trial**: Secondary prevention
- **Health condition and problem studied**: *Dantamulagata roga* w.s.r. to periodontal disease *Madhumeha* (Diabetes mellitus)
- **Source of Monitory or Material support**: National Institute of Ayurveda
- **Site of Study**: Dental O.P.D. of Shalakya department at National Institute of Ayurveda.

- **Sample size**: 90 patients
- **Duration of trial**: Twelve weeks

### Outcomes:
**Primary Outcome**: To evaluate effect of triphala kwatha gandusha on gingival index.
**Secondary Outcome**: To evaluate the effect of *triphala kwatha gandusha* on periodontal index

**Follow up Schedule**: Assessment was done every 7 days for 12 weeks.
Table No II - Criteria for assessment of response of treatment for various parameters (to be Given in methodology)

<table>
<thead>
<tr>
<th>Subjective Criteria:</th>
<th>Objective Criteria:</th>
<th>2. Biochemical investigations*:</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Gingival index by Leo h and Silness (1963)</td>
<td>o Gingival index by Leo h and Silness (1963)</td>
<td>Test- FBS, SGOT, SGPT, Urea, Creatinine</td>
</tr>
<tr>
<td>o Periodontal index by Russell al (1956)</td>
<td>o Periodontal index by Russell al (1956)</td>
<td></td>
</tr>
<tr>
<td>o Visual analogue scale is used to assess the pain</td>
<td>o Visual analogue scale is used to assess the pain</td>
<td></td>
</tr>
<tr>
<td>o Tooth mobility</td>
<td>o Tooth mobility</td>
<td></td>
</tr>
<tr>
<td>o Simplified oral hygiene index by Greene and Vermillion (1964)</td>
<td>o Simplified oral hygiene index by Greene and Vermillion (1964)</td>
<td></td>
</tr>
<tr>
<td>o Debris index – Simplified (DI-S)- scoring criteria for debris</td>
<td>o Debris index – Simplified (DI-S)- scoring criteria for debris</td>
<td></td>
</tr>
<tr>
<td>o Calculus index- Simplified (CI-S)- scoring criteria for calculus</td>
<td>o Calculus index- Simplified (CI-S)- scoring criteria for calculus</td>
<td></td>
</tr>
<tr>
<td>o Cotton test for breathing</td>
<td>o Cotton test for breathing</td>
<td></td>
</tr>
</tbody>
</table>

**Objective Criteria:**

1. **Hematological:**

   Test: Hb%, TLC, N%, L%, E%, M%, B%, ESR

   **Data documentation and Statistical assessment:**

   Data generated during the trial phase were analyzed. The results were presented in frequencies, percentages and mean±SD. The Chi-square test was used to compare categorical variables between the groups. Unpaired t-test was used to compare the continuous variables between the groups. The Wilcoxon rank sum test was used to compare mean change from before to after treatment within the group. The Kendal’s tau/McNemar’s test was used to compare change in categorical/dichotomous variables from before to after treatment. The p-value<0.05 was considered significant. All the analysis was carried out on SPSS 16.0 version (Chicago, Inc., USA).

<table>
<thead>
<tr>
<th>Gingival Index (GI)</th>
<th>Simplified oral hygiene index (SOHI)</th>
<th>Simple gingivitis (SG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild to mild</td>
<td>Fair to fair</td>
<td>0.3-0.9 to 0.3-0.9</td>
</tr>
<tr>
<td>Severe to mild</td>
<td>Poor to fair</td>
<td>&lt;0.3-0.9 to 0.3-0.9</td>
</tr>
<tr>
<td>Moderate to mild</td>
<td>Poor to poor</td>
<td>&lt;0.3-0.9 to &lt;0.3-0.9</td>
</tr>
<tr>
<td>Severe to moderate</td>
<td>Fair to poor</td>
<td>No response</td>
</tr>
<tr>
<td>Moderate to moderate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe to severe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild to moderate or severe</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Complete response
No response
Tooth mobility criteria (TMC)
- Grade 0 to Grade 0: Complete response
- Grade 1 to Grade 0: Complete response
- Grade 2 to Grade 0: Complete response
- Grade 2 to Grade 1: Partial response
- Grade 2 to Grade 2: No response
- Grade 1 to Grade 1: No response
- Grade 0 to Grade 1 or Grade 2: No response

VAS
- Moderate pain to no pain: Complete response
- No pain to no pain: Complete response
- Moderate pain to Moderate pain: No response
- No pain to Moderate pain: No response

Test for foul breathing (TFB)
- Grade 0 to Grade 0: Complete response
- Grade 1 to Grade 0: Complete response
- Grade 2 to Grade 0: Complete response
- Grade 3 to Grade 0: Complete response
- Grade 2 to Grade 1: Partial response
- Grade 3 to Grade 1: Partial response
- Grade 3 to Grade 2: Partial response
- Grade 1 to Grade 1: No response
- Grade 2 to Grade 2: No response
- Grade 3 to Grade 3: No response
- Grade 0 to Grade 1 or Grade 2 or Grade 3: No response

Table No. III - Comparison of level of response of treatment on various parameters from before to after treatment between the groups

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Group A (n=44)</th>
<th>Group B (n=43)</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td><strong>Gingival Index</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete response</td>
<td>16</td>
<td>36.4</td>
<td>24</td>
</tr>
<tr>
<td>Partial response</td>
<td>7</td>
<td>15.9</td>
<td>11</td>
</tr>
<tr>
<td>No response</td>
<td>21</td>
<td>47.7</td>
<td>8</td>
</tr>
</tbody>
</table>
### Simplified oral hygiene index

<table>
<thead>
<tr>
<th></th>
<th>Complete response</th>
<th>Complete response percentage</th>
<th>No response</th>
<th>Partial response</th>
<th>Partial response percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Complete response</strong></td>
<td>44</td>
<td>100.0</td>
<td>39</td>
<td>90.7</td>
<td>0.03*</td>
</tr>
<tr>
<td><strong>No response</strong></td>
<td>0</td>
<td>0.0</td>
<td>4</td>
<td>9.3</td>
<td></td>
</tr>
</tbody>
</table>

### Simple gingivitis

<table>
<thead>
<tr>
<th></th>
<th>Complete response</th>
<th>Complete response percentage</th>
<th>No response</th>
<th>Partial response</th>
<th>Partial response percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Complete response</strong></td>
<td>26</td>
<td>59.1</td>
<td>29</td>
<td>67.4</td>
<td>0.41</td>
</tr>
<tr>
<td><strong>No response</strong></td>
<td>18</td>
<td>40.9</td>
<td>14</td>
<td>32.6</td>
<td></td>
</tr>
</tbody>
</table>

### Beginning of destructive periodontal treatment

<table>
<thead>
<tr>
<th></th>
<th>Complete response</th>
<th>Complete response percentage</th>
<th>No response</th>
<th>Partial response</th>
<th>Partial response percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Complete response</strong></td>
<td>20</td>
<td>45.5</td>
<td>14</td>
<td>32.6</td>
<td>0.21</td>
</tr>
<tr>
<td><strong>Partial response</strong></td>
<td>24</td>
<td>54.5</td>
<td>29</td>
<td>67.4</td>
<td></td>
</tr>
</tbody>
</table>

### Tooth mobility criteria

<table>
<thead>
<tr>
<th></th>
<th>Complete response</th>
<th>Complete response percentage</th>
<th>No response</th>
<th>Partial response</th>
<th>Partial response percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Complete response</strong></td>
<td>43</td>
<td>97.7</td>
<td>39</td>
<td>90.7</td>
<td>0.15</td>
</tr>
<tr>
<td><strong>Partial response</strong></td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td><strong>No response</strong></td>
<td>1</td>
<td>2.3</td>
<td>4</td>
<td>9.3</td>
<td></td>
</tr>
</tbody>
</table>

### VAS

<table>
<thead>
<tr>
<th></th>
<th>Complete response</th>
<th>Complete response percentage</th>
<th>No response</th>
<th>Partial response</th>
<th>Partial response percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Complete response</strong></td>
<td>36</td>
<td>81.8</td>
<td>17</td>
<td>39.5</td>
<td>0.0001*</td>
</tr>
<tr>
<td><strong>No response</strong></td>
<td>8</td>
<td>18.2</td>
<td>26</td>
<td>60.5</td>
<td></td>
</tr>
</tbody>
</table>

### Test for foul breathing

<table>
<thead>
<tr>
<th></th>
<th>Complete response</th>
<th>Complete response percentage</th>
<th>No response</th>
<th>Partial response</th>
<th>Partial response percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Complete response</strong></td>
<td>40</td>
<td>90.9</td>
<td>24</td>
<td>55.8</td>
<td>0.001*</td>
</tr>
<tr>
<td><strong>Partial response</strong></td>
<td>4</td>
<td>9.1</td>
<td>17</td>
<td>39.5</td>
<td></td>
</tr>
<tr>
<td><strong>No response</strong></td>
<td>0</td>
<td>0.0</td>
<td>2</td>
<td>4.7</td>
<td></td>
</tr>
</tbody>
</table>

**Effect of drugs on Gingival index (Rakta srava) between groups:**

Severe GI was among 29.5% patients of Group A and in 37.2% of Group B before the treatment. After the treatment, severe GI became nil in both the groups. The change in the GI from before to after treatment was statistically significant (p=0.005) in Group B only. This is because the number of patients having severe gingivitis was more in group B. The relief was seen in both groups. In group A relief was seen due to rakta pitta hara property of the drug.

**Triphala** has katu, tikta and kshaya rasa. Kashaya rasa has stambhana, ropana and shodhana properties. **Triphala** is rich in anti oxidants. **Amalaki** ingredient of triphala contains large amount of vitamin C which is effective in preventing bleeding from gums.

**Effect of drugs on Simplified oral hygiene index (dantamala) between groups:**

Poor simplified oral hygiene index was among 72.7% patients of Group A and in 58.1% in Group B before the treatment. After the treatment, poor simplified oral hygiene index became nil in Group A and 9.3% in Group B. There was no significant (p>0.05) difference in simplified oral hygiene index at before treatment and after treatment between the groups.
Simplified oral hygiene index (dantamala) from before and after treatment within the groups:

The change in simplified oral hygiene index from before and after treatment was significant (p=0.03) in Group B. Because Kendall’s tau test, NA-Not applicable being 0 for poor in after treatment.

Relief was seen in both groups but it was not statistically significant. Poor simplified oral hygiene index was among 72.7% patients of Group A and became nil after treatment. It may be due to kaphopshoshna and lekhana properties of the triphala drug. Kapha is the main dosha involved in prameha and dantamulagata roga. According to panchamahabhautika constitution of triphala has ruksha, khara, and vishada, laghu in properties. These properties are just opposite to the kapha guna. Katu\(^{[10]}\) tikta\(^{[17]}\) and kashaya rasa\(^{[18]}\) have shodhna property. Triphala is rich in citric acid and may aid in removal of smear layer there by acting as chelating agent.\(^{[19]}\)

Effect of drugs on simple gingivitis between the groups:

It was <0.3->0.9 simple gingivitis was among all the patients of Group A and in 95.3% in Group B before the treatment. There was no significant (p>0.05) difference in simple gingivitis at before treatment and after treatment between the groups.

Effect of drugs simple gingivitis within the group:

In Group A <0.3->0.9 simple gingivitis was present among all the patients at before treatment which became 40.9% after the treatment. <0.3->0.9 simple gingivitis was among 95.3% patients of Group B at before treatment which became 32.6% after the treatment. The change was higher in Group B than Group A. However, the change in simple gingivitis from before to after treatment in Group B was statistically insignificant (p>0.05).

Relief was seen in both groups but it was not statistically significant. In group A this relief was seen may due to Haritaki, it has ability to cleanliness the macro and micro circulatory channels and it is known for this function as srotovishodhini.\(^{[20]}\) Amalaki has antioxidant and anti-microbial activity.\(^{[21]}\) Mehta et al (1993) has proved anti-microbial activity against gram negative and gram positive bacteria of bacteria of triphala.

Effect of drugs on beginning of destructive periodontal (Dantamansa shirya-te) between the groups:

Before treatment 0.7-1.9 beginning of destructive periodontal score was among all the patients of Group A and in 97.7% in Group B before the treatment. After the treatment, 0.7-1.9 beginning of destructive periodontal treatment became 45.5% in Group A and 32.6% in Group B. There was no significant (p>0.05) difference in beginning of destructive periodontal treatment at before treatment and after treatment between the groups.

Effect of drug on beginning of destructive periodontal (Dantamansa shirya-te) with in the groups:

Before the treatment 0.7-1.9 beginning of destructive periodontal was among all the patients of Group A at before treatment which became 45.5% after the treatment. 0.7-1.9 beginning of destructive periodontal treatment was among 97.7% patients of Group B at before treatment which became 32.6% after the treatment. The change was higher in Group B than Group A. However, the change in beginning of destructive periodontal treatment from before to after treatment in Group B was statistically insignificant (p>0.05). Relief was seen in both groups but it was not statistically significant.

Triphala kwatha has Rasayana and sandhanakara properties according to its rasa constitution. This action may be due to its property of collagenase inhibitory activity which helps in treating periodontal attachment loss.\(^{[22]}\) It contains tannins, phenols and glycosides which are responsible for its strong antioxidant activity.\(^{[24]}\)

Effect of drugs on tooth mobility (chala danta) between groups:

Grade 0 tooth mobility criteria was among 79.5% patients of Group A and in 76.7% in Group B before the treatment. After the treatment, grade 0 tooth mobility criteria
became 97.7% in Group A and 90.7% in Group B. There was no significant (p>0.05) difference in tooth mobility criteria at before treatment and after treatment between the groups.

**Effect of drugs on tooth mobility (Chala danta) with in groups:**

Grade 0 tooth mobility criteria were among 76.7% patients of Group B at before treatment which became 90.7% after the treatment. The change was higher in Group B than Group A.

However, the change in tooth mobility criteria from before to after treatment in Group B was statistically significant (p=0.02).

Tooth mobility occurs due to inflammation of periodontal ligament. Triphala has shothanashaka property. Kashaya rasa present in triphala has sandhanakara and ropana properties. Amalaki is good for all the diseases where there is inflammation as it doubles the natural killer cells. Emblica officinalis exerts wound healing action through up regulation of kinase (ERK1/2), wound repair and regeneration.

**Effect of drugs on VAS:**

Moderate pain was among 47.7% patients of Group A and in 62.8% in Group B before the treatment. After the treatment, moderate pain became 18.2% in Group A and 60.5% in Group B. There was significant (p=0.0001) difference in VAS at after treatment between the groups. Statistically significant relief was found in both groups. In group A relief was found may be due to tridoshahara property and shothhara properties. It pacifies vata dosha. Vata is responsible for pain.

**Effect of drugs on Halitosis between groups:**

Grade 0 test for foul breathing was among 47.7% patients of Group A at before treatment which became 90.9% after the treatment.

Grade 0 test for foul breathing was among 34.9% patients of Group B at before treatment which became 55.8% after the treatment. The change in test for foul breathing from before to after treatment in Group A (p=0.02) and Group B (p=0.0001) was statistically significant.

Halitosis may occur due to vitiation of kapha and rakta. Effect of triphala on halitosis may be due to its shlesma pitta hara property. Katu, tikta and kashaya rasa were present in triphala. These rasa pacifies the kapha. Tikta and kashaya rasa pacifies the pitta. Katu rasa has property of vaktra shoshana.

**Probable mode of action of gandusha:**

This was concludes with the help of present and previous work done on gandusha.

Lukewarm triphala kwatha was used for decoction. It helps in vilayana of vikrita kapha which is considered as mala. Triphala act as antimicrobial agent and reduce the microbial load in the oral cavity.

Gandusha exerts increased mechanical action inside the oral cavity. This increased pressure stimulates press receptor (stretch reflex) that is present in the mouth. Once press receptor is stimulated the send signal to salivary nuclei in the brain stem (pons and medulla). As a result parasympathetic nervous system activity increases and motor fibers in facial (VII) and glossopharyngeal (IX) nerve trigger dramatically increasing the output of saliva.

Chemical constituents present in the drug also stimulate chemoreceptors present in the mouth which in turn increases salivary secretions. Lysosome enzyme present in saliva has bacteriostatic function. It prevents the growth of pathogenic microorganism in the oral cavity. Anti-body IgA present in saliva also provide protection against microorganisms.

**Probable mode of action of Triphala:**
As per the description available in Ayurveda text, action of drug can be explained on the basis of theory of certain pharmacodynamic properties *rasa, guna, virya, vipaka*. The principle for preparing a compound formulation is that the components of drug should not nullify the effect of main drug i.e. even the drug of opposite *veerya* can be used but they should potentiate the main component’s effect.

### Table No IV: Showing *Rasa guna virya vipaka* of the Drugs:

<table>
<thead>
<tr>
<th>Name</th>
<th>Rasa</th>
<th>Guna</th>
<th>Veerya</th>
<th>Vipaka</th>
<th>Doshghana</th>
<th>Karma</th>
<th>Rogaghanta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amalaki</td>
<td>Amla Madhura Katu Tikta</td>
<td>Ruksha</td>
<td>Shita</td>
<td>Madhura</td>
<td>Tridosha-hara</td>
<td>Rasayana</td>
<td>Raktapitta hara and prameha Hara</td>
</tr>
<tr>
<td>Bhibhtaki</td>
<td>Kashaya Tikta</td>
<td>Ruksha</td>
<td>Ushna</td>
<td>Madhura</td>
<td>Kapha pitta</td>
<td>Bhedna</td>
<td>Vata rakta hara</td>
</tr>
<tr>
<td>Haritaki</td>
<td>Amla, Madhura, katu, tikta, kashaya</td>
<td>Ruksha</td>
<td>Ushna</td>
<td>Madhura</td>
<td>Tridosha-hara</td>
<td>Rasayana, Lekhna</td>
<td>Meha hara, vrana hara Shopha hara</td>
</tr>
</tbody>
</table>

Most of the drugs have *katu, tikta, kashaya, Madhura rasa*. *Katu rasa* is *vaktrashodhna* (laghu, ruksha, ushna, shleshma shamayati, kelda upshoshna, shoshna, ruchikara, shodhna and kaphaghna). *Tikta rasa* has property of lekhana, kelda puya pitta shleshma upashoshna etc.

*Kashaya rasa* has shaman, ropana, shoshana, stambhana, and shaleshma rakta pitta properties.

According to *panchmahabhautika* constitution *triphala* has ruksha, laghu, vishada guna.

### Tannin

- Emblica officinalis exerts wound healing action through up regulation kinase (ERK1/2), wound repair and regeneration.
- Tannins and flavonoids present in amla possess and exhibit potent anti-oxidant properties.
- *Amalaki* is good for all the diseases where there is inflammation as it doubles the natural killer cells
- Tannins and anthraquinones and polyphenolic compounds have antibacterial, antifungal, antiviral and antioxidant properties. Tannin toxicity may be related to their action on membranes of the microorganisms.

- Action of the *triphala* is supposed to be become of the 47 tannins and 5 phytochemicals which have been so far isolated from it.
- Anti-microbial activity of tannin due to the ability to inactivate microbial adhesion, enzymes and cell envelop transport proteins.

### Anti-plaque activity:

- It mainly inhibits the plaque formation of biofilm and due to its antioxidant activity might protect the gum cells effectively from free radicals.
- *Triphala* is rich in citric acid and may aid in removal of smear layer there by acting as chelating agent.
Time frame of the Clinical trial

6 Months

- Review of the various options
- Selection and finalization of the topic
- Preparation of the protocol
- Ethical clearance

14 Months

6 months: Formation and Collection of drug from pharmacy required to start the trial

8 month: Formation of proforma for clinical trial

Registration of patients for trial

- Collection and maintenance of the data
- Collection and maintenance of review of literature

3 Months

- Finalization of the data
- Complete the review
- Write up of methods

76 days

- Analysis of the data
- Write up of the rest the thesis
Ekta, Bhatnagar S, Chaudhary K, Bora KG, Vyas K, Sharma KK, A Clinical Study on *Triphala Kwatha Gandusha* to Prevent *Dantamulagata Roga* w.s.r. to Periodontal Diseases as oral manifestations in *madhumeha* (Diabetes mellitus) JOA XIII-1, 2019; 5 - 17

**Flow Chart**

1. **Assessed for eligibility (n=150)**
   - **Excluded (n=60)**
     - Not meeting the inclusion criteria (n=50)
     - Decline to participate (n=10)

2. **Randomized (n=90)**
   - **Triphala Kwatha**
     - Allocated to intervention (n=45)
       - Received allocated intervention (n=44)
       - Did not receive allocated intervention (n=1)
   - **Chlorhexidine Gluconate**
     - Allocated to intervention (n=45)
       - Received allocated intervention (n=43)
       - Did not receive allocated intervention (n=2)

3. **Follow up**
   - **Lost to follow-up (n=0)**
   - Discontinued intervention (n=1)
   - **Lost to follow-up (n=0)**
   - Discontinued intervention (n=2)

4. **Analysis**
   - **Analyzed (n=0)**
   - Excluded from analysis (n=1)
   - **Analyzed (n=0)**
   - Excluded from analysis (n=2)
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सारांश:

मदुमेह दन्तमूलगत रोगों के लिए एक कारण माना गया है। यह दन्तमूलगत रोगों के होने और दृष्टि के लिए उपस्थित है। मुख में स्वास्थ्य को बनाए रखने के लिए केवल दन्त धारण सक्षम नहीं है इसके लिए आधुनिक मुख शोधक दवाये हैं परंतु उनका लगतार प्रयोग नहीं किया जा सकता इसी कारण से तिफला व्याय गण्डुष पर अध्ययन किया गया है। इसकी उपलब्धता की तुलना अध्ययन को एक सिद्धांत बना है इसमें तिफला व्याय का ओरल हाइज़िन इंडेक्स में 0.001, दर में 0.0001, दौरान में 0.001 और चलन में 0.001 साझेदारी के उपर दिखाया था। इससे यह निष्कर्ष निकला कि तिफला व्याय गण्डुष दन्तमूलगत रोग दंतविशेष संदर्भ परियोजनाएं रोग की प्राथमिक एवं हिंदी क्रम रोकने के लिए सुरक्षित एवं प्रभावी था।
ABSTRACT

Background: Clinical utility of the knowledge of sites of origin (Srotomoola) of channels (Srotas) have not been directly mentioned in any Ayurveda Samhita. Exploration of knowledge of Srotomoola on clinical basis is still needed. As a tree is seriously affected by injury to its root, similarly, the channels of circulation in the human body are seriously affected when its Srotomoola is injured. Hypothesis was postulated that if we treat the Moola of a Srotas of a particular Dhatu, then the Dhatu Pradoshaja Vikara of that particular Dhatu will automatically get treated without giving medicine directly acting on the disease. Objectives: To establish role and functional utility of Srotomoola with its particular Dhatupradosha Vikara. Material and Methods: For establishing the concept of Srotomoola Chikitsa, Medovaha Srotas, its Moola Vrikka, Vapavahana and Sthaulya which is a Medovaha Srotas Vikara were chosen for this study. A randomized control study on 45 patients of Sthaulya (~ obesity) divided into three groups was done. Group A was given a medicine mentioned in classical texts directly acting on Sthaulya. Group B & Group C were given medicines acting on Srotomoola of Medovaha srotas. Results: Group B & C showed better relief in symptoms than Group A. Conclusion: Concept of Srotomoola Chikitsa is significant in treatment of Medoroga.

Keywords: Sthaulya, Srotomoola, Dhatu Pradoshaja Vikara, Vrikka, Vapavahana.
the vitiation of the Dhatu (tissue element) residing there or passing through it. Vitiation of one leads to the vitiation of the other[^3]. Dhatu Pradoshaja Vikara is a condition in which the Dhatu are in vicious state. Clinical utility of the knowledge of sites of origin (Srotomoola) of channels (Srotas) is not directly mentioned in Samhita. As a tree is seriously affected by injury to its root, similarly, the channels of circulation in the human body are seriously affected when its Srotomoola is injured[^4]. Srotas has been given fundamental importance in Ayurveda but clinical approach has not been mentioned so clearly. Hypothesis was postulated that if we treat the Moola of a Srotas of a particular Dhatu, then the Dhatu Pradoshaja Vikara of that particular Dhatu will automatically get treated without giving medicine directly acting on the disease. In this way role of Srotomoola in the treatment or pathology of a particular Srotas, or Dhatupradoshaja Vikara of that particular Dhatu will get established. Concept of Srotomoola Chikitsa can surely expand the management plan in Ayurveda in coming years.

Acharya Charaka has mentioned Vrikkha & Vapahana as the Moola of Medovaha Srotas in Vimana Sthana[^5] and Sthaulya as a Medodhatu Pradoshaja Vikara in Sutra sthana[^6]. So, in the present study the disease sthaulya and medovaha srotomoola were taken into consideration.

### Need of the study

This has not been expounded in the classical description that whether these origins (Srotomoola) are to be treated in vitiations of Srotas (functional) or these are only organic parts. So, the first need is the exploration of the concept. Secondly, the prevalence of Sthaulya has increased threefold within the last 20 years and continues to rise. Commonly used line of treatment of Sthaulya is only for time being. Recurrence rate of Sthaulya is high and there is a need for the alternatives other than the therapies given in classical texts. It may provide with an answer with better results and reduced rate of recurrence if Srotomoola of (Medovah Srotas) Vrikkha and Vapavahana are treated.

### Objectives:

- To establish the role and functional utility of Srotomoola (Vrikkha and Vapavahana) with respective Dhatu Pradoshaja Vikara (Sthaulya).

### Materials and Methods:

- **Study design**: A randomized control trial was carried out in the Aarogyashala and Bambaiwala hospitals of N.I.A Jaipur. A detailed history, evaluation and follow up studies were recorded on a designed proforma. The patients were diagnosed with the help of various subjective and objective parameters as per Ayurveda as well as modern science. All parameters are given in Table number I. Registered patients were allocated into three groups. Group A was prescribed medicine mentioned in classical texts directly acted on disease of that particular Srotas. Other two groups B and C were given medicines acted on Srotomoola not directly mentioned in classical texts to the respective disease.

- **Inclusion criteria**: Volunteer patients, of age group of 16-70 years of either sex; having BMI more than 25; with specific symptoms of Sthaulya[^7]; skin fold thickness over the middle of triceps >20 mm in men and >30 mm in women; waist hip ratio (WHR)>1.0 in men and >0.9 in women were taken for the trial.

- **Exclusion criteria**: Patients suffering from neuro-endocrine disorders, drug induced obesity, chronic systemic illness and genetic syndromes were excluded.

- **Clinical Assessment**: Various demographic parameters like age, marital status, religion, socio-economic status, education etc. along with specific features of Dashavidha Pareeksha & Ashtavidha Pareeksha, Prakriti, Satva, Samhanana, etc were analyzed in the present trial.

- **Subjective Assessment**: It was based on symptom rating score of improvement in specific symptomatology of Sthaulya. It was known as ‘simple verbal scale’ in this particular research work. Statistical analysis of subjective parameters was done by Wilcoxon Signed Rank test.
Objective Assessment: Body Weight, BMI, Waist Circumference, Hip Circumference and WHR (Waist Hip Ratio) were taken for objective assessment. Statistical analysis of objective parameters was done by Paired-t’ test.

Trial Drug: Group A was given Charakokta Medohara Yoga, Group B was given Varuna Churna and Group C was given Utsadana Yoga for local application (Table number II & III). Duration of all the drugs in all groups was 2 months and follow up was done after every 15 days. Patients were advised to have diet and sleep timely.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Subjective Parameters</th>
<th>Objective Parameters</th>
<th>Laboratory Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chala sphik udara darshana (pendulous hips, abdomen and breast)</td>
<td>Body Weight</td>
<td>Serum Cholesterol</td>
</tr>
<tr>
<td>2</td>
<td>Gatra Daurgandhya (Foul odour of the body)</td>
<td>BMI</td>
<td>Serum Triglyceride</td>
</tr>
<tr>
<td>3</td>
<td>Swedabadhah (Excessive sweating)</td>
<td>Waist Circumference</td>
<td>Serum LDL</td>
</tr>
<tr>
<td>4</td>
<td>Kshudhatimatram (on the basis of amount of food) (Excessive appetite)</td>
<td>Hip Circumference</td>
<td>Serum HDL</td>
</tr>
<tr>
<td>5</td>
<td>Kshudhatimatram (on the basis of Aahara Kala)</td>
<td>WHR (Waist Hip Ratio)</td>
<td>Serum VLDL</td>
</tr>
<tr>
<td>6</td>
<td>Pipasatiyoga on the basis of symptoms (Excessive thirst)</td>
<td>Mid-arm Circumference</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Pipasatiyoga (on the basis of water intake)</td>
<td>Chest Circumference</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Daurbalya (weakness)</td>
<td>Abdomen Circumference</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Javaparodha (Inability to work)</td>
<td>Neck Circumference</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Krichchhavyavayata (Sexual difficulty)</td>
<td>Thigh Circumference</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Nidradhikya (Excessive Sleep)</td>
<td>Skin Fold Thickness of Triceps</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Anga Gaurava (Heaviness in body)</td>
<td>Skin Fold Thickness of Biceps</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Bhara Vriddhi (Weight gain)</td>
<td>Skin Fold Thickness of Abdominal Fat</td>
<td></td>
</tr>
</tbody>
</table>
Table No. II Contents Of Drugs Used In Different Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Contents</th>
<th>Ingredients</th>
<th>Latin Name</th>
<th>Part used</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Charkokta</td>
<td>Agnimantha</td>
<td>Premna obtusifolia</td>
<td>Root</td>
<td>Decoction</td>
</tr>
<tr>
<td></td>
<td>Medohara Yoga</td>
<td>Shilajatu</td>
<td>Asphaltum panjabinum</td>
<td>Niryasa</td>
<td>Capsule</td>
</tr>
<tr>
<td>B</td>
<td>Varuna Churna</td>
<td>Varuna</td>
<td>Crataeva nurvala</td>
<td>Twak</td>
<td>Powder</td>
</tr>
<tr>
<td>C</td>
<td>Utsadana Yoga</td>
<td>Sheerisha</td>
<td>Albizia lebbeck</td>
<td>Twak</td>
<td>Powder</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nagakesara</td>
<td>Mesua ferra</td>
<td>Punkesaraa</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lodhra</td>
<td>Symplocos racemosa</td>
<td>Twak</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Khasa (Ushira)</td>
<td>Vetiveria zizanioidis</td>
<td>Root</td>
<td></td>
</tr>
</tbody>
</table>

Table No. III Dose, Anupana And Time Of Administration Of Trial Drugs

<table>
<thead>
<tr>
<th>Group</th>
<th>Dose</th>
<th>Time of Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>40 m.l. decoction of Agnimantha root + 1 capsule containing 500 mg Shilajatu with luke warm water</td>
<td>before meal, twice a day</td>
</tr>
<tr>
<td>B</td>
<td>4 grams powder of Varun Twak with luke warm water</td>
<td>before meal, twice a day</td>
</tr>
<tr>
<td>C</td>
<td>10-15 grams powder of all 4 ingredients in equal ratio (Local Application)</td>
<td>Early morning/evening before meal, twice a day applied on abdomen around umbilical region for 10 minutes.</td>
</tr>
</tbody>
</table>

Result:

Table No. IV-VII show effect of the trial drugs of Group A, Group B and Group C on various Subjective Parameters by using Wilcoxon Signed Ranks Test. [NS (P>0.05), S (P=0.01-0.05), VS (P=0.001-0.01), HS (P<0.0001)]
Table No. IV Effect Of Charkokta Medohara Yoga On Group A

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Symptoms</th>
<th>Mean</th>
<th>Diff.</th>
<th>% of Relief</th>
<th>SD</th>
<th>SE</th>
<th>W &amp;T+</th>
<th>P</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Chalasphik udara Darshana</td>
<td>1</td>
<td>0.60</td>
<td>0.40</td>
<td>40.00</td>
<td>0.507</td>
<td>21.00</td>
<td>0.016</td>
<td>S</td>
</tr>
<tr>
<td>2</td>
<td>Gatra Daurgandhya</td>
<td>1.07</td>
<td>0.87</td>
<td>0.20</td>
<td>18.75</td>
<td>0.414</td>
<td>6.00</td>
<td>0.125</td>
<td>NS</td>
</tr>
<tr>
<td>3</td>
<td>Swedabadhaha</td>
<td>1.47</td>
<td>0.87</td>
<td>0.60</td>
<td>40.91</td>
<td>0.507</td>
<td>45.00</td>
<td>0.002</td>
<td>VS</td>
</tr>
<tr>
<td>4</td>
<td>Kshudhatimatram (on the basis of amount of food)</td>
<td>0.93</td>
<td>0.27</td>
<td>0.67</td>
<td>71.43</td>
<td>0.724</td>
<td>36.00</td>
<td>0.004</td>
<td>VS</td>
</tr>
<tr>
<td>5</td>
<td>Kshudhatimatram (on the basis of Aahara Kala)</td>
<td>0.33</td>
<td>0.13</td>
<td>0.20</td>
<td>60.00</td>
<td>0.414</td>
<td>6.00</td>
<td>0.125</td>
<td>NS</td>
</tr>
<tr>
<td>6</td>
<td>Pipasatiyoga (on the basis of symptoms)</td>
<td>1.20</td>
<td>0.67</td>
<td>0.53</td>
<td>44.44</td>
<td>0.516</td>
<td>36.00</td>
<td>0.004</td>
<td>VS</td>
</tr>
<tr>
<td>7</td>
<td>Pipasatiyoga (on the basis of water intake)</td>
<td>0.73</td>
<td>0.27</td>
<td>0.47</td>
<td>63.64</td>
<td>0.516</td>
<td>28.00</td>
<td>0.008</td>
<td>VS</td>
</tr>
<tr>
<td>8</td>
<td>Daurbalya</td>
<td>1.73</td>
<td>0.27</td>
<td>1.47</td>
<td>84.61</td>
<td>0.640</td>
<td>105.00</td>
<td>&lt;0.0001</td>
<td>HS</td>
</tr>
<tr>
<td>9</td>
<td>Javaparodha</td>
<td>1.00</td>
<td>0.47</td>
<td>0.53</td>
<td>53.33</td>
<td>0.640</td>
<td>28.00</td>
<td>0.008</td>
<td>VS</td>
</tr>
<tr>
<td>10</td>
<td>Krichchha vyavayata</td>
<td>0.90</td>
<td>0.80</td>
<td>0.10</td>
<td>11.11</td>
<td>0.316</td>
<td>1.00</td>
<td>0.500</td>
<td>NS</td>
</tr>
<tr>
<td>11</td>
<td>Nidradhikya</td>
<td>1.60</td>
<td>0.67</td>
<td>0.93</td>
<td>58.33</td>
<td>0.458</td>
<td>91.00</td>
<td>0.0001</td>
<td>HS</td>
</tr>
<tr>
<td>12</td>
<td>Anga Gaurava</td>
<td>1.93</td>
<td>0.87</td>
<td>1.07</td>
<td>55.17</td>
<td>0.458</td>
<td>105.00</td>
<td>&lt;0.0001</td>
<td>HS</td>
</tr>
<tr>
<td>13</td>
<td>Bhara Vriddhi</td>
<td>2.07</td>
<td>1.60</td>
<td>0.47</td>
<td>22.58</td>
<td>0.516</td>
<td>28.00</td>
<td>0.008</td>
<td>VS</td>
</tr>
</tbody>
</table>

W=Sum of signed ranks, VS = Very significant, S = significant, NS = Not significant
# Table No. V Effect Of Varuna Churna On Group B

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Symptoms</th>
<th>Mean BT</th>
<th>Diff.</th>
<th>% of Relief</th>
<th>SD</th>
<th>SE</th>
<th>W &amp;T+</th>
<th>P</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Chalasphik Udara Darshana</td>
<td>1</td>
<td>0.53</td>
<td>0.47</td>
<td>46.67</td>
<td>0.516</td>
<td>0.133</td>
<td>28.00</td>
<td>0.008</td>
</tr>
<tr>
<td>2.</td>
<td>Gatra Daurgandhya</td>
<td>0.67</td>
<td>0.33</td>
<td>0.33</td>
<td>50</td>
<td>0.488</td>
<td>0.126</td>
<td>15.00</td>
<td>0.031</td>
</tr>
<tr>
<td>3.</td>
<td>Swedabadhaha</td>
<td>0.53</td>
<td>0.27</td>
<td>0.27</td>
<td>50.00</td>
<td>0.458</td>
<td>0.118</td>
<td>10.00</td>
<td>0.062</td>
</tr>
<tr>
<td>4.</td>
<td>Kshudhatimatram (on the basis of amount of food)</td>
<td>0.60</td>
<td>0.20</td>
<td>0.40</td>
<td>66.67</td>
<td>0.507</td>
<td>0.131</td>
<td>21.00</td>
<td>0.015</td>
</tr>
<tr>
<td>5.</td>
<td>Kshudhatimatram (on the basis of Aahara Kala)</td>
<td>0.33</td>
<td>0.20</td>
<td>0.13</td>
<td>40.00</td>
<td>0.352</td>
<td>0.091</td>
<td>3.00</td>
<td>0.250</td>
</tr>
<tr>
<td>6.</td>
<td>Pipasatiyoga (on the basis of symptoms)</td>
<td>1.33</td>
<td>0.60</td>
<td>0.73</td>
<td>55.00</td>
<td>0.458</td>
<td>0.118</td>
<td>66.00</td>
<td>0.0005</td>
</tr>
<tr>
<td>7.</td>
<td>Pipasatiyoga (on the basis of water intake)</td>
<td>0.67</td>
<td>0.20</td>
<td>0.47</td>
<td>70.00</td>
<td>0.516</td>
<td>0.133</td>
<td>28.00</td>
<td>0.008</td>
</tr>
<tr>
<td>8.</td>
<td>Daurbalya</td>
<td>1.00</td>
<td>0.27</td>
<td>0.73</td>
<td>73.33</td>
<td>0.458</td>
<td>0.118</td>
<td>66.00</td>
<td>0.0005</td>
</tr>
<tr>
<td>9.</td>
<td>Javaparodha</td>
<td>0.60</td>
<td>0.27</td>
<td>0.33</td>
<td>55.55</td>
<td>0.488</td>
<td>0.126</td>
<td>15.00</td>
<td>0.031</td>
</tr>
<tr>
<td>10.</td>
<td>Krichchhavyayavayata</td>
<td>0.92</td>
<td>0.67</td>
<td>0.25</td>
<td>27.27</td>
<td>0.452</td>
<td>0.131</td>
<td>6.00</td>
<td>0.125</td>
</tr>
<tr>
<td>11.</td>
<td>Nidradhikya</td>
<td>1.00</td>
<td>0.33</td>
<td>0.67</td>
<td>66.67</td>
<td>0.724</td>
<td>0.187</td>
<td>36.00</td>
<td>0.0039</td>
</tr>
<tr>
<td>12.</td>
<td>Anga Gaurava</td>
<td>1.87</td>
<td>0.73</td>
<td>1.13</td>
<td>60.71</td>
<td>0.743</td>
<td>0.192</td>
<td>78.00</td>
<td>0.0002</td>
</tr>
<tr>
<td>13.</td>
<td>Bhara Vriddhi</td>
<td>2.00</td>
<td>1.40</td>
<td>0.60</td>
<td>30.00</td>
<td>0.632</td>
<td>0.163</td>
<td>36.00</td>
<td>0.004</td>
</tr>
</tbody>
</table>
## Table No. VI Effect Of Utsadana Yoga On Group C

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Symptoms</th>
<th>Mean</th>
<th>Diff.</th>
<th>% of Relief</th>
<th>SD</th>
<th>SE</th>
<th>W &amp;T+</th>
<th>P</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Chalasphik Udara Darshana</td>
<td>0.8</td>
<td>0.47</td>
<td>0.33</td>
<td>41.67</td>
<td>0.488</td>
<td>0.126</td>
<td>15.00</td>
<td>0.031</td>
</tr>
<tr>
<td>2.</td>
<td>Gatra Daurgandhya</td>
<td>0.73</td>
<td>0.33</td>
<td>0.40</td>
<td>54.54</td>
<td>0.507</td>
<td>0.131</td>
<td>21.00</td>
<td>0.016</td>
</tr>
<tr>
<td>3.</td>
<td>Swedabadhaha</td>
<td>1.13</td>
<td>0.40</td>
<td>0.73</td>
<td>64.70</td>
<td>0.594</td>
<td>0.153</td>
<td>55.00</td>
<td>0.001</td>
</tr>
<tr>
<td>4.</td>
<td>Kshudhatimtram (on the basis of amount of food)</td>
<td>0.67</td>
<td>0.27</td>
<td>0.40</td>
<td>60.00</td>
<td>0.632</td>
<td>0.163</td>
<td>15.00</td>
<td>0.031</td>
</tr>
<tr>
<td>5.</td>
<td>Kshudhatimtram (on the basis of Aahara Kala)</td>
<td>0.47</td>
<td>0.20</td>
<td>0.27</td>
<td>57.14</td>
<td>0.458</td>
<td>0.118</td>
<td>10.00</td>
<td>0.062</td>
</tr>
<tr>
<td>6.</td>
<td>Pipasatiyoga (on the basis of symptoms)</td>
<td>1.20</td>
<td>0.60</td>
<td>0.60</td>
<td>50.00</td>
<td>0.507</td>
<td>0.131</td>
<td>45.00</td>
<td>0.002</td>
</tr>
<tr>
<td>7.</td>
<td>Pipasatiyoga (on the basis of water intake)</td>
<td>0.47</td>
<td>0.13</td>
<td>0.33</td>
<td>71.43</td>
<td>0.488</td>
<td>0.126</td>
<td>15.00</td>
<td>0.031</td>
</tr>
<tr>
<td>8.</td>
<td>Daurbalya</td>
<td>0.80</td>
<td>0.13</td>
<td>0.67</td>
<td>83.33</td>
<td>0.488</td>
<td>0.126</td>
<td>55.00</td>
<td>0.0010</td>
</tr>
<tr>
<td>9.</td>
<td>Javaparodha</td>
<td>0.87</td>
<td>0.27</td>
<td>0.60</td>
<td>69.23</td>
<td>0.507</td>
<td>0.131</td>
<td>45.00</td>
<td>0.002</td>
</tr>
<tr>
<td>10.</td>
<td>Krichchhavyavayata</td>
<td>0.75</td>
<td>0.58</td>
<td>0.17</td>
<td>22.22</td>
<td>0.389</td>
<td>0.112</td>
<td>3.00</td>
<td>0.250</td>
</tr>
<tr>
<td>11.</td>
<td>Nidradhikya</td>
<td>1.07</td>
<td>0.33</td>
<td>0.73</td>
<td>68.75</td>
<td>0.704</td>
<td>0.182</td>
<td>45.00</td>
<td>0.0020</td>
</tr>
<tr>
<td>12.</td>
<td>Anga Gaurava</td>
<td>1.87</td>
<td>0.80</td>
<td>1.07</td>
<td>57.14</td>
<td>0.594</td>
<td>0.153</td>
<td>91.00</td>
<td>0.0001</td>
</tr>
<tr>
<td>13.</td>
<td>Bhara Vriddhi</td>
<td>2.20</td>
<td>1.60</td>
<td>0.60</td>
<td>27.27</td>
<td>0.507</td>
<td>0.131</td>
<td>45.00</td>
<td>0.002</td>
</tr>
</tbody>
</table>
Table No. VII Effect Of Therapy On Objective Parameters

<table>
<thead>
<tr>
<th>Group</th>
<th>Body Weight</th>
<th>BMI</th>
<th>Waist Circumference</th>
<th>Hip Circumference</th>
<th>WHR (Waist Hip Ratio)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>3.62%</td>
<td>3.57%</td>
<td>4.20%</td>
<td>3.95%</td>
<td>0.45%</td>
</tr>
<tr>
<td>Group B</td>
<td>4.72%</td>
<td>4.98%</td>
<td>4.44%</td>
<td>4.25%</td>
<td>0.40%</td>
</tr>
<tr>
<td>Group C</td>
<td>3.68%</td>
<td>3.64%</td>
<td>5.85%</td>
<td>5.98%</td>
<td>0.07%</td>
</tr>
</tbody>
</table>

Table No. VIII Effect Of Therapy On Laboratory Parameters

<table>
<thead>
<tr>
<th>Group</th>
<th>Serum Cholesterol</th>
<th>Serum Triglyceride</th>
<th>Serum LDL</th>
<th>Serum HDL</th>
<th>Serum VLDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>1.04%</td>
<td>0.09%</td>
<td>8.64%</td>
<td>-14.02%</td>
<td>-7.17%</td>
</tr>
<tr>
<td>Group B</td>
<td>1.65%</td>
<td>2.60%</td>
<td>5.19%</td>
<td>0.46%</td>
<td>4.90%</td>
</tr>
<tr>
<td>Group C</td>
<td>1.43%</td>
<td>1.17%</td>
<td>5.07%</td>
<td>0.61%</td>
<td>3.33%</td>
</tr>
</tbody>
</table>

**Statistical analysis of Objective parameters:** Group B showed a good difference in body weight and BMI, Group C showed a difference of 5.85% & 5.98% in waist and hip circumference resp.

**Statistical analysis of Laboratory parameters:** Trial medicine of all groups did not show any noticeable effect on the lipid except on Serum HDL. Rest all the variables exhibited a very little change after the completion of the trial which was not significant.

**Comparative analysis of the three groups:** On the subjective parameter (by Kruskal-Wallis Test (Nonparametric ANOVA), result was found non-significant among all groups except daurbalya in which it was very significant between Gr. A Vs. Gr. B, Gr. A Vs. Gr. C respectively. On the objective parameters, by One-way Analysis of Variance (ANOVA) test, result was found non-significant in between all groups except BMI which was significant in between group A vs. group B. On the laboratory parameters by One-way Analysis of Variance (ANOVA) test, result was found non-significant in between all groups.

**Discussion:**

It was postulated that if we treat the Moola of a Srotas of a particular Dhatu, then the Dhatu Pradoshaja Vikara of that particular Dhatu will automatically get treated without the medicine directly acting on that disease. In this way role of Srotomoola in the treatment or pathology of a particular Srotas, or Dhatupradoshaja Vikara of that particular Dhatu will get established. There was a need of a drug/formulation which is mentioned to directly act on Medodhatu Pradoshaja Vikara (Staulya) in classical texts. Acharya Charaka has stated Agnimanta Rasa with Shilajita as treat
ment of Sthaulya Yoga—

“शिलाजुन्यग्धसंसारिन्यकः प्रयः।”| So, it was given as Vyadhihara Chikitsa and Yoga was given name as Char-
akokta Medohara Yoga.

Secondly, a drug showing role on treatment of Vrikka (Moola of Medovaha Srotas) was selected. Charaka has stated Vrikka as place of Antarviddradhi—

“तद्वारासंसारिन्यकः प्रयः।”

Vrikka mostly in umbilical region in abdomen so it can be considered the place of Vapavahana. As such the application of term Vapavahana (said by Charaka) in 3D MR lymphography. Cysterna chyli and lacteals are situated mostly in umbilical region in abdomen so it can be considered the place of Vapavahana. So Utsadana Yoga was applied around umbilical region of abdomen. Hypothesis to choose this Utsadana Yoga was that by application of Utsadana Yoga to choose this particular Srotas definitely will get cured without giving medicine working directly on that disease. Results were significant on maximum parameters involved clarified that there was certainly a connection between Srotas and its Moola. If one can treat Srotas Moola effectively then one can decrease symptoms of disease manifesting due to vitiation of that particular Srotas. Combination of both Vyadhihara Chikitsa and Srotommola Chikitsa may prove more significant than only Vyadhihara Chikitsa.

Conclusion :

Srotomoola Chikitsa is more effective than Vyadhipuratyanka Chikitsa. We can conclude that combined management of Srotomoola Chikitsa and Vyadhihara Chikitsa will be constructive endeavor in Ayurveda treatment modalities.

The objective of present study was to understand functional utility of Srotomoola. On the basis of percentage relief, the result produced in the patients of Group B (Varuna Churna) and Group C (Utsadana yoga) had shown better result than Group A (Charakokta Medohara Yoga). Statistically results obtained in all three groups were approximately similar due to small sample, except in 4 findings. Drugs used in trial acted on Medovahia Srotomool helped to cure Medodhatu Pradoshaja Vikara Sthaulya, though the results varied clinically and statistically. Therefore, therapy of Varuna Tvak Churna and Utsadana Yoga (Shirisha, Nagakeshara, Lodhra and Ushira) are safe and effective Ayurveda treatment modality in the management of Sthaulya. Considering all these factors and parameters involved, it can be concluded that if we give treatment acting on Srotomoola of particular Srotas then Dhatu Pradoshaja vikara of that particular Srotas definitely will get cured without giving medicine working directly on that disease. Results were significant on maximum parameters involved clarified that there was certainly a connection between Srotas and its Moola. If one can treat Srotas Moola effectively then one can decrease symptoms of disease manifesting due to vitiation of that particular Srotas. Combination of both Vyadhihara Chikitsa and Srotommola Chikitsa may prove more significant than only Vyadhihara Chikitsa.
References


Saraswati:

खोतोमूल की शिक्षकीय उपयोगिता संहिताओं में स्पष्ट और विस्तृत रूप से दर्शित नहीं की गई है। जिस प्रकार मूल के नए होने पर पूरा कृष्ण नए हो जाता है वैसे ही हाथ खोतोमूल विकृत होता है तो भूतपूर्व शरीर में उस खोतस से संबंधित धातुओं का प्रवाह भी विकृत हो जाता है। खोतोमूल शिक्षता को अभी भी प्रायोगिक आधार पर विस्तृत रूप से जानने की आवश्यकता है।

उद्देश्य: खोतोमूल की संबंधित धातुपदोषज विकार में शिक्षकीय कार्यान्वयन शैक्षिक को स्थापित करना।

शिक्षा: खोतोमूल शिक्षता को प्रायोगिक आधार पर स्थापित करने के लिए, मेदेवव खोतस, इसके मूल बृक्क, वपावहन और स्थौल्य जो कि नेदेवव खोतस विकार है, को चुना गया। 45 रोगियों के 3 समूह 15-15 रोगियों के बनाये गये। पहले समूह को जो वहाँ होने वाली गर्भ स्थानोकरण शिक्षतों की तथा बीमार संबंधित विकार पर कार्य करती थी। दूसरे 2 समूहों को जो वहाँ लिखी गयी थी बीमार शार्तोस कार्यलय के नहीं थी तथा बीमार संबंधित विकार पर कार्य मार करे उस विकार से जुड़े खोतस के खोतोमूल पर कार्य करती थी।

परिणाम: दूसरे व तीसरे समूह के रोगियों ने पहले समूह की अपेक्षा विकार के लक्षण के लाभ प्रतिक्रिया में ज्यादा अच्छे परिणाम दिये।

निष्ठर: खोतोमूल शिक्षता द्वारा संबंधित धातुपदोषज विकारों को ठीक किया जा सकता है।
Effective Treatment of Alcohol Withdrawal Syndrome in Ayurveda

*Dr. Aarti Kondel, **Dr. Sharad M Porte, ***Prof. Anita Sharma

* Senior Ayurvedic Medical Officer, Ayurvedic health centre Kanlog, Shimla, Himachal Pradesh
**Associate Professor,***Professor, Department of Agad Tantra, National Institute of Ayurveda, Jaipur, Rajasthan

ABSTRACT

Background: Alcoholism is major public health problem around the world. About 10 to 15 percent alcohol users develop alcohol dependence and become alcoholic. Many people lose their life due to it either by road accident or by liver failure. To overcome this problem the present study has been conducted for the management of alcohol addiction and Alcohol Withdrawal Syndrome. Introduction: Alcohol, Acute alcoholism, chronic alcoholism and Alcohol withdrawal has been described in Laghu Traya and Brihat Traya under the heading of Madya, Mada, Madatyaya. Materials and Methods: The present clinical study on topic “Comparative study of Sameergaj Kesari Ras and Mukta Pishit with Dushi Vishari Agad in Alcohol Withdrawal Syndrome was conducted at NIA, Jaipur. 45 patients were equally allocated on the basis of inclusion and exclusion criteria both in three groups randomly. Group A were treated with Sameergaja Kesari Ras having dose 125 mg and Dushivishari Agad 5gm, BD with water after meals for a month. Group B were treated with Muktapishti 125mg, BD with water and Dushivishari Agad, 5gm, BD with honey, for a month. Group C were treated with Sameergajagaj Kesari Ras, Muktapishti and Dushivishari agad in given doses. Result: Trial Group C shows 46.66% excellent relief, followed by Group B 20% and Group A 13.33% respectively. Conclusion: Mukta Pishiti has showed very significant improvement of symptom insomnia, headache. Sameergaja Kesari Ras showed significant improvement on symptom tremors. Though we do not have proved and valid drug for anxiety, insomnia and craving but patients were managed successfully by using the trial drugs. Inculcation of Vyadhiviprita Chikitsa and Satvamajas Chikitsa in the patients of alcoholism will prove to be a better management modality as per ayurveda principles.

Keywords: Alcohol, Madatyaya, Withdrawal, Craving, Agad

Address of Corependence:

Dr. Aarti Kondel
Senior Ayurvedic Medical Officer,
Ayurvedic health centre Kanlog, Shimla,
Himachal Pradesh
Email ID: aartikondel@gmail.com
Contact No: 9816069330

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Introduction:

Alcoholism is a major public health problem around the world. About 10 to 15 percent alcohol users develop alcohol dependence and become alcoholic. Alcohol is also called Madya. Madya is the oldest preparation which is mentioned in all the main text of Ayurveda including Brihartiya and Laghutrayi. As per Ayurveda, Madya is nectar (Amrit) if it is taken with proper manner and dose suggested by Ayurveda but it shows toxic effect if it is taken in excess doses and without following any direction suggested by Ayurveda and produce Madatyaya or Panatyaya (chronic alcoholism).

In Charaka Samhita after Vishchikitsa chapter, Madatyaya has been mentioned. Chakarpna has stated that Vish and Madya have same properties therefore it is equal to Vish as for its effect after excessive use is concerned. In Charaka Samhita Mada, Madawastha, Madataya and Dhvansaka and Vikshaya diseases are mentioned in relation to continuous use of alcohol. Different types of Madawastha (stages) are initially mentioned showing correlation between Madyapaan in specific quantity and its effect on the body, which Purvamad (first stage of Alcoholism) Madhyam Mad (3rd stage of alcoholism) has also been categorized based on the loss of Ojus Gunas due to concentration Madya in body. First is desirable and second third are avoidable.

Acharya Charaka has mentioned when the brain is affected by the action of alcohol there will be result exhilaration, ardent desire, exultation, sense of happiness and various kinds of changes according to the psychic makeup of the person and according to its Rajasic or Tamsic quality owing to excessive use of alcoholic stupor terminating in narcosis is produced. This is the delusion caused by wine and is known as alcoholic intoxication. When the chronic Alcoholic addicted patients stop to drink, sudden withdrawal causes group of clinical manifestation called as Alcohol Withdrawal Syndrome. Acharya Kashyap also described this term under the heading of Panapkram. Sudden alcohol withdrawal shows a set of clinical manifestation like Nausea (Hrilasa), Vomiting (Chardi), Tremors (Kampa), Anxiety (Avasada), Agitation (Aavega), Paroxysmal sweat (Sveda), Orientation and clouding of sensory, Hallucination (Vibrama), Headache (Shirshula).

Aims and Objectives:

- To evaluate and elaborate Ayurvedic aspect of Alcohol Withdrawal Syndrome
- To evaluate the clinical efficacy of Sameergaja Kesari Ras, Muktapishti and Dushivishari Agad in alcohol Withdrawal syndrome.
- Comparative study of clinical efficacy of Sameergaja Kesari Ras with Muktapishti.

Materials And Methods:

Materials

- IEC Approval: Clinical study was approved by IEC, order no. F10 (5)/EC/2014/7222 dated 7/11/2014
- Research Performa to note all information clinical demographic.
- Test Drugs Sameergaja Kesari Ras, Muktapishti and Dushivishari Agad.
- Chemicals and reagents required for various Hematological investigation study of drugs.
- Honorable patients, various equipment etc.

Methods

Plan of Study

Criteria of Selection of Patients

45 patients were selected randomly from OPD & IPD NIA, Jaipur on the basis of inclusion and exclusion criteria both.

They were classified in to three Groups.

1. **Group A**- 15 patients of Alcohol Withdrawal syndrome were treated with Sameergaja Kesari Ras 125mg and Dushivishari Agad.
2. **Group B**- 15 patients of Alcohol Withdrawal syndrome were treated with Muktapishti and Dushivishari Agad.
1. **Group C**- 15 patients of Alcohol Withdrawal syndrome were treated with *Sameergaja Kesari Ras*, *Muktapishti* and *Dushivishari Agad*.

**Dose of drugs:**

A. *Sameergaj kesari Ras* 125mg twice a day with water, after meal, for 30 days.

B. *Muktapishti* 125mg twice a day with milk, before meal, for 30 days.

C. *Dushivishari Agad* 5 gm twice a day with honey, after meal, for 30 days

**Duration of trial and follow up**

Duration of trial-30 days

Follow up-15th day and 30th day.

Below are the tables showing the contents of drug trials in Table No. I - II

### Table No. I Showing contents of *Sameergaja Kesari Ras*[^1]

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Ingredients</th>
<th>Latin name/English name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><em>Shudha hingula</em></td>
<td><em>Cinnaber</em></td>
<td>1 part</td>
</tr>
<tr>
<td>2.</td>
<td><em>Maricha</em></td>
<td><em>Piper nigrum</em></td>
<td>1 part</td>
</tr>
<tr>
<td>3.</td>
<td><em>Shudha Ahiphena</em></td>
<td><em>Papaver somniferum</em></td>
<td>1 part</td>
</tr>
<tr>
<td>4.</td>
<td><em>Shudha Kupilu</em></td>
<td><em>Strychnos nux vomica</em></td>
<td>1 part</td>
</tr>
</tbody>
</table>

### Table No. II Showing contents of *Dushivishari Agad*[^2]

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Ingredients</th>
<th>Latin name/English name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><em>Pippali</em></td>
<td><em>Piper longum</em></td>
<td>1 part</td>
</tr>
<tr>
<td>2.</td>
<td><em>Dhyamak</em></td>
<td><em>Valeriana pyrifolia decne</em></td>
<td>1 part</td>
</tr>
<tr>
<td>3.</td>
<td><em>Jatamansi</em></td>
<td><em>Nordostachys jatamansi</em></td>
<td>1 part</td>
</tr>
<tr>
<td>4.</td>
<td><em>Shavar(Lohra)</em></td>
<td><em>Syblocos Rocemosa</em></td>
<td>1 part</td>
</tr>
<tr>
<td>5.</td>
<td><em>Kevati motha</em></td>
<td><em>Cybermabilis</em></td>
<td>1 part</td>
</tr>
<tr>
<td>6.</td>
<td><em>Suverchika</em></td>
<td><em>Potassi nitRas</em></td>
<td>1 part</td>
</tr>
<tr>
<td>7.</td>
<td><em>Suksham ela</em></td>
<td><em>Elettaria Cardamomum</em></td>
<td>1 part</td>
</tr>
<tr>
<td>8.</td>
<td><em>Swarangairik</em></td>
<td><em>Yellow ochre</em></td>
<td>1 part</td>
</tr>
</tbody>
</table>

**Inclusion Criteria**

1. History of exclusive alcoholism and alcohol addiction
2. History of not taking alcohol daily now days.

[^1]: Table No. I Showing contents of *Sameergaja Kesari Ras*[^1]
[^2]: Table No. II Showing contents of *Dushivishari Agad*[^2]
4. Ageing between 20 to 60 years.
5. Both sexes.

**Exclusion Criteria**

1. Alcohol addicted patients suffering from liver failure, gastrointestinal bleeding, Mallory-Weiss tears, Wernicke Korsakoff’s syndrome, cerebellar degeneration.
2. Alcohol addicted patients who are suffering from major psychiatric disorders like Mania, schizophrenia and Bipolar disorder.
3. Alcohol addicted patients suffering from major systemic illness like diabetes, liver cirrhosis, MI, IHD, hypertension and pulmonary TB etc.

**Withdrawal Criteria**

Patients who developed seizure, severe agitation, severe anxiety, delirium tremens (DTs) after admission were withdrawn from the trial. Though nothing any happened.

**Assessment Criteria**

Criteria for Clinical Assessment of Alcohol Withdrawal Patient is as Per CIWA-AR (Nausea/Vomiting, Tremors, Anxiety, Agitation, Paroxysmal sweat, Orientation and clouding of sensorial, Tactile disturbances, Visual disturbances, Headache) and pathological assessment was assessed by LFT and Hb level.

**Observation and result:**

A detail Performa was created to carry out this study in a scientific way. All demographic data related to patient along with sign and symptom and of disease was noted on 1st day 15th day and 30th day of study.

**Result**

The assessment of the efficacy of the drugs involved in clinical trial the Clinical Institute of Alcohol Withdrawal Assessment (CIWA-AR) has been applied before and after treatment. The patients were screened by Alcohol Use Disorder Identification Test (AUDIT) and after that patients were examined 5-6 hrs of alcohol withdrawal which is called base line. The second assessment was done after 30 days of completion of treatment.

All the Results are calculated by using Software: Graph Pad In stat Version 3.10.

**Intra Group comparison** - For Nonparametric Data Wilcoxon matched-pairs signed ranks test was used while for Parametric Data Paired’ Test was used and results are calculated.

**Inter Group comparisons**, for non-parametric variables, Kruskal-Wallis Test with post-test were used.

For the parametric data, One-way ANOVA with post-test was used and results were calculated.

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>Mean Dif.</th>
<th>% of Change</th>
<th>SD±</th>
<th>SE±</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>15</td>
<td>12.6000</td>
<td>7.2000</td>
<td>5.400</td>
<td>42.85</td>
<td>5.841</td>
<td>1.508</td>
<td>0.0020</td>
</tr>
<tr>
<td>Group B</td>
<td>15</td>
<td>7.800</td>
<td>4.067</td>
<td>3.733</td>
<td>47.85</td>
<td>3.900</td>
<td>1.007</td>
<td>0.0020</td>
</tr>
<tr>
<td>Group C</td>
<td>15</td>
<td>15.667</td>
<td>6.733</td>
<td>8.933</td>
<td>57.01</td>
<td>9.067</td>
<td>2.341</td>
<td>0.0020</td>
</tr>
</tbody>
</table>
Table No. IV Showing Inter group comparison of Objective Parameters of all the three groups:

<table>
<thead>
<tr>
<th>Objective parameters</th>
<th>Mean</th>
<th>F</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group A</td>
<td>Group B</td>
<td>Group C</td>
<td></td>
</tr>
<tr>
<td>Sr. BT</td>
<td>-0.0733</td>
<td>0.0066</td>
<td>-0.0200</td>
<td>0.6605</td>
</tr>
<tr>
<td>Sr. BD</td>
<td>-0.0286</td>
<td>-0.0400</td>
<td>0.0200</td>
<td>0.9086</td>
</tr>
<tr>
<td>SGOT</td>
<td>3.867</td>
<td>1.733</td>
<td>5.400</td>
<td>2.267</td>
</tr>
<tr>
<td>SGPT</td>
<td>2.00</td>
<td>-0.600</td>
<td>-1.000</td>
<td>3.803</td>
</tr>
<tr>
<td>Sr. PR</td>
<td>0.2667</td>
<td>0.0333</td>
<td>0.1933</td>
<td>1.371</td>
</tr>
<tr>
<td>Hb%</td>
<td>-0.01333</td>
<td>-0.0867</td>
<td>-0.0667</td>
<td>0.1413</td>
</tr>
</tbody>
</table>

Table No. V Showing Cure rate wise effect of therapy

<table>
<thead>
<tr>
<th>Group</th>
<th>No.</th>
<th>No relief 0%</th>
<th>Mild 1-25%</th>
<th>Moderate 26-50%</th>
<th>Marked 51-75%</th>
<th>Excellent 76-100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15</td>
<td>0</td>
<td>5(33.33%)</td>
<td>2(13.33%)</td>
<td>6(40%)</td>
<td>2(13.33%)</td>
</tr>
<tr>
<td>B</td>
<td>15</td>
<td>0</td>
<td>5(33.33%)</td>
<td>1(6.66%)</td>
<td>6(40%)</td>
<td>3(20%)</td>
</tr>
<tr>
<td>C</td>
<td>15</td>
<td>0</td>
<td>6(40%)</td>
<td>1(6.66%)</td>
<td>1(6.66%)</td>
<td>7(46.66%)</td>
</tr>
</tbody>
</table>

**Group -A:** In this group 0% patients were of no relief, 33.33% patients were of mild relief, 13.33% patients were of moderate relief, 40% patients were of marked relief and 13.33% were of excellent relief.

**Group -B:** In this group 0% patients were of no relief, 33.33% patients were of mild relief, 6.66% patients were of moderate relief, 40% patients were of marked relief and 20% were of Excellent relief.

**Group -C:** In this group 0% patients were of no relief, 40% patients were of mild relief, 6.66% patients were of moderate relief, 6.66% patients were of marked relief and 13.33% were of excellent relief.

**Figure No. I Showing Cure rate wise effect of therapy**
Discussion:

In Ayurveda all the Acharyas including Charaka, Sushruta, Vagbhata, Kashyapa, Madhav have described Mada, Madya, Madatyaya in detail though there is some variation of nomenclature & clinical manifestation. According to Sharangdhar Samhita the substance which affects brain and mind after ingestion is called Madya. Acharya Charaka, Sushruta and Vagbhata have described three stages of Mada Purva, Madhya and Pashchim while Madhavkar describes four stages i.e. Purva, Madhya and Pashchim and intermediate stage between the second and third stage, he considered this stage separate stage.

Consumption of Madya since long time inadequate dose and inadequate manner produces chronic toxic effect on human body called Madatyaya[10] Acharya Kashyapa has described the term Panapkrnam which produce some clinical manifestation due to sudden stop of alcohol, but the clinical manifestation are not mentioned in detail. The clinical manifestations are not mentioned in Laghutratri & Brihatratri.

Acharya Vangsen has stated that the physical dependency of alcohol remains up to one week which is nearly similar to the description of Harrison’s principles of Internal Medicine which has mentioned that the withdrawal symptoms generally begins within 5-10 hrs. of decreasing ethanol peak in intensity on day 2nd or 3rd and improve by day 4th or 5th but anxiety &insomnia,mild level of autonomic dysfunctions may persist to some degree for more than six month as protracted abstinence syndrome which is not similar to our Acharyas.

Acharya Charaka has also stated that the people having Jitendriya in Prakriti means which has controlled over all the Indriyas (sense organs) is not affected physically and mentally even after sudden withdrawal of alcohol .But now a day’s most of the people are not Jitendriya, they do Mithya Ahar-vihar and even don’t take Madya in adequate dose & manner as described in Ayurveda. This produces chronic alcoholism, dependence and physical, mental clinical manifestation after sudden stoppage of alcohol.

Acharya Charak further recommended Harshini Chikitsa means musical, motivational & recreational therapy and Mano Vaigyanik chikitsa (according to Charaka) means psychological treatment during the treatment of Madatyaya .It means that they knew that sudden withdrawal will affect the human body mentally as well as physically and produce physical symptoms like nausea, vomiting, tremors and mental symptoms like anxiety, agitation, hallucination due to sudden stoppage of alcohol.

Probable Mode of Action Of Drugs: Sudden alcohol withdrawal shows a set of clinical manifestation like Nausea (Hrilasa), Vomiting (Chardi), Tremors (Kampa), Anxiety (Ausada), Agitation (Aavega), Paroxysmal sweat (Sveda), Orientation and clouding of sensorial , Hallucination (Vibhrama) ,Headache (Shirshula). The Ushna, Teeksha, Rukska Guna of the contents of Sameergaja Kesari Ras and Dushivishari Agad cleared the connecting channels (Srotasa) like Udakavaha, Swedavaha and Annavaha in the body which were vitiated in this disease.

This resulted in increase of appetite, slowed down the sweat, and curbed the headache. The Nidrajanaka (Sedative effect) and Vatshamaka (Vata pacifying) effect of drugs synergistically controlled tremors, anxiety, agitation and hallucinations in the patients. The Pittashamaka (Pitta pacifying) effect of Muktapishti controlled vomiting in the patients.

Conclusion: Addicted patients pester from place to place due to ineffective management techniques. Ayurveda the science of life has a holistic approach towards management of any individual as a whole. Instead of viewing the individual as a list of symptoms the focus is on their full physical, mental, and spiritual health. This way of approaching things is based on the idea that the symptoms of ill health are due to imbalances in the body, and if balance can be restored the symptoms will go away. Conventional methods tend to focus predominately on symptoms (though of course with attempts to understand
causes). This approach has proved to be fruitful in many ways, but it can leave the individual feeling as if they have been treated as a problem. Overcoming an addiction can be a real challenge for people. The patients in all the three groups were symptomatically relieved and the drugs used were able to break down the pathogenesis of the disease in more than one way.

The alcohol addiction involves both Sharirika and Mansika Prakriti. The Vatapitta Prakriti and Rajasa Prakriti were predominantly found among all the patients. The Srotas involved predominantly were Udakvaha, Swedvaha, Annavaha and Manovaha. The drug Mukta Pishti showed very significant improvement in symptom insomnia and headache. Sameergaja Kesari Ras showed significant improvement on symptom tremors. There were no significant side effects, adverse reactions and complications of trial drugs (Sameergaja Gaj Kesari Rasa, Mukta Pishti and Dushivishari Agada) during the entire study.

Though we do not have proved and valid drug for anxiety, insomnia and craving but patients were managed successfully by using our trial drugs. Ayurveda medicine states that it is the inability to deal with stress that leads to substance abuse but knowledge of this is usually not enough to end the problem. This is because the individual becomes physically as well as psychologically addicted to these substances. Considering the fact that the mental faculty of the patient can be dealt with many ayurvedic medicines given in the classics, one must offer the Satvavajaya chikitsa to such type of patients.

**Recommendation:** As study was conducted over small group of patients, a similar study performed over a large sample at multicenter could have presented more accurate results.

**Acknowledgement:** The author is very grateful to the Director of NIA, Jaipur where the present trial was conducted fruitfully and the patients who actively took part in the research trial.

**Conflicts of interest:** None.

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**References**


सारांश:
मदिरा पान विश्व की सबसे बड़ी स्वास्थ्य समस्या है। लगभग 10–15% मदिरा सेवन करने वाले लोग इसके आड़ी हो जाते हैं और शराबी बन जाते हैं। बहुत से उपयोगकर्ता या लोग सड़क दुर्घटना में या लिकर विफलता के कारण मृत्यु को प्राप्त हो जाते हैं।

परिचय: लघुत्रयोग तथा बृहत्त्रयोग में शराब तथा शराब के प्रकरण को मधमद तथा मदात्मय शीर्षक के अंतर्गत वर्णित किया गया है। इस समस्या के निराकरण हेतु राष्ट्रीय आयुर्वेद संस्थान में यह शोधकार्य किया गया 45 रोगी जो कि मदिरा पान के आड़ी थे उन्हें समान रूप से तीन समूहों में रखा गया। गृप ‘अ’ के ‘15’ रोगियों को समीरहरूकंकर्सी रस 125 मिलिग्राम एवं दूधविशारी अग्नि 5 ग्राम, गृप ‘ब’ को मुक्तकपित्ती 125 मिलिग्राम पानी के साथ एवं दूधविशारी अग्नि 5 ग्राम शहद के साथ। गृप ‘स’ में रोगियों को समीरहरूकंकर्सी रस 125 मिलिग्राम, दूधविशारी अग्नि 5 ग्राम, मुक्तकपित्ती 125 मिलिग्राम उपयुक्त निर्धारित मात्रा में दी गयी।

परिणाम द्वारा गृप ‘स’ में रोगियों में 46.66% सुधार, गृप ‘ब’ में 20% सुधार, गृप ‘अ’ में 13.33% सुधार मिला है।

निष्कर्ष: समीरहरूकंकर्सी रस, दूधविशारी अग्नि, मुक्तकपित्ती तीनों औषधियों का समान प्रयोग अधिक प्रभावशाली पाया गया है। अतः आयुर्वेद के सिद्धांतों के अनुसार मध्य रोगियों में व्याधि विपरीत चिकित्सा एवं सत्यावजय चिकित्सा का योग एक सफल शोधकार्य प्रभावित हो सकता है।
The Comparative Clinical Study Of Shatapushpa Churna And Tilshelukarvi Kwatha On Artavakshaya

*Dr. Kamble Snehal Bhimarao, **Dr. Hetal H. Dave, ***Dr. Swati Alha

* P.G. Scholar, ** Assistant professor, Department of Prasuti-Stree Roga, NIA, Jaipur,
***Asst. Prof., Dept. Of Prasuti-Stree Roga ,Punjab ayurved Medical college Sri Ganganagr.

ABSTRACT

On reviewing our Ayurvedic classics we found that Artavakshaya included symptoms like Yathochitkale Adarshanam, Yoni Vedana, Alpata. Now-a-days the menstrual disorders have become a very challenging problem for working ladies or housewives. They may involve the structural or functional disturbances and are mostly associated with the complaint of infertility, obesity etc. In modern science, Oligomenorrhea & Hypomenorrhea is treated by hormonal therapy & long term use of the drugs produces many side effects. To avoid this problem, in present study The comparative clinical study of Shatapushpa Churna and Tilshelukarvi Kwatha on Artava Kshaya was selected due to their Artavajanana & Garbhashyashodhana properties and results were assessed on the basis of improvement in the subjective symptoms. The study reveals that combine use of Shatapushpa Churna and Tilshelukarvi Kwatha with Guda as Anupana showed better results.

Keywords: Artavajanana, Artavakshaya, Garbhashyashodhana, Vatashamaka, Yathochitkale Adarshanam, Yoni Vedana, Hypomenorrhea & Oligomenorrhea.

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Address of Corespondence: 
Dr. Hetal H. Dave
Asstt Professor
Department of Prasuti-Stree Roga,
National Institute of Ayurveda, Jaipur
Email ID : hetaldave2406@gmail.com
Contact No : 9251758867
we have formulated two types of trial drugs namely, ‘Shatpushpa Churna’ and “Tilshelukarvi Kwath” with the motto to validate the directives of classics on parameters of a systemic and scientific research work

Need of Present Research Work:

On account of modernization & urbanization, there is intake of spicy diet, fried food, stress & social problems, the menstrual disorders have become a very challenging problem for working ladies or housewives. They may involve the structural or functional disturbances and are mostly associated with the complaint of infertility, obesity etc.

In modern science, scanty & infrequent menstruation is treated by hormonal therapy & long term use of these drugs produce many side effects. So, it is very essential to find out some effective Ayurvedic medicine for this condition. Ayurvedic management seems to be more practical, effective, not costly, non-surgical and have negligible side effects.

Aims & Objectives:

The present research work has been undertaken with the following objectives.

1. To study the detail aetiopathogenesis and prevalence of Artavakshaya in the place where this study has been carried out.

2. To evaluate the efficacy of Shatpushpa Churna and Tilshelukarvi Kwatha in the management of Artavakshaya.

3. To compare clinically the effect of Shatpushpa churna and Tilshelukarvi Kwatha in the management of Artavakshaya.

4. To screen a critical review of available literature on Artavakshaya.

5. To study the complication if any during and after treatment.

6. To prevent the patient from further complications.

7. To assess the reduction in symptoms of both subjective as well as objective criteria.

Material and Methods:

Design of the study

The method adopted in present study is Randomized, Clinical, Open study.

Selection of patients

Total 30 clinically diagnosed and confirmed cases of Artavakshaya were selected from the O.P.D. / I.P.D. of P.G. Department of Prasuti-Stree Roga, National Institute of Ayurveda (N.I.A.) Hospital, Jaipur.

A. Inclusion criteria:

1. Age - 12 - 40 years

2. Patients with long term use of hormonal therapy.

3. Patients with nervous and emotional causes.

4. Patients suffering from PCOS (Poly cystic ovarian syndrome).

B. Exclusion criteria:

1. Patients below 12 & above 40 years of age.

2. Patients suffering from diseases HIV, VDRL, HBsAg.

3. Patients suffering from diseases such as D.M., T.B., C.C.F., IHD, Hypertension.

4. Patient having organic pathology of uterus and adnexae eg. Malignant growth etc.

5. Patients having sex chromosomal abnormality such as XXX arrangement.

6. Patients having physiological infrequent menstruation.

7. Patients belong to perimenopausal period.
Posology: Patients were randomly divided into following three groups:

<table>
<thead>
<tr>
<th>Drug</th>
<th>Group-A</th>
<th>Group-B</th>
<th>Group-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shatapushpa Churna</td>
<td>3g twice a day with lukewarm water</td>
<td>20 ml twice a day with Guda as Anupana</td>
<td>3g &amp; 20 ml twice a day with Guda as Anupana</td>
</tr>
<tr>
<td>Tilshelukarvi Kwatha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Route</td>
<td>Oral</td>
<td>Oral</td>
<td>Oral</td>
</tr>
<tr>
<td>Duration</td>
<td>60 days</td>
<td>60 days</td>
<td>60 Days</td>
</tr>
</tbody>
</table>

Criteria of assessment: A special scoring pattern was applied in symptoms and associated complaints.

a. Subjective Parameters:
1. Duration of menstrual bleeding
2. Interval between two cycles (inter menstrual period)
3. Amount of menstrual flow
4. Pain during menses.

b. Objective Parameters:
1. Routine blood investigation: Hbgm%, TLC, DLC, ESR, HIV, HBsAg, VDRL, MT, RBS, TSH were advised to all the patients before and Hbgm%, ESR, TLC, DLC after the completion of trial.
2. Complete urine examination
3. USG of uterus and adnexae (if possible)
4. Hormonal level tests (if possible)
5. Urine Pregnancy test (if necessary)

Statistical Evaluation of results:
Further the effect of the treatment signs and symptoms were analyzed statistically by Mean, SD, and SE, ‘paired Wilcoxon signed rank test’ and ‘unpaired ONE WAY ANOVA- Kruskal-Wallis Statistic Test’ for non-parametric study.

Statistical analysis - Statistical study was carried out in terms of mean (x) standard deviation (S.D), standard error (S.E.) paired test(t. value) Finally result were shown in terms of probability (P) as p>0.05-Insignificant, p<0.05-Significant, p<0.01, P<0.001- Highly significant.

Observation:
Maximum 60% of patients had been found with irregularity of the cycle, 53.33% patients had menstrual bleeding for 1-2 day. 93.33% of patients had scanty menstruation, 53.33% patients have absence of clot in menstrual blood. 53.33% patients have presence of foul smell in menstrual blood. 40% patients have blackish & red colour of menstrual blood and 63.33% patients had dysmenorrhea.

Result:

Table No. I - Shows The % Improvement Of Symptoms In All Three Groups:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Subjective Parameters</th>
<th>Result In Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Group A</td>
</tr>
<tr>
<td>1</td>
<td>Duration of flow</td>
<td>56.25%</td>
</tr>
</tbody>
</table>

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### Table No. II - Showing Effect Therapy On The Parameter Duration Of Menstrual Cycle In All Three Groups Of Patients.

<table>
<thead>
<tr>
<th>Duration of menstrual cycle</th>
<th>Mean B.T.</th>
<th>Mean A.T.</th>
<th>Mean Dif.</th>
<th>Mean %</th>
<th>No.</th>
<th>S.D.</th>
<th>S.E.</th>
<th>P</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>2.00</td>
<td>0.88</td>
<td>1.13</td>
<td>56.25%</td>
<td>6</td>
<td>0.99</td>
<td>0.35</td>
<td>0.013</td>
<td>S</td>
</tr>
<tr>
<td>Group B</td>
<td>2.00</td>
<td>1.13</td>
<td>0.88</td>
<td>43.75%</td>
<td>5</td>
<td>0.83</td>
<td>0.30</td>
<td>0.021</td>
<td>S</td>
</tr>
<tr>
<td>Group C</td>
<td>1.88</td>
<td>0.38</td>
<td>1.50</td>
<td>80.00%</td>
<td>7</td>
<td>0.93</td>
<td>0.33</td>
<td>0.009</td>
<td>H.S.</td>
</tr>
</tbody>
</table>

ANOVA Test for Intergroup Comparison of various parameters.
### Table No. III - Comparative Analysis Of Groups On The Parameter Of Duration Of Menstrual Cycle

<table>
<thead>
<tr>
<th>Duration of menstrual cycle</th>
<th>No. of Points</th>
<th>Sum of Ranks</th>
<th>Mean of Ranks</th>
<th>P Value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>10</td>
<td>151</td>
<td>15.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group B</td>
<td>10</td>
<td>136</td>
<td>13.60</td>
<td>0.51</td>
<td>I.S.</td>
</tr>
<tr>
<td>Group C</td>
<td>10</td>
<td>178</td>
<td>17.80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table No. IV - Showing Effect Therapy On The Parameter Interval Between Two Cycle In All Three Group Of Patients:

<table>
<thead>
<tr>
<th>Interval between two cycle</th>
<th>Mean B.T.</th>
<th>Mean A.T.</th>
<th>Mean Dif.</th>
<th>Mean %</th>
<th>No.</th>
<th>S.D.</th>
<th>S.E.</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>2.14</td>
<td>1.14</td>
<td>1.00</td>
<td>46.67%</td>
<td>6</td>
<td>0.58</td>
<td>0.22</td>
<td>0.013</td>
<td>S</td>
</tr>
<tr>
<td>Group B</td>
<td>3.00</td>
<td>2.00</td>
<td>1.00</td>
<td>33.33%</td>
<td>3</td>
<td>0.82</td>
<td>0.41</td>
<td>0.054</td>
<td>I.S.</td>
</tr>
<tr>
<td>Group C</td>
<td>3.00</td>
<td>1.44</td>
<td>1.56</td>
<td>51.85%</td>
<td>7</td>
<td>1.13</td>
<td>0.38</td>
<td>0.009</td>
<td>H.S.</td>
</tr>
</tbody>
</table>

### Table No.V - Comparative Analysis Of Groups On The Parameter Of Interval Between Two Cycles:

<table>
<thead>
<tr>
<th>Interval between two cycle</th>
<th>No. of Points</th>
<th>Sum of Ranks</th>
<th>Mean of Ranks</th>
<th>P Value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>10</td>
<td>151</td>
<td>15.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group B</td>
<td>10</td>
<td>116.5</td>
<td>11.65</td>
<td>0.085</td>
<td>I.S.</td>
</tr>
<tr>
<td>Group C</td>
<td>10</td>
<td>197.5</td>
<td>19.75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Kruskal-Wallis Statistic KW = 4.91
**Table No. VI - Showing Effect Therapy On The Parameter Amount Of Flow Per Day In All Three Groups Of Patients.**

<table>
<thead>
<tr>
<th>Amount of flow per day</th>
<th>Mean B.T.</th>
<th>Mean A.T.</th>
<th>Mean Dif.</th>
<th>Mean %</th>
<th>No.</th>
<th>S.D.</th>
<th>S.E.</th>
<th>P</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>2.40</td>
<td>1.70</td>
<td>0.70</td>
<td>29.17%</td>
<td>6</td>
<td>0.67</td>
<td>0.21</td>
<td>0.013</td>
<td>S</td>
</tr>
<tr>
<td>Group B</td>
<td>2.40</td>
<td>1.90</td>
<td>0.50</td>
<td>20.83%</td>
<td>5</td>
<td>0.53</td>
<td>0.17</td>
<td>0.021</td>
<td>S</td>
</tr>
<tr>
<td>Group C</td>
<td>2.70</td>
<td>1.60</td>
<td>1.10</td>
<td>40.74%</td>
<td>9</td>
<td>0.57</td>
<td>0.18</td>
<td>0.0038 H.S.</td>
<td></td>
</tr>
</tbody>
</table>

**Table No. VII - Comparative Analysis Of Groups On The Parameter Of Amount Of Flow Per Day:**

<table>
<thead>
<tr>
<th>Amount of flow per day</th>
<th>No. of Points</th>
<th>Sum of Ranks</th>
<th>Mean of Ranks</th>
<th>P Value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>10</td>
<td>146</td>
<td>14.60</td>
<td></td>
<td>I.S.</td>
</tr>
<tr>
<td>Group B</td>
<td>10</td>
<td>122.5</td>
<td>12.25</td>
<td>0.094</td>
<td></td>
</tr>
<tr>
<td>Group C</td>
<td>10</td>
<td>196.5</td>
<td>19.65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Kruskal-Wallis Statistic KW = 4.72

**Table No. VIII - Showing Effect Therapy On The Parameter Pain During Menses In All Three Groups Of Patients.**

<table>
<thead>
<tr>
<th>Pain during menses</th>
<th>Mean B.T.</th>
<th>Mean A.T.</th>
<th>Mean Dif.</th>
<th>Mean %</th>
<th>No.</th>
<th>S.D.</th>
<th>S.E.</th>
<th>P</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>1.71</td>
<td>0.71</td>
<td>1.00</td>
<td>58.33%</td>
<td>6</td>
<td>0.58</td>
<td>0.22</td>
<td>0.013</td>
<td>S</td>
</tr>
<tr>
<td>Group B</td>
<td>1.13</td>
<td>0.63</td>
<td>0.50</td>
<td>44.44%</td>
<td>4</td>
<td>0.53</td>
<td>0.19</td>
<td>0.033</td>
<td>S</td>
</tr>
<tr>
<td>Group C</td>
<td>1.70</td>
<td>0.30</td>
<td>1.40</td>
<td>82.35%</td>
<td>9</td>
<td>0.70</td>
<td>0.22</td>
<td>0.0038 H.S.</td>
<td></td>
</tr>
</tbody>
</table>

**Table No. IX - Comparative Analysis Of Groups On The Parameter Of Pain During Menses:**

<table>
<thead>
<tr>
<th>Pain during menses</th>
<th>No. of Points</th>
<th>Sum of Ranks</th>
<th>Mean of Ranks</th>
<th>P Value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>10</td>
<td>141.5</td>
<td>14.15</td>
<td></td>
<td>S.</td>
</tr>
<tr>
<td>Group B</td>
<td>10</td>
<td>108</td>
<td>10.80</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Group C</td>
<td>10</td>
<td>215.5</td>
<td>21.55</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Kruskal-Wallis Statistic KW = 9.0

Table No. X - Overall Effect Of Therapy On All Groups Of Patients

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th></th>
<th>Group B</th>
<th></th>
<th>Group C</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0.00%</td>
<td>1</td>
<td>10%</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>30%</td>
<td>5</td>
<td>50%</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>70%</td>
<td>4</td>
<td>40%</td>
<td>4</td>
<td>40%</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
<td>4</td>
<td>40%</td>
</tr>
</tbody>
</table>

Graph II: showing percentage of hematological improvement in all the group

Graph III: showing over all effect in all the group
Discussion

1. Subjective Parameter: Considerable improvement was observed on all subjective parameter of Artavakshaya in all groups after the therapy. This is because Shatpushpa churna and Tilshelukarvi Kwath possess Deepana & Pachana karma due to Usha Virya and it lead to Agnivardhana i.e. Jatharagni, Dhatavagni increase the production of Rasa Dhatu which effect on Aratva Updhatu. It is also having Aratuvjanana, Garbhashayshodana and Lekhana karma due to this it remove the obstruction in Srotas and dilate the passage, Kapha Vilayan occurs in this way they help in Srotoshodhana. As obstruction is cleared, free flow of Artava occurs into lumen. Due to its Anulomana, Vata Shamaka, Vedanasthapana properties it reduces pain during menses.

2. The effect of the therapy on general symptoms

It can be concluded from the above points that as Artavakshaya is a VataKapha predominant Vyadhi, the general Symptoms of Vata and Kapha Vriddhi and Pitta Kshaya may be found along with the cardinal symptoms. 100% relief was found in Alasya, Aruchi and Angamarda. More than 70% relief was found in Adhmana, Vibhandha, Anidra, Agnimandya. 33.33% relief was found in Bhrama and Katishula in group A which is oral group of Shatapushpa churna. While nobody having Sandhishula and Medovridhhi symptom in group A, so it is statistically not defined. 100% relief was found in Adhmana, Vibhandha, Aruchi and Sandhishula. More than 70% relief was found in Anidra, Agnimandya, Alasya, Katishula. 25% relief was found in Bhrama in group B which is oral group of Tilshelukarvi Kwath. While nobody having Angamarda and Medovridhhi symptom in group B, so it is statistically not defined. 100% relief was found in Adhmana, Vibhandha, Aruchi, Katishula and Anidra. More than 70% relief was found in Agnimandya, Alasya, Angamarda. 33-33% relief was found in Sandishula and Bhrama, while 14.29% relief was found Medovridhhi in group C which is oral group of Shatapushpa churna and Tilshelukarvi Kwath.

3. Objective parameter: On the comparative analysis of the three groups on the Objective parameter insignificant result was found in all Groups.

Comparison in all three groups:

The overall effects on all the therapies on cardinal symptoms of Artavakshaya showed that, the Shatapushpa churna and Tilshelukarvi Kwath is more effective to increase the duration of menstrual period, interval decreased between two menstrual cycles, increase in amount of menstrual blood and relief in dysmenorrhea suggests that combine effect of Shatapushpa churna and Tilshelukarvi Kwath i.e. group C is more efficacious than Shaptpushpa churna i.e. group A and group B i.e. Tilshelukarvi Kwath.
Overall effect of drug therapy:

The consideration of overall effect of therapy on 30 patients of Artavakshaya in all the groups has been made. In the group C 40% of the patients have excellent relief, 70% of the patients in group A, 40% of the patients in group B and 40% of the patients in group C have significant relief. 50% of the patients in group B, 30% of the patients in group A and 20% of the patients in group C have moderate relief. 10% of the patients in group B have mild relief.

Conclusion:

Following conclusion can be drawn from the current research project –

♣ Better results was observed in Group C, patients suggest that probably both the drugs Shatapushpa Churna and Tilshelukarvi Kwath act synergistically, the therapeutic effects are potentiated with the use of Shatapushpa Churna and Tilshelukarvi Kwath.

♣ Comparing the symptomatic improvement in all groups it was found that overall relief was highest in group C followed by group A and group B i.e. Hence it can be concluded that combined use of Shatapushpa Churna and Tilshelukarvi Kwath is effectively helps in managing the disease Artavakshaya.

References


5. Tripathi Indra Dev & Tripathi Daya Shankar, Yogratnakara with Vaidyaprabha Hindi Commentary, Choukamba Krishnadas Academy, Varanasi, 2013; Yonivypada Chikitsaadhyaya- 4; p. 406


सारांश:

आयुर्वैदिक ग्रन्थों के अनुसार, आर्तवक्ष्य व्याधि में आर्तव का स्थोलितिकले अदर्श, योगिबिने, अन्यता ये लक्षण मिलते हैं। आधुनिक युग में कामकाजी और घरेलू महिलाओं के लिए आर्तव समस्या विकार दिन प्रतिदिन बढ़ते जा रहे हैं। ऐसी महिलाओं में स्वचालन एवं क्रियात्मक परिवर्तन नियात की मद्दत की जाती है तथा बन्याव, स्थोलितिकले विकारों से प्रस्तिक हो जाती है। आधुनिकविज्ञान में ओलिगोनोगोरिया एवं हाइपोगोरिया की विकार रोगों के द्वारा की जाती है। इसी दौरानकलोन प्रयोग से अनेक उत्पन्न होते हैं। इस समस्या के निवारण के लिए प्रतिलुक शौचप्य में शतुष्पाधू एवं तिलशेलुकारी क्वाथ का आर्तवक्ष्य में विकारी वायु का प्रयोग किया गया। सहित में उन जस्तिक द्वारा प्रयोग आर्तवक्ष्य एवं गर्भाशय शोकन में बलाया गया है। परिणामों के विकार पर मूल्यांकन किया गया। इस शोधकार्य में शतुष्पाधू एवं तिलशेलुकारी क्वाथ दोनों का एक साथ प्रयोग सार्थक सिद्ध हुआ।
A Clinical Comparative Study To Evaluate The Efficacy Of Shirishadi Syrup and An Established Ayurvedic Marketed Preparation In The Management Of Respiratory Allergic Disorders In Children.

*Dr. Vishal Prajapati, **Dr. Rakesh Kumar Nagar,

*Ph. D Scholar, Department of Kaumarbhritya, IPGT & RA Gujarat Ayurveda University Jamnagar, Gujarat
**Assistant professor, Department of Kaumarbhritya, National Institute of Ayurveda, Jaipur,

ABSTRACT

In India prevalence of respiratory allergy disease in school going children have been reported between 5-20% in the different geographic region. The increase in prevalence may be attributed to environmental factors, dietetic incompatibilities, and faulty lifestyle. Respiratory Allergic Disorders (R.A.D.) mainly includes- Allergic bronchitis or Allergic asthma & Allergic rhinitis. As RAD can be co-related with Kasa, Tamak Shwasa in Ayurveda. In the preventive aspect of the disease, Ayurveda has a unique concept of Vyadhikshamatava, various measures and recipes are described to achieve it. Considering these facts a randomized control trial was planned for 12 weeks to evaluate the efficacy of hypothetical Ayurvedic compound Shirishadi Syrup and an established Ayurvedic marketed preparation in children those were suffering from Respiratory Allergic Disorder (R.A.D.). For the study affected children of age group, 5 to 10 years were selected from O.P.D. & I.P.D. of Bal-Roga Dept. of N.I.A. Jaipur. The study was conducted on total 60 patients with 30 patients in each group. Group A- Shirishadi Syrup and Group B- an Established Ayurvedic Marketed Preparation. Statistically extremely significant results were seen in most of the symptoms and also in laboratory parameters in both the groups. After statistical evaluation, it was concluded that both the drugs are equally effective in terms of improvement in previous symptoms of RAD. No adverse effect of the study drug was observed during the study.

Keywords: R.A.D., Kasa, Tamak Shwasa, Vyadhikshamatava, Shirishadi Syrup.

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Introduction:

“Allergy is a hypersensitivity disorder of the immune system of the human body[1].” Allergic reactions
occur when a person’s immune system reacts abnormally to normally harmless substances, present in the environment as well as in body. A substance that causes a reaction is called an allergen. Allergy is formally called type 1 (or immediate) hypersensitivity and is one of four or more forms of hypersensitivity.

Approximately 10% to 30% of individuals in the industrialized world are affected by allergic conditions and this number is increasing. Also in India, the burden of allergic disease has been on an uprising trend in terms of prevalence as well as severity. These allergic diseases comprise of asthma, rhinitis, anaphylaxis, drug, food, and insect allergy eczema and urticaria and angioedema. Approximately 20% to 30% of the total population suffers from at least one of these allergic diseases in India[1].

Childhood asthma among children 13 to 14 years of age has been lower than that in younger children (6 to 7 years of age)[2]. In India prevalence of respiratory allergy disease in school going children have been reported between 5-20% in the different geographic region. Male to female ratio percentage is 64:36 in respiratory allergic disease[3]. The prevalence peaks late in childhood[4].

The prevalence of these disorders in developing as well as developed countries are increasing over the recent decade. The increase in prevalence may be attributed to environmental factors (Rajasa, Dhoom), dietetic incompatibilities (Rukshana, Vishamasan) and faulty lifestyle (Ativyayama, Gramyadharma)[5, 6]. There are different allergic reaction seen in the body-Skin (itching, hives & urticaria), Nasal (sneezing, running nose, itchy nose), Eyes (conjunctivitis), GIT (nausea, vomiting, cramping, diarrhea), Respiratory (shortness of breath, wheezing, coughing, Chest tightness), Cardiovascular (hypotension, palpitation) symptoms.

Respiratory Allergic Disorders (R.A.D.) mainly includes Allergic bronchitis or Allergic asthma & Allergic rhinitis. Allergic asthma is a chronic inflammatory condition of lung airway resulting in episodic airflow obstruction. This chronic inflammation heightens the ‘twitchiness’ of the airways (i.e. airway hyper-responsiveness to provocative exposures). According to modern medicines, its management includes Antihistaminic, Bronchodilators, Mast cell stabilizers, and Corticosteroids. This regimen of the drug only suppress the symptoms and also causes adverse effects like tachycardia, tremors, hypokalemia, headache, sedation, weight gain, oral thrush, reflex coughing etc.[4]

There is no description of allergy found in Ayurveda but Acharyas mentioned various etiological factors which cause various diseases like Vatika Pratishyaya, Shirah Shoola, Aagantuja-Kshavathu, Shwasa- Kasa etc. can be included under allergic disorders.

As RAD can be co-related with Kasa, Tamaka Shwasa in Ayurveda and according to Ayurveda these are caused by faulty diets (Viruddha Asatmya, Ahita Aahara) and lifestyles. This results in Agnimandya (Indigestion) which leads to Aam (Toxins) formation and hence the disease.

Ayurveda also has a unique concept of Vyadhikshamatava and various measures and recipes are described to achieve it. Considering these facts a clinical trial is being done to evaluate the effect of a hypothetical Ayurvedic compound Shirishadi syrup on Respiratory Allergic Disorder (R.A.D.) in children. The herbal medicines present in this compound have properties of Rasayana, Aampachana, Anti-allergic, Anti-inflammatory, Mucolytic and Immunomodulatory effect.

**Aims and objectives of the study-**

1. To assess the effect of Shirishadi Syrup with an established Ayurvedic marketed preparation (LOBODIL Suspension) on Respiratory allergic disorders.
2. To provide the relief or improvement in previous symptoms.
3. To restore normal airway function and to promote a healthy lifestyle.
Material and Methods:

- **Study type:** Open controlled trial
- **Sample selection:** Randomized sampling method.
- **IEC Approval:** Clinical study was approved by IEC, order no. F10 (5)/EC/2014/7220 dated 7/11/2014.
- **Age group:** 5 to 10 years
- **Study center:** OPD and IPD of Dept. of Balroga, N.I.A. Jaipur & Local schools

**Pre-assessment (Screening):** Selected children were screened out by the symptom checklist in the form of pre-assessment questionnaire constituting 14 questions. Parents of the concerned child were asked to fill up the questionnaire (Source-AAAI, 2004; 93:36-48).

A child scoring 7 out of the first 10 questions is considered as asthmatic (allergic) and, one out of next three is considered to have the nasal allergy. The next four questions are related to the severity of the previous episodes and treatment taken.

**Administration of drug and grouping:** After screening a total of 67 patients were registered and randomly divided into two groups out of which 07 patients dropped out and they were treated according to the following schedule –

<table>
<thead>
<tr>
<th>Table No. I Drug Posology And Grouping</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group A (N=30)</strong></td>
</tr>
<tr>
<td><strong>Trial Drug (Shirishadi syrup)</strong></td>
</tr>
<tr>
<td>Dose</td>
</tr>
<tr>
<td>1ml/kg in three divided doses</td>
</tr>
<tr>
<td>Dosage form</td>
</tr>
<tr>
<td>Syrup</td>
</tr>
<tr>
<td>Route</td>
</tr>
<tr>
<td>Oral (After meals)</td>
</tr>
<tr>
<td>Anupama</td>
</tr>
<tr>
<td>Lukewarm water</td>
</tr>
<tr>
<td>Duration</td>
</tr>
<tr>
<td>12 weeks</td>
</tr>
</tbody>
</table>

**Group B (N=30)**

<table>
<thead>
<tr>
<th>Control Drug (Lobodil susp.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose</td>
</tr>
<tr>
<td>0.5ml/kg in three divided doses</td>
</tr>
<tr>
<td>Dosage form</td>
</tr>
<tr>
<td>Syrup</td>
</tr>
<tr>
<td>Route</td>
</tr>
<tr>
<td>Oral (After meals)</td>
</tr>
<tr>
<td>Anupama</td>
</tr>
<tr>
<td>Lukewarm water</td>
</tr>
<tr>
<td>Duration</td>
</tr>
<tr>
<td>12 weeks</td>
</tr>
</tbody>
</table>

- **Follow up:** The clinical follow-ups were taken fortnightly.

**Parents’ Consent / Child Assent:** A voluntary, signed witnessed informed consent/assent was obtained from the participant/parent’s/ Guardians prior to the start of the clinical trial.

**Inclusion criteria:**

- Recurrent Bronchitis, Laryngitis, Sinusitis, Common cold.
- Past H/O Recurrent Bronchiolitis and Pneumonia in early childhood.
- Cardinal features of respiratory allergy and infectious diseases.
- History of at least 3 episodes in last one year.

**Exclusion criteria:**

- Severe and Complicated respiratory allergic disorders those need hospitalization.
- Diagnosed C/o Tuberculosis
- Diagnosed C/o Pleural effusion
- Diagnosed C/o Emphysema
- Diagnosed C/o Lung abscess
- Diagnosed C/o Bronchiectasis
- Diagnosed C/o Pleurisy
- Diagnosed C/o Nasal polyps
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- Congenital lung/cardiac anomalies
- Chronic debilitating diseases

**Discontinuation criteria:**
- Parents/guardian not willing to continue with the treatment.
- Patients develop a life-threatening complication during the treatment.
- Any other acute illness.
- The appearance of features of respiratory infections.

**Assessment criteria:**

**A. Clinical Assessment**

Assessment of the clinical symptoms depending on the severity is done according to the scoring pattern given below:

1. **Cough (Kasa)** –
   - No cough-0
   - Occasional cough-1
   - Continuous cough with moderate pain-2
   - Continuous cough with severe pain- 3

2. **Rhinorhea (Nasa Srava)** -
   - No Nasa Srava- 0
   - Only in the morning-1
   - Morning and evening- 2
   - Continuous- 3

3. **Nasal Obstruction (Ghranoparodha)**-
   - No obstruction- 0
   - Only during sleep- 1
   - Intermittent throughout the day- 2
   - Complete obstruction throughout the day & night- 3

4. **Impaired smell (Gandhagyan)***
   - Normal smell perception-0
   - Perceiving smell with difficulty-1
   - Perceiving only pungent smell-2
   - No smell perception-3

5. **Inflammation of throat (Galashotha)**
   - No sore throat -0
   - Sore throat with pain and no difficulty in food intake-1
   - Sore throat with pain and difficulty in food intake-2
   - Sore throat with pain which interferes the intake of liquids too-3

6. **Dyspnoea (Shwaskashtata)**
   - No dyspnea-0
   - Dyspnoea on cold exposure-1
   - Dyspnoea present and forced to take medicine for the relief-2
   - Dyspnoea not relieving even after medicine-3

7. **Nasal/eye itching (Nasa/Akshi Kandu)**
   - No itching- 0
   - Occasional itching- 1
   - Nasal itching only- 2
   - Continuous Nasal/ eye itching- 3

8. **Wheezing (Sashabda Swaas)**
   - No Wheezing- 0
   - Mild Wheezing- 1
   - Severe Wheezing audible on auscultation not audible from outside- 2
   - Wheezing audible even from outside- 3

9. **Headache (Shirahshoola)**
   - No Headache- 0
   - An occasional Headache only at the time of Pratishyaya- 1
   - A frequent Headache but not severe- 2
   - Severe constant Headache- 3
10. Fever (*Jwara*)
- No fever-0
- Fever only at night-1
- Mild fever throughout the day-2
- High-grade fever throughout the day-3

11. Sneezing (*Kshwathu*)
- No Sneezing-0
- Sneezing only at the time of vyadhivegawastha-1
- Sneezing with mild reasons-2
- Always Sneezing-3

12. Hoarseness of voice (*Swarasada*)
- No Hoarseness of voice-0
- Hoarseness of voice only at the time of pratishyaya-1
- Hoarseness of voice present but no difficulty in speech-2
- Cannot make sounds due to the Hoarseness of voice-3

B. Objective assessment
A Peak Expiratory Flow Rate (PEFR) was measured in children above 7 years on every follow up i.e. after 15 days.

B Laboratory parameters
- Blood - (T.L.C, D.L.C, HB %, TEC, IgE) were measured before and after treatment.

**Assessment of tolerability:** Though the combinations under study were purely herbal in origin, close observation of patients using drugs included in the trial was done carefully for any untoward effects.

**Analytical and statistical method to be used:** The clinical efficacy of the drug was analyzed statistically on all the symptoms mentioned in the assessment criteria. Initially, the variation and significance of effect seen within all the patients were calculated by using Paired ‘t’ test. (Wilcoxon two-tailed for subjective parameters and for the objective parameters Paired ‘t’ test two-tailed) has been applied.

Intergroup Comparison is done by using unpaired t-test. (Mann Whitney-U Test) More specifically quantify the percentage of improvement in each patient was also calculated using the formula BT-AT/BTx100.

**TRIAL DRUG:** “Shirishadi Syrup” (A Hypothetical Ayurvedic Compound)

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Name</th>
<th>Botanical name</th>
<th>Useful Part</th>
<th>Ratio (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shirish</td>
<td><em>Albizia Lebbeck</em></td>
<td>Stem-Bark, Seeds, Flowers, Leaves</td>
<td>90%</td>
</tr>
<tr>
<td>2</td>
<td>Shunthi</td>
<td><em>Zingiber Officinalis</em></td>
<td>Rhizome</td>
<td>10%</td>
</tr>
<tr>
<td>3</td>
<td>Marich</td>
<td><em>Piper Nigrum</em></td>
<td>Fruit</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Pippali</td>
<td><em>Piper Longum</em></td>
<td>Fruit, Root</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Madhu (Honey)</td>
<td>............</td>
<td>............</td>
<td>Q.S.</td>
</tr>
</tbody>
</table>

**Control drug:** Lobodil Suspension (Salveo Pharmaceuticals)

**Manufactured by:** Surya Herbal Limited, Noida, India

Table No. III Composition Of Lobodil Suspension (One Tsf Of Powder Contains)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name</th>
<th>Botanical Name</th>
<th>Amount present</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Talishpatra</td>
<td>Abies webbiana</td>
<td>0.32 gm</td>
</tr>
<tr>
<td>2.</td>
<td>Vasaka</td>
<td>Adhatoda vasica</td>
<td>1.56 gm</td>
</tr>
<tr>
<td>3.</td>
<td>Dalchini</td>
<td>Cinnamomum zeylanicum</td>
<td>0.15 gm</td>
</tr>
<tr>
<td>4.</td>
<td>Brihat ela</td>
<td>Amomum subulatum</td>
<td>0.15 gm</td>
</tr>
<tr>
<td>5.</td>
<td>Marich</td>
<td>Piper nigrum</td>
<td>0.62 gm</td>
</tr>
<tr>
<td>6.</td>
<td>Pippali</td>
<td>Piper longum</td>
<td>1.25 gm</td>
</tr>
<tr>
<td>7.</td>
<td>Ardraka</td>
<td>Zingiber officinale</td>
<td>0.95 gm</td>
</tr>
<tr>
<td>8.</td>
<td>Nisadal</td>
<td>-</td>
<td>0.15 gm</td>
</tr>
<tr>
<td>9.</td>
<td>Sugar</td>
<td>-</td>
<td>10.00 gm</td>
</tr>
</tbody>
</table>

Clinically proven drug for allergy and stress-induced asthma, common cold and cough.

Observation And Results:

The observations and results in the study are made on the basis of demographic, constitutional, and clinical profiles of 60 patients having respiratory allergic disorders. 08-10 years age group was the most (53.33%) affected group. Males (63.33%) were more prone to RADs as compared to females. Maximum (68.33%) patients were belonging to the Hindu community. Maximum numbers of cases were belonging to an urban area (76.66%) and middle socioeconomic status (61.66%). Overall incidences showed that Allergic Rhinitis (41.66) and mixed group (36.66%) followed by Allergic asthma (21.66%). Maximum number (46.66) of cases exhibited seasonal manifestation of allergic rhinitis. Overall in 58.33% of cases, family history was present. Dust 48.33%, smoke (due to pollution) 45%, cold water 45%, cold air & seasonal changes 41.66% were the potential triggers. Overall Tonsillitis 55% otitis media 31.66% snoring & migraine 15% as associated complains. The overall incidence of characteristic allergic appearance were 36.66% allergic shiners, 30% with nasal crease, 25% allergic salute, allergic gape 5%, allergic cluck 3.33%. Kapha Vata Prakriti patients were found to be more (38.33%) prone for RADs. Maximum number (56.66%) of patients of the trial were under Mandagni. IgE level was found to be elevated in 83.33% and 80.00% in group A and B respectively. TEC level was found to be elevated in 73.33% and 76.66% in group A and B respectively.

Table no. IV showing statistical presentation of all symptoms after treatment in group A and group B

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Symptoms</th>
<th>Group</th>
<th>Mean Score</th>
<th>Gain</th>
<th>S.D.</th>
<th>S.E.</th>
<th>P</th>
<th>Ipt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Cough</td>
<td>A</td>
<td>1.90</td>
<td>1.16</td>
<td>0.73</td>
<td>38.59</td>
<td>0.44</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>1.80</td>
<td>1.10</td>
<td>0.70</td>
<td>38.88</td>
<td>0.46</td>
<td>0.08</td>
</tr>
</tbody>
</table>
Statistical evaluations of overall symptoms showed somewhat similar result in both the groups of patients. In cough, nasal discharge, nasal obstruction, throat inflammation, dyspnoea, nasal/eye itching, wheezing, headache, sneezing extremely significant improvement was seen in group A. Whereas in other symptoms such as impaired smell, fever, hoarseness of voice very significant improvement was seen in group A. In case of cough, nasal discharge, nasal obstruction, throat inflammation, dyspnoea, nasal/eye itching, wheezing, sneezing, fever, hoarseness of voice extremely significant improvement was seen in group B, whereas in impaired smell, headache very significant relief was seen. (Table no. IV)

After treatment the improvement % in Cough, Nasal discharge, Nasal obstruction, impaired smell, Throat inflammation, Dyspnoea, Nasal/eye itching, Wheezing, Headache, Fever, Sneezing and Hoarseness of voice in Group A were 38.59%, 33.92%, 45.96%, 44.99%, 70.95%, 46.86%, 51.51%, 47.71%, 27.91%, 19.56%, 36.77%, 45.42% respectively. After treatment the improvement % in Cough, Nasal discharge, Nasal obstruction, impaired smell, Throat inflammation, Dyspnoea, Nasal/eye itching, Wheezing, Headache, Fever, Sneezing and Hoarseness of voice in Group B were 38.88%, 39.27%, 52.77%, 47.39%, 67.84%, 51.59%, 42.84%, 54.79%, 30%, 28.57%, 52.30%, 55% respectively. (Table no. IV)
Statistical evaluations of laboratory parameters showed extremely significant results in Hb level, TLC, Neutrophil count, Eosinophil count, TEC and IgE level of both the groups and lymphocyte count showed the significant result in Group A and no significant result in group B. (Table No.V)

After treatment the improvement % in Hb%, TLC, Neutrophils, Lymphocytes, Eosinophil Count, TEC and IgE in Group A are 06.66%, 08.13%, 07.15%, 03.96%, 22.54%, 30.31%, 27.45% respectively. After treatment the improvement % in Hb%, TLC, Neutrophils, Lymphocytes, Eosinophil Count, TEC and IgE in Group B are 07.22%, 23.66%, 06.502%, 0.380%, 20.27%, 39.44%, 25.65% respectively. (Table No. V)

### Table No. VI Overall Improvement In Clinical Features In Both Groups

<table>
<thead>
<tr>
<th>Overall Improvement</th>
<th>Group-A</th>
<th></th>
<th>Group-B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Very Good</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Good</td>
<td>2</td>
<td>16.67</td>
<td>6</td>
<td>50.00</td>
</tr>
<tr>
<td>fair</td>
<td>9</td>
<td>75.00</td>
<td>6</td>
<td>50.00</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
<td>8.33</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Table No. VI showing overall assessment of improvement in clinical features after completion of clinical trial showed good improvement in 16.67% of clinical features, fair improvement in 75% of clinical features and poor (marginal) improvement in 8.33% of clinical features in Group-A. While in Group-B, 50% of clinical features showed good improvement in 16.67% of clinical features, fair improvement in 75% of clinical features and poor improvement in 16.67% of clinical features showed fair improvement.

**Discussion :**

**Discussion Regarding Mode Of Action Of Trial Drug**

Respiratory allergic disorders or allergy of Pranavaha Srotas mainly involves Pratishayaya and Shuasa Roga caused due to allergy. As described earlier the Dosha involved is Vata and Kapha. Dushya involved is Rasa Dhatu and Srotas affected are Pranavaha, Annavaha, and Rasavaha. Thus, the drug selected should have the potency to act simultaneously on Pranavaha, Annavaha, and Rasavaha Srotas i.e., it should possess Deepana, Pachana, Vata Kapha Shamaka, and Srotoshodhaka properties. For this action, the drug should be Laghu, Sukshma, Ushna, Teekshna in Guna.

The compound drug “Shirishadi syrup” is the combination of drugs having Amapachaka (Shunthi, Marich, Pippali), Rasayana (e.g. Pippali), Vishaghna (e.g. Shirisha), Shothahara (e.g. Shirisha, Pippali) and Shleshmahara (Pippali, Pippali, Pippali, Shunthi, Marich, Madhu), Juvarahara (Pippali) and Shulahara (Pippali, Shunthi), Vedana-Sthapan (Shirisha) properties.

The Study drug is having Katu, Tikta, Kashaya and Madhura rasa, Laghu, Ushna and Teekshna Guna and Katu Vipaka, Ushna Virya and Kapha Vata shamsaka properties. It shows Srotoshodhaka properties which may possibly assist to eliminate sluggish Dosha in the Srotas.

Katu, Tikta and Kashaya rasa, Ushna virya, and Laghu, Ushna, Teekshna guna having the properties of Kapha-Vilayana, Pachana, Srotoshodaka. Due to this liquification of Kapha dosha takes place resulting in clearing of respiratory tract on coughing.

Most of the drugs have Vata Kapha Shamaka properties. Shirishadi syrup is having potential properties of all eviating both Vata and Kapha dosha by virtue of Tikta, Katu, Kashaya Rasa, and Ushna Virya, Laghu, Teekshna and Ushna quality. Thus, Kapha Shamaka properties of drug help in breaking the Srotorodha and digestion of Ama, which leads to proper functioning of the Agni.

Some ingredients of the study drug having Rasayana (immunomodulator) properties, which helps to improve Dhatu both qualitatively and quantitatively. (e.g Piper longum,). Pippali is very good Rasayana for Pranavahasrotas which is the main site of manifestation of RAD.

The components of the study drug might have acted at various levels in breaking the pathogenesis of allergic disorders. Some hamper the immediate hypersensitivity reaction by inhibiting histamine release, or by inhibiting mast cell degranulation as for e.g. A.lebbeck, Piper longum depletes histamine from bronchial and lung tissues,[11],[12] Mast cell inhibitory activity is possessed by Piper longum.[12] On the other hand, some are effective for late phase allergy owing to the inhibitory action on leukotriene systems as or by reducing the eosinophil count. e.g. Pippali.[12]

The efficacy of the trial drug in reducing the nasal discharge is because of the Vata and Kapha Shamaka quality of the drug. The anti-allergic, anti-inflammatory and Rasayana effect of various ingredients is responsible for the overall relief in the symptoms, including nasal discharge, sneezing, itching etc. (e.g., Shirisha, Shunthi, Maricha, and Pippali).[12],[13]

A cough in RAD is mainly due to post-nasal dripping causing throat irritation. Improvement in a cough may be because of pacification of Vata and Kapha Dosha and removal of obstructing Kapha from the Pranavaha Srotas due to anti-tussive and mucolytic properties of the ingredients as Pippali.[11],[14]

Relief from dyspnea and reduction in wheezing was
because of relieving the obstruction in the passage of Pranawayu by Samakapha. The probable action of the drug was because of its Kapha Vatahara effect and Ushna Teeksna Guna. The relief might be the result of bronchodilator action of Pippali, Shirisha.\textsuperscript{[11],[12]} and Spasmolytic action of Pippali acts by inhibiting the contractile action of histamine by glycoside saponin.\textsuperscript{[13]} A. lebbek has potent mast cell stabilizing property also has antihistaminic effect by glycoside catechin.\textsuperscript{[16]}

Nasal obstruction, throat inflammation, loss of smell and hoarseness of voice are because of edematous and later on inflammatory changes in various target organs in the disease process. The study drug showed significant anti-inflammatory effect. (e.g. Shirisha, Shunthi, Maricha, and Pippali)\textsuperscript{[3,7,8,9]} Although as observed during the study that, very severe inflammation have shown lesser changes. Therefore, it may be suggested that the therapy may be continued further for the few more months. A headache is mainly because of allergic sinusitis accompanying the RADs. Significant relief from a headache after treatment was observed which might be due to anti-inflammatory properties of Shirisha, Shunthi, Maricha, and Pippali.\textsuperscript{[2,3,7,8,9]} In addition, Vata dosha get pacified and becomes responsible for the relief. Shunthi, Maricha, Pippali also proved to possess analgesic property.\textsuperscript{[12],[20],[21]}

Mild inflammation due to allergic reaction showed marked relief. It may be because of proven anti-inflammatory activity of Shunthi, Maricha, and Pippali.\textsuperscript{[7,8,9]}

Increased Hb % after treatment is suggestive of the effect of the trial drug in improving Rasa Dhatuatagni owing to the effect of Shunthi, Maricha, Pippali and thereby the quality of Rakta dhatu. In addition, the drug has Amapachaka and Srotoshodhaka effect. Thus, by cleansing the channels and by increasing the absorption, it has improved the appetite and digestive power of the patients.

Improvement in the status of leucocyte count shows the anti-inflammatory activity of the trial drug. It may be attributed to immunomodulatory and its anti-inflammatory effect of various components such as Shirisha and Trikatu i.e. Shunthi, Maricha, Pippali\textsuperscript{[3,7,8,9]} Eosinophils are key effector cells of the inflammatory response in RAD.\textsuperscript{[1]} Reduction in eosinophil and IgE is suggestive of potent anti-allergic and anti-inflammatory activity of the study drug such as Shirisha and Trikatu\textsuperscript{[2,3,7,8,9]}

Increased PEFR is suggestive of the fact that, the trial drug could have modified the existing airflow limitation caused due to obstruction. Trikatu i.e. Shunthi, Maricha, Pippali have Deepana, Pachana, and Amadoshahara properties.\textsuperscript{[22],[23],[24]} In addition, Madhu (honey) has Chhedana property. Thereby, the drug is helpful in restoring normal breathing. As Pippali acts as Rasayana on Pranvahasrotas, it may have worked on the quantitative and qualitative improvement of lung structure and function.

The insignificant change in the condition of the patient after follows up with respect to after treatment position is suggestive of the requirement of long-term therapy. From this research work, it has been concluded that along with anti-allergic & bronchodilator effect, the immunomodulatory regimen will play a key role in future therapies for allergic respiratory diseases. These treatment modalities may not only treat allergic disease but also be beneficial in reducing the morbidity and mortality for which it is responsible.

Psychological stress may be an additional environmental factor that worsen the oxidative toxicity\textsuperscript{[25]} the ingredients like, Pippali by their anti-stress activity are responsible for the regression of symptoms.\textsuperscript{[26]}

Thus, overall improvement in the condition of the patient of the study group may be because of the multidimensional properties of the drug. (Vatakaphahara, Deepana, Pachana, and Vatanulomana properties), which are essential for breaking down pathogenesis of RAD. The main factor in this disease as in many other diseases is Ama, and the Deepana-Pachana properties of the drug will digest the Ama by improving the Jatharagni as well as Rasagni and Bhutagni. Furthermore, the Sothahara
Karma of most of the contents will neutralize the Srotorodha in Pranavaha Srotasa due to Sotha created by Sama Vata.

**Conclusion**

Ayurveda can constitute a multidimensional approach for the treatment of RADs. It comprises of excellent drugs, Pathya Sevana, Nidan Parivarjana and Rasayana Sevana, which can be successfully used to deal with the RADs. Concisely, it can be concluded that the study drug “Shirishadi Syrup” and control drug “LOBODIL Susp.” both are somewhat equally effective in alleviating and reducing RADs in children. Prolongation of therapy for a few more months may provide more relief. No adverse effect, of the study drug, was observed during the study. As the study was conducted over a small group of patients, a similar study performed over a large sample for a longer duration could have presented much sharper and more accurate results. Further multicentric extensive study is needed to authenticate the results of the research work.

**References**


**Sarasangh:***

स्कूल जाने वाले बच्चों में ध्यान की अनुरूपता संबंधित रोग की व्यापकता भारत के विभिन्न भौगोलिक क्षेत्रों में 5.2% के बीच पायी गई है। इस रोग की व्यापकता में पृथ्वी के पर्यावरणीय कारकों, आहार जनित विसंगतियां और दौष्पूर्ण जीवन शैली को जिम्मेदार ठहराया जा सकता है। रोग की व्यापकता में वृद्धि के पर्यावरणीय कारकों, आहार जनित विसंगतियां और दौष्पूर्ण जीवन शैली को जिम्मेदार ठहराया जा सकता है। रोग की व्यापकता में कास प्रतिरोध व तमक रोग के चार संबंधित मान सकते हैं। इन शब्दों के निबन्धक पहलुओं में आयुर्वेद व्याख्याताओं के अनुसार अवधारणा रखते है तथा विभिन्न उपायों और व्यापारिक द्वारा इसे प्राप्त किया जा सकता है। इन तौर पर रोग के ध्यान में रखते हुए एक यान्त्रिक नियंत्रण परीक्षण 92 ह्मटों के लिए मेजरा बनाई गई जिसमें एक आयुर्वेदिक यौगिक शिशियाड़ी सीरियं और एक विभिन्न आयुर्वेदिक औषधि लोबोडिल सर्पेंशन उन बच्चों को जो रोग एल्जी किया (R.A.D) के साथ पीड़ित थे उनमें शिशियाड़ी सीरियं की प्रभावकारिता के मूल्यांकन करने के लिए दी गई। इस अध्ययन में रोग के अध्ययन के साथ संबंधित बच्चों के आयु वर्ग 5 से 10 साल नियरित करए एनआईए रूपावलय जयपुर के बाल रोग और और आयुर्वेदिक मेजरा से चयन किया गया। अध्ययनार्थ चयनित कुल 60 मरीजों को दो समूहों में विभाजित कर दिया मसूह में 30 रोगियों को आयोजित किया गया। आयु से और आयु से एक शिशियाड़ी सीरियं के साथ एक विभिन्न आयुर्वेदिक औषधि लोबोडिल सर्पेंशन दिये गये। साथियों को सर्पेंशन लक्षणों तथा प्रयोगशाला मानकों में अलग महत्वपूर्ण रेटिना दोनों समूहों में देखा गया था। साथियों हूण स्कूल के बाद यह निकाला गया था कि दोनों द्वारों का R.A.D के पूर्व लक्षणों में संदर्भ में समान रूप से रोग का अध्ययन के दौरान कोई दृष्टिकोन नहीं मिला।
“Chikitsyavishaghnyaiva Sa Shamam Labhate Narah|” (C. Chi. 3/118) An Assessment Of Immuno-Modulatory Effects Of Vishagna Mahakashaya In The Patients Of Anurjatajanya Tamaka Shvasa (Allergic Asthma)

*Dr. Shanker Lal Burdak, **Prof. Nisha Gupta

*Medical Officer, Department of Ayurveda, Govt. of Rajasthan at Govt. Ayurveda Hospital, RamjipuraKalan, Jaipur,
** Professor, P.G. Dept. of Basic Principles, NIA, Jaipur.

ABSTRACT

In the 21st century the stressful lifestyle has induced a number of many new and classically untold diseases. There are many allergic diseases mounting in incidence every day, one of them is allergic asthma. According to World Health Organisation 300 million individuals have asthma worldwide, it could increase to 400 million by 2025 if trends continue. 50% of them have allergic incidence. Ama has been a chief component in the pathogenesis of anurjata. Previous studies have provided the evidence in the favor of ama hypothesis. In the present work active phase of anurjata is taken in to consideration, so is the line of management. Detoxification in the form of sanshamana therapy as vishaghna mahakashaya was selected for the management of patients of anurjatajanya tamaka shvasa. The assessment of immuno-modulatory (balya) effects of vishaghna mahakashaya in the patients of allergic asthma was the chief objective of the study. For this evaluation a randomized clinical study was conducted in the patients of anurjatajanya tamaka shvasa with comparative active control group of shvasahara mahakashaya. Almost statistically equal efficacy was observed in both the groups but percentage of relief was more in Group A (vishaghna mahakashaya) in the comparison of Group B (shvasahara mahakashaya).

Keywords: Anurjatajanya Tamaka Shvasa, Anurjata, Vishaghna, Amavisha, Ama.

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Introduction:

Ayurveda is one of the most ancient systems of life, health and care. The first intend of Ayurveda is to maintain the healthy status of the people with the prevention of unborn diseases and second one is
to treat the already arisen diseases. That is how it is playing a significant role in the preservation of nation wise community health. In the 21st century the stressful lifestyle has induced a number of many new and classically untold diseases. These especially include diseases of immune system like Auto immune disorders and Allergic disorders.

Allergic diseases are extremely common with nearly 50% of the population being affected at some time during their life. This prevalence rate of allergies recently in the year 2013 has been verified and justified by a survey study carried out in a 1000 sample population.[3] Currently, about 20 to 30 per cent of people in India are having one or more allergic diseases and their prevalence is rising dramatically, the WAO said. Allergic diseases and asthma, like other non-communicable diseases, are escalating to epidemic proportions worldwide and up to 30-40% of the world’s population are now affected by some form of allergy.[3]

There are many allergic diseases mounting in incidence every day, one of them is allergic asthma. Allergic asthma is one of burning challenge for the medical system in the current scenario. Asthma is one of the most common chronic diseases worldwide. The World Health Organization (WHO) estimates 300 million individuals have asthma worldwide, a figure that could increase to 400 million by 2025 if trends continue.[4] 50% of them have allergic incidence. India has an estimated 15-20 million asthmatics and rough estimates indicate a prevalence of between 10% and 15% in 5-11 year old children.

In Ayurveda, there is not any direct reference regarding anurjata (Allergy) in samhitas but few references by Acharya Charaka and Sushruta show its incidence in the form of Abhishangaja disease resulting from vishtaushadhi, visheavriksha, visheanilasparsha (contact with poisonous drugs, poisonous trees, and poisonous air ) and other form of visha (pushpagandha etc.).[4][5] In the etiology of shvasaroga there is a clear mention of etiological factors like raja, dhuma(Allergens) and Amapradosha and visha (Underlying factors) for the manifestation of allergy.[6]

Ama has been a chief component in the pathogenesis of anurjata. A previous survey study of 1000 allergic patients by Dr. Abhijeet Kumbhar under the guidance of Dr. Nisha Gupta has provided the evidence in the favor of ama hypothesis.[7] That has clearly proved the role of ama in the pathogenesis of anurjata in one way or another. It is supposed that amavisha plays a significant role in the acute episodes of anurjata whereas amadosha remains active in the intermittent phases of attack episodes.

In the present work active phase of anurjata was taken in to consideration, so is the line of management. According to Acharya Charaka bhishangaja condition originating from the visha should be treated by the vishaghna therapy.[8] Detoxification in the form of sanshamana therapy as vishaghna mahakashaya[9] was selected for the management of patients of anurjatajanya tamaka shvasa. The assessment of immuno-modulatory (balya) effects of vishaghnamahakashaya in the patients of allergic asthma was the chief objective of the study along with the replacement of the modern anti-allergic drugs by a safe and effective alternate in Ayurveda.

For this evaluation a randomized clinical study was conducted in the patients of anurjatajanya tamakshvasa with comparative active control group of shvasahara mahakashaya.[10]

Aims and Objectives:

★ To establish the Principle “Chikitsya Vishaghnyaiva Sa Shama Labhate Narah|” (C. Chi. 3/118) of abhishangajyavara with special reference to anurjatajanya tamakshvasa (Allergic asthma)[11]

★ To assess the immuno-modulator (balya) effect of vishaghna mahakashaya in anurjatajanya tamaka shvasa (Allergic asthma).

★ To establish the role of Ama visha in the genesis of anurjatajanya tamaka shvasa(Allergic asthma) by samprapti vighatan by vishaghna therapy.

To evaluate comparative safety and efficacy of vishaguna mahakashaya and shwasahara mahakashaya in the management of anurjatajanya tamaka shvasa (Allergic asthma).

Materials And Methods:

Institutional Ethics Committee Clearance:

- Clinical study was approved by IEC, Order No. F10 (5)/EC/2014/7225

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

1. **Literary material and methods:** References was collected from classical Ayurvediya texts as well from previous research works/thesis, research articles from internet and modern science texts to understand the fundamental theories of allergy.

2. **Clinical material and methods:**

   - Selection of patients: Thirty Patients of anurjatajanya tamaka shvasa were selected randomly and divided in two groups of vishaguna and shwasahara mahakashaya, irrespective of age, sex, religion etc. from the O.P.D. and I.P.D. of Arogyasala, National Institute of Ayurveda, Jaipur. The patients were registered after obtaining their due consent.

   - Inclusion criteria:

     ✓ Diagnosed and confirmed cases of anurjatajanya tamaka shvasa(allergic asthma), on the basis of the clinical signs & symptoms mentioned in Ayurvediya texts and laboratory investigations.

     ✓ Patients between the age group of 16-60 years.

     ✓ Patients suffering with mild to moderate anurjatajanya tamaka shvasa (Allergic asthma).

   - Exclusion criteria:

     ✓ Patients having age below 16 and above 60 years.

     ✓ Patients having any Cardiac complaint as - cardiac asthma.

   - Patients having any other chronic and complicated respiratory disease as - COPD

   - Patients having allergic asthma with any other serious systemic disease.

Criteria for diagnosis

- Patients having signs and symptoms of anurjatajanya tamaka shvasaas mentioned in the modern medicine and relevant classical references were selected for present study. The patients suffering with chiefly triad of cardinals Dyspnea, Cough and Wheezes along with other associated symptoms were selected for the study mentioned as below; [18]

  - Ghurghurukam (Wheezing)

  - Ativativravega shvasa (Dyspnea of deep velocity)

  - Kasa(Cough)

  - Pratamyatyati (Fainting)

  - Trit (Thirst)

  - Sannirudhyate (Breathlessness)

  - Uddhvansate kanthah (Chocked throat)

  - Krichchhart Shaknoti bhashitum (Difficulty in speech)

  - Uchchhrit akshah (Projected eyeballs)

  - Lalaten svidyata (Profuse sweating of fore head)

  - Vishushk asyam (Dryness of mouth)

- Detailed history was taken on the basis of an especially designed proforma incorporating all the signs and symptoms of disease.

Laboratory Investigations

- Routine hematological investigations like CBC (Hbgm%, TLC, DLC), TEC and ESR were carried out in all patients to assess the condition of the disease and rule out any other pathology.

- Among the biochemical investigations IgE evaluation
was done in all the patients of anurjatajanya tamaka shvasa.

Study design

- **Sample size:** 30 patients were selected as the sample population for the study that was done in two groups carrying 15 each.
- **Randomization:** Simple

**Drugs and posology:**

- 20ml of respected kashaya (vishaghna and shvasahara) was administered to all the patients in both groups twice a day before meal. The duration of therapy was two months.

**Observations And Results:**

Maximum number of patients were from the age group 16-30 years (66.67%) followed by the patients from the age group 46-60 (20.00%). The highest numbers of registered patients were married. The total numbers were 15 (50.00%). About 25 (83.33%) number of registered subjects were belong to Hindu and rest of the subjects were Jain (Hindu) and Muslim religious. 21 (70.00%) number of patients were from urban area and 09 (30.00%) were from the rural area. The highest numbers 18 (60.00%) of patients were from upper middle class socio-economic status. About 33.33% from lower middle class. Then rests of the subjects were from lower (BPL) class socio-economic status. The highest number of cases were tea and coffee addicted. It was about 17 (56.66%) number of patients. Then tobacco addicted were 04 (13.33%). Smoker was 02 (06.67%) number of patents. The rest of was alcohol addicted. Family history of asthma was present in most of the patients (66.67%) total number of 20. Most of patients (53.33%) were in a good practice of regular diet habits while rest (46.67%) of patients were in a bad practice of irregular diet habits.

The highest numbers 30 (46.67%) of patients were vatapittaja prakriti. The second highest 10 (30.00%) patients were pittakaphaja prakriti. The remaining 23.33% was vatakaphaja prakriti. Maximum number of patients (63.33%) were found with visham agni followed by patients (26.67%) with manda agni. Sama agni was found in rest of the patients (10.00%). The highest numbers of 13 (43.33%) patients were madhyam koshtha out of 30 registered patients. The krura koshtha was shown in 11 (36.67%) number of patients. About 20.00% patients were mridu koshtha.

Maximum number of patients (53.33%) was having madhya sattva followed by the patients (46.67%) of avara sattva and no patient was found of pravara sattva. Majority of patients (63.33%) were screened with madhyam satmya followed by patients (36.67%) of avaras atmya. No patient was found pravar asatmya. Maximum no. of patients (53.33%) showed alpa abhyaharana shakti followed by patients (46.67%) of samyaka bhuyaharana shakti. Maximum number of patients (76.67%) was found with alpajarana shakti followed by patients (23.33%) with samyakjarana shakti. Majority of patients were found with avara vyayama shakti (63.33%) followed by patients (36.67%) with madhyam vyayama shakti. Most of the patients (46.66%) were found suffering since 0-1 year of duration followed by the patients (36.67%) of duration between 2-5 years and then by patients (10.00%) of duration greater than 10 years. Minimum patients (06.67%) were seen of duration 6-10 years. Maximum no. of patients were presented with srotorodha (100%) and anila mudhata (100%) followed by malasanga (73.33%) and then by balabhransa (60%). Apakti and Klama were screened in 53.33% patients each respectively. Alasya was seen in 43.33% patients followed by aruci and nishthiva in 33.33% and 30.00% of patients respectively. Gaurava was found in relatively less no. of patients (26.67%). House dust and weather changes were traced as the most potent anurjata trigger (96.67% each) followed by the cold (83.33%) and tobacco smoke (80.00%) almost of equal potency. Parks and fields (pollen season) were screened trigger in patients (43.33%) and exercise in patients (30.00%).

The symptoms of that ghurghurukam, ativativravega shvasa and sanirudhyate were found in all 30 (100%) number of registered patients. The symptoms kasa (96.67%) and vishushkasyam (73.33%) were seen...
in great majority followed by *uddhvansate kanthah* (63.33%), *trit* (53.33%), *lalate nasvidyata* (46.67%), and *krichhhrachhchhaknotibhashitum* (40.00%) of patients with *anurjatajanya tamaka shvasa*. *Pratamyatyati* and *uchchhritakshah* were found in 26.67% and 20.00% patients respectively.

Comparative results of Clinical recovery in 30 patients of two groups of *anurjatajanya tamaka shvasa* as described below:

**Table No. I: Effect On Ghurghurukam (Wheezing):**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Diff.</th>
<th>% of Change</th>
<th>SD ±</th>
<th>SE ±</th>
<th>p</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15</td>
<td>2.00</td>
<td>0.73</td>
<td>1.27</td>
<td>0.79</td>
<td>0.20</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
<tr>
<td>B</td>
<td>15</td>
<td>2.20</td>
<td>1.20</td>
<td>1.00</td>
<td>0.53</td>
<td>0.14</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
</tbody>
</table>

It was observed that maximum percentage of improvement was found in the patients of Group A (63.33%) followed by Group B (45.45%) and both groups were highly significant.

**Table No. II: Effect On Ativativravega shvasa (Dyspnea Of Deep Velocity):**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Diff.</th>
<th>% of Change</th>
<th>SD ±</th>
<th>SE ±</th>
<th>p</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15</td>
<td>2.13</td>
<td>1.00</td>
<td>1.13</td>
<td>0.51</td>
<td>0.13</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
<tr>
<td>B</td>
<td>15</td>
<td>2.20</td>
<td>1.40</td>
<td>0.80</td>
<td>0.68</td>
<td>0.17</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
</tbody>
</table>

It was observed that maximum percentage of improvement was found in the patients of Group A (53.13%) followed by Group B (36.36%) and both groups were highly significant.

**Table No. III: Effect On Kasa (Cough):**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Diff.</th>
<th>% of Change</th>
<th>SD ±</th>
<th>SE ±</th>
<th>p</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15</td>
<td>1.60</td>
<td>0.40</td>
<td>1.20</td>
<td>0.67</td>
<td>0.17</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
<tr>
<td>B</td>
<td>15</td>
<td>1.80</td>
<td>0.53</td>
<td>1.27</td>
<td>0.59</td>
<td>0.15</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
</tbody>
</table>

It was observed that maximum percentage of improvement was found in the patients of Group A (75.00%) followed by Group B (70.37%) and both groups were highly significant.
Table No. IV: Effect On Sannirudhyate (Breathlessness):

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Diff.</th>
<th>% of Change</th>
<th>SD ±</th>
<th>SE ±</th>
<th>p</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>15</td>
<td>2.0</td>
<td>1.07</td>
<td>0.93</td>
<td>46.67</td>
<td>0.59</td>
<td>0.15</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>B</td>
<td>15</td>
<td>2.27</td>
<td>1.40</td>
<td>0.87</td>
<td>38.23</td>
<td>0.74</td>
<td>0.19</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

It was observed that maximum percentage of improvement was found in the patients of Group A (46.67%) followed by Group B (38.23%) and both groups were statistically highly significant.

Table No. (V): Showing The Percentage Of Improvement In Subjective Parameters In 30 Registered Patients In Two Groups:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Subjective Parameter</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ghorghurukam (Wheezing)</td>
<td>63.33%</td>
<td>45.45%</td>
</tr>
<tr>
<td>2.</td>
<td>Ativativravega Shvasa (Dyspnea of deep velocity)</td>
<td>53.13%</td>
<td>36.36%</td>
</tr>
<tr>
<td>3.</td>
<td>Kasa (Cough)</td>
<td>75.00%</td>
<td>70.37%</td>
</tr>
<tr>
<td>4.</td>
<td>Pratamyatyati (Fainting)</td>
<td>60.00%</td>
<td>40.00%</td>
</tr>
<tr>
<td>5.</td>
<td>Trit (Thirst)</td>
<td>78.95%</td>
<td>53.85%</td>
</tr>
<tr>
<td>6.</td>
<td>Sannirudhyate (Breathlessness)</td>
<td>46.67%</td>
<td>38.23%</td>
</tr>
<tr>
<td>7.</td>
<td>Uddhvansatekanthah (Chocked throat)</td>
<td>52.39%</td>
<td>47.37%</td>
</tr>
<tr>
<td>8.</td>
<td>Krichchhart Shaknoti bhashitum (Difficulty in speech)</td>
<td>72.73%</td>
<td>53.33%</td>
</tr>
<tr>
<td>9.</td>
<td>Uchchhritakshah (Projected eyeballs)</td>
<td>50.00%</td>
<td>50.00%</td>
</tr>
<tr>
<td>10.</td>
<td>Lalaten asvidyata (Profuse sweating of fore head)</td>
<td>63.64%</td>
<td>62.50%</td>
</tr>
<tr>
<td>11.</td>
<td>Vishushkasyam (Dryness of mouth)</td>
<td>55.56%</td>
<td>23.81%</td>
</tr>
</tbody>
</table>

Table No. VI: Showing Comparative Symptomatic Improvement In The Patients Of Two Different Groups After Therapy:

<table>
<thead>
<tr>
<th>Group</th>
<th>%age of Relief</th>
<th>Improvement</th>
<th>p</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>60.85</td>
<td>Moderate</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
<tr>
<td>B</td>
<td>46.36</td>
<td>Mild</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
</tbody>
</table>
Table No. VI: Showing Comparative Symptomatic Improvement In The Patients Of Two Different Groups After Therapy:

<table>
<thead>
<tr>
<th>Group</th>
<th>% age of Relief</th>
<th>Improvement</th>
<th>p</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>60.85</td>
<td>Moderate</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
<tr>
<td>B</td>
<td>46.36</td>
<td>Mild</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
</tbody>
</table>

Table No. VII: Effect On Serum IgE:

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Diff.</th>
<th>% of Change</th>
<th>SD ±</th>
<th>SE ±</th>
<th>T</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>15</td>
<td>478.2</td>
<td>356.2</td>
<td>122</td>
<td>25.50</td>
<td>38.4</td>
<td>3.17</td>
<td>&lt;0.01</td>
<td>S</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&gt;0.001</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>15</td>
<td>408.8</td>
<td>321.3</td>
<td>87.44</td>
<td>21.38</td>
<td>23.2</td>
<td>3.77</td>
<td>&lt;0.01</td>
<td>S</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&gt;0.001</td>
<td></td>
</tr>
</tbody>
</table>

It was observed that maximum percentage of improvement was found in the patients of Group A (25.50%) followed by Group B (21.38%) and both groups were statistically significant.

Table No. VIII: Effect On TEC:

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Diff.</th>
<th>% of Change</th>
<th>SD ±</th>
<th>SE ±</th>
<th>T</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>15</td>
<td>352.1</td>
<td>225.2</td>
<td>126.8</td>
<td>36.01</td>
<td>39.6</td>
<td>3.20</td>
<td>&lt;0.01</td>
<td>S</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&gt;0.001</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>15</td>
<td>556.7</td>
<td>431.4</td>
<td>125.2</td>
<td>22.50</td>
<td>43.9</td>
<td>2.84</td>
<td>&lt;0.01</td>
<td>S</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&gt;0.001</td>
<td></td>
</tr>
</tbody>
</table>

It was observed that maximum percentage of improvement was found in the patients of Group A (36.01%) followed by Group B (22.50%) and both groups were statistically significant.
Table No. IX: Showing The Percentage Of Improvement Of Objective Parameters In 30 Registered Patients In Two Groups:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Objective Parameter</th>
<th>Group A (%)</th>
<th>Group B (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Serum IgE</td>
<td>25.50</td>
<td>21.38</td>
</tr>
<tr>
<td>2.</td>
<td>ESR</td>
<td>39.38</td>
<td>24.09</td>
</tr>
<tr>
<td>3.</td>
<td>TEC</td>
<td>36.01</td>
<td>22.50</td>
</tr>
<tr>
<td>4.</td>
<td>FVC (%)</td>
<td>27.21</td>
<td>18.47</td>
</tr>
<tr>
<td>5.</td>
<td>FEV₁ (%)</td>
<td>37.22</td>
<td>21.43</td>
</tr>
<tr>
<td>6.</td>
<td>FEV₁/FVC (%)</td>
<td>08.71</td>
<td>03.13</td>
</tr>
<tr>
<td>7.</td>
<td>PEFR (%)</td>
<td>24.87</td>
<td>08.59</td>
</tr>
<tr>
<td>8.</td>
<td>Peak Expiratory Flow (L/m)</td>
<td>08.50</td>
<td>03.54</td>
</tr>
</tbody>
</table>

Table No. X: Overall Effect Of Therapy:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Effect of therapy</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>% age</td>
<td>No.</td>
</tr>
<tr>
<td>1.</td>
<td>Complete relief</td>
<td>00</td>
<td>00</td>
</tr>
<tr>
<td>2.</td>
<td>Marked relief</td>
<td>04</td>
<td>01</td>
</tr>
<tr>
<td>3.</td>
<td>Moderate relief</td>
<td>07</td>
<td>05</td>
</tr>
<tr>
<td>4.</td>
<td>Mild relief</td>
<td>03</td>
<td>08</td>
</tr>
<tr>
<td>5.</td>
<td>No relief</td>
<td>01</td>
<td>01</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

Overall effect of therapy

It is shown in the table that in Group A 46.67% patients got moderate relief from the therapy followed by marked relief in 26.67% patients. 20% patients got the mild relief whereas 6.66% patients got no relief. In Group B 53.33% patients showed the mild relief followed by 33.33% patients with moderate relief. Marked relief was found in 06.67% patients whereas 06.66% patients showed no relief.
Discussion:

**Discussion on demographic data:**

**Age** wise distribution showed that maximum number of patients were (66.67%) from the age group 16-30 years. This maximum incidence in the age group 16-30 probably shows the peak struggling age during which environmental pollution like *raja, dhuma* etc. and stress of carrier building with no time to proper health care play a significant role in the prevalence of disease. **Sex** wise distribution revealed the male predominance (76.67%) of *anurjatajanya tamaka shvasa* followed by females (23.33%). Data collected by National Family Health Survey-2 (NFHS-2) in India during 1998-99 showed that prevalence rate of asthma slightly higher in males than among females. This observation is supported by the relative more risk of males to *anurjatajanya tamaka shvasa*. **Heredity** wise distribution showed the maximum number of patients (66.67%) with the heredity of allergic asthma followed by the patients (20.00%) with no hereditary disposition. This strongly authenticates the genetic causes of *anurjata*. **Habitat** wise distribution provides data regarding the environment, life style and exposure to aggravating factors. It was observed from that patients from urban Habitat (70.00%) were more than rural area (only 30.00%), though both are equally susceptible. this may be because location of the center of the trial. The National Institute of Ayurveda is situated in Jaipur which is the urban city. The urban area is more polluted, polluted air in the atmosphere due to chemical fumes from the industry and the emission of automobile vehicles is a major cause of aggravation of symptoms in patients. Similarly, cigarette smoking is very common in urban area. The patients who do not smoke can also suffer from passive smoking in congested working places in city. Working in night shifts which lead to day sleep (*divasvapa*) and *dosha prakopa* which further leads to formation of *Ama* and finally results in *anurjata*. In winter and rainy season, patients from both habitats especially from rural habitat are more exposed to ‘pragvayu’ and ‘kapha-vata’ vitiating *nidana*. Exposure
to extreme cold breeze, which aggravate vata but also precipitate the attacks of Asthma is common in rural areas where people (farmers) usually work in the fields. 

**Diet** habits wise shows 46.67% patients were having irregular diet habits. These facts indicate about the busy life style and not getting regular time for a nutritious diet that further results in *mandagni* causing more production of *ama* and more incidences of *anurjata*. **Socio** economic status wise shows that maximum number of patients (60.00%) were from upper middle socio-economic status followed by the patients (33.33%) of lower middle socio-economic status. Stressful life style and insufficient means for proper health care in the middle class might be contributing in this respect. **Status** of *Agni* shows that maximum number of patients (63.33%) with *vishamaagni* followed by patients (26.67%) with *mandaagni*. Both these conditions support the active role of *agni* in the *anurjatajanya* diseases by causing *agnimandya* and producing *ama* in the body. 

**Koshtha** wise distribution in revealed the maximum number of patients of *anurjatajanya tamaka shvasa* (43.33%) were found with madhyam koshtha followed by patients (36.67%) showing krura koshtha. *Krura koshtha* illustrating the *apanavayu dushti* especially in the condition of *pranavaha srotas anurjata*. **Prakriti** wise distribution exposed that maximum number of patients (46.67%) belonged to *vatapittaja prakriti* followed by patients (30.00%) with *pitta kaphaja prakriti* and patients (Group 23.33%) of *vatakaphaja prakriti*. **Prakriti** assessment is an important diagnostic tool in *Ayurveda*. 

**Anurjata** being *vatolivana sannipataja* disorder persons with *vata* predominant *prakriti* are more susceptible to *anurjatajanya* diseases and that is supported by the data. 

**Sattva and Satmya** wise distribution revealed maximum number of patients (53.33%, 63.33%) with madhyam sattva and satmya. This signifies the importance of mental strength as well as psycho-somatic relationship for the development and precipitation of *anurjata*. Satmya is referred for compatibility and shows the tolerance of a person to certain substances. In case of madhyamsatmya sensitivity is increased to *anurjaskara* factors resulting in recurrence of disease. 

**Abhyaharana shakti** wise distribution showed alpa abhyaharana shakti in patients (53.33%). This indicates the low status of *jatharagni* in those patients. **Jaranashakti** wise distribution exhibited maximum number of patients (76.67%) with alpajarana shakti. This stated poor condition of *jatharagni* in the patients of *anurjatajanya tamaka shvasa*. 

**Vyayamashakti** wise distribution showed majority of patients with avaravyayama shakti (63.33%) followed by patients (36.67%) with madhyamvyayama shakti. These data support the progress of increased sedentary lifestyle in the modern times thereby resulting in invitation to a number of new disorders in the community including *anurjata*. 

**Addiction** wise distribution showed that majority of the patients (56.66%) in the present work were found to be addicted for tea/coffee. While 13.33% patients were addicted with tobacco/smoking. Some patients were taking alcohol (06.67%) and *pana/supari* (06.67%) along with tea or cigarettes smoking. Considering this data, patients are habituated to intoxicating substances like tea/coffee, alcohol, *pana/supari*, cigarette smoking. Even if these are not allergens, they are potential irritants and their sympathomimetic action can defiantly aggravate the disease. Revealing above data, it shows that addiction to smoking plays a key role in development of asthma. Similarly maximum patients are found to addict to tea or
coffee. According to modern medical science, tobacco smoke damage tiny hair-like structures in the airways allowing dust and mucus to accumulate in the airways.\textsuperscript{[19]}\textsuperscript{[20]} That is why smoking is both 

\textit{utpadaka} and \textit{vyanjaka nidana} of \textit{shvasa} by affecting the \textit{pranavahasrotas}. These are the factors which increase the chances of \textit{anurjatajanya tamaka shvasa} and these patients were advised to stop taking these things. \textbf{Kala of manifestation} wise distribution indicates about the occurrence of \textit{anurjatajanya tamaka shvasa} in winter season in majority of patients (43.33\%) followed by the perennial occurrence (30.00\%). Next high manifestation was seen in spring season (16.67\%) and least patients (10.00\%) complained the \textit{anurjatajanya tamaka shvasa} in rainy season. This is supported by the relevant documentation of registration of patients with allergy during these months. \textbf{Symptom} wise distribution suggests that \textit{ghurghurukam} (100\%), \textit{ativativravega shvasa} (100\%), \textit{sannirudhyate} (96.67\%) and \textit{vishushkasyam} (73.33\%) were seen in great majority followed by \textit{uddhvansate kanthah} (63.33\%), \textit{trit} (53.33\%), \textit{lalate nasvidyata} (46.67\%), and \textit{Krichchhart Shaknoti bhashitum} (40.00\%) of patients with \textit{anurjatajanya tamaka shvasa}. \textit{pratamayatyati} and \textit{uchchhritakshah} were found in 26.67\% and 20.00\% patients respectively. Above observations suggests the predominance of \textit{vatadosha} in this disease. \textbf{Chronicity} wise distribution showed most of the patients (46.66\%) were found suffering since 0-1 year of duration followed by the patients (36.67\%) of duration between 2-5 years and then by patients (10.00\%) of duration greater than 10 years. Minimum patients (06.67\%) were seen of duration 6-10 years. This simply indicates about chronic nature of \textit{anurjata} as well as no faith attitude of general public to \textit{Ayurveda} in acuteness of disease. \textbf{Anurjata} symptom trigger wise revealed that that house dust and weather changes were traced as the most potent \textit{anurjata} trigger (96.67\% each) followed by the cold (83.33\%) and tobacco smoke (80.00\%) almost of equal potency. Parks and fields (pollen season) were screened trigger in patients (43.33\%) and exercise in patients (30.00\%). Animal exposure, smell of sprays and perfumes, humid days, air condition and windy days played a role of trigger in 16.67\%, 13.33\%, 13.33\%, 10\% and 03.33\% patients respectively. Researches published on ‘Seasonal periodicity of house dust mite population’ (Aspects of allergy and applied immunology) indicate that mite population present in house dust show periodic increase and decrease with the change of season. It appears that more rapid growth of these organisms occur in a season when temperature is moderate and relative humidity is high in the atmosphere e.g. maximum positivity in the months of August and September. Slow growth or no growth is seen in relatively dry plus too hot or too cold conditions e.g. minimum positivity of house dust mite in the months of March, April and May. Climate change is related with the change in humidity and temperature those vitiate the \textit{dosas} and cause onset of \textit{anurjata}. \textbf{Ama laksana} presence wise, maximum no. of patients presented with \textit{srotorodha} (100\%) and \textit{anila mudhata} (100\%) followed by \textit{malasanga} (73.33\%) and then by \textit{balabhransha} (60\%). \textit{Apakti} and \textit{Klama} were screened in 53.33\% patients each respectively. \textit{Alasya} was seen in 43.33\% patients followed by \textit{aruchi} and \textit{nisthiva} in 33.33\% and 30.00\% of patients respectively. \textit{Gaurava} was found in relatively less no. of patients (26.67\%). \textit{Srotorodha} and \textit{anila mudhata} are cardinal symptoms of
pranavaha srotodusti where as malasanga indicates the vitiated condition of apana vayu. Balabhransha indicates about the poor condition of energy as well as immunity in the body due to its inappropriate nourishment due to agnimandya.\[^{[1]}\] Ama lakšana grading wise distribution showed that majority of patients (63.32%) were with moderate grade of Ama lakšana followed by patients with severe grade (30.00%). Minimum no. of patients (06.67%) showed mild grade. This proved that Ama is essentially an important predisposing factor in the mechanism of anurjata.

**Discussion on Total Effect of Therapy:**

**Symptomatic Improvement (Improvement in subjective parameters):**

**Group A (vishaghna mahakashaya):** The patient of Group A who were treated with vishaghna mahakashaya showed (table no. v) maximum percentage of improvement in symptoms of Trit(78.95%) followed by Kasa(75%), Krichchhart Shaknoti bhashitum(72.73%), Lalaten svidyata(63.64%), Ghurghurukam(63.33%), Pratamyatyati(60%), Vishushkasyam(55.56%), Ativativr vegashvasa(53.13%), Uddhvansatekanthah(52.39%), Uchchhritakshah(50%) and Sannirudhyate(46.67%). The overall improvement in the patient of Group A was found to be 60.85% which is moderate improvement symptomatically and statistically it is highly significant (P < 0.001) (table no. vi).

**Group B (Shvasahara mahakashaya):** The patient of Group B who were treated with shvasahara mahakashaya showed (table no. v) maximum percentage of improvement in symptoms of Kasa(75%), Trit(53.85%), Krichchhart Shaknoti bhashitum(53.33%), Lalaten svidyata(53.33%), Ghurghurukam(45.45%), Pratamyatyati(40%), Vishushkasyam(38.23%), Ativativr vagashvasa(36.36%), and Vishushkasyam(38.23%). The overall symptomatic improvement in the patient of Group B was found to be less Group A which was 46.36%, which is mild improvement symptomatically and statistically it is highly significant. (P < 0.001) (table no. vi)

On statistical basis, it is clear that there was highly significant improvement were observed in all the patients of both groups (P < 0.001) but on the basis of mean percentage, maximum symptomatic improvement was observed in patients of Group A (60.85%), where as comparatively less symptomatic relief was observed in the patients of Group B (46.36%). Thus the fastest and maximum improvement was found in Group A (vishaghna mahakashaya), this shows that combined effect is better than Groups B. (table no. vi)

**Improvement (change) in objective (laboratory) parameters:**

Serum IgE, total eosinophil count (TEC), ESR, spirometry (FVC, FEV1, PEFR) and peak expiratory flow werecarriedout for evaluation of patients on the basis of laboratory parameters whereas routine blood investigation like CBC (Hbgm%, TLC, DLC) were carried out to rule out any other pathology.

**Group A (vishaghna mahakashaya):** Eosinophils are the chief cellular component in the inflammatory reactions of the body. The patient of Group A who were treated with vishaghna mahakashaya showed significant reduction in eosinophil count (TEC) (36.01%), which indicates the anti-inflammatory and anti-allergic properties of the vishaghna mahakashaya. Significant reduction (Statistically insignificant, p value >0.01) of ESR (39.38%) justifies its anti-inflammatory activity. Significant reduction of IgE (25.50%) is indicative of its potent anti-allergic and immuno modulatory activity. On Pulmonary function test, there was significat improvement of FVC (27.21%), which was statistically highly significant (p value <0.001). FEV1 was increased by 37.22% which was statistically highly significant result (p <0.001). FEV1/FVC (%) was increased by 08.71% and PEFR (%) was increased by 24.87% which was statistically not significant result (p>0.01). Peak expiratory flow (L/m) was increased by 08.50% which was statistically highly significant result (p<0.001) (table no. ix). These results indicates that strotovarodha of pranavaha srotas is removed by the drug, which is justifies its Amapachana.
activity.

**Group B (shvasahara mahakashaya):** The patient of Group B who was treated with shvasahara mahakashaya showed significant reduction in eosinophil count (TEC) (22.50%), which indicates the anti-inflammatory and anti-allergic properties of the shvasahara mahakashaya. Significant reduction (Statistically not significant, p value >0.01) of ESR (24.09%) justifies its anti-inflammatory activity. Significant reduction of IgE (21.38%) is indicative of its potent anti-allergic and immuno modulatory activity.

On Pulmonary function test, there was significat improvement of FVC (18.47%), which was statistically highly significant (p value <0.001). FEV1 was increased by 21.43% which was statistically significant result (p <0.01). FEV1/FVC (%) was increased by 03.13% and PEFR (%) was increased by 08.59% which was statistically not significant result (p>0.01). Peak expiratory flow (L/m) was increased by 03.54% which was statistically highly significant result (p<0.001) (table no. ix). These results indicates that strotovarodha of pranavaha srotas is removed by the drug, which is justifies its Amapachana and srotoshodhana properties.

**Conclusion:**

The conclusions drawn from the clinical study are as follows:

- Anurjatajanya tamaka shvasa may be a hereditary (sahaja) disease or can develop later in life because of other factors.
- Anurjatajanya tamaka shvasa is a vatovlana sannipataja disease.
- Anurjatajanya tamaka shvasa(allergic asthma) is one of the most prevalent life style disorder diseases in the current era of modernization and urbanization.
- Its non-mention in Ayurveda classics by any specific name but parallel description of relevant disorders indicate about non or very remote occurrences of this disorder because of exogenous factors.
- Unlike allergy in modern literature anurjatajanya shvasa is not entirely allergen based disorder, but malpractices in dietary intake predispose a person to susceptibility of anurjata by increase in amavdosha due to agnimandya conditions in jathara as well as dhatus.
- In a person previously afflicted by some poison (visha) or some toxic effects of a drug, the poison is retained by body in an inactive or latent stage. This latent stage is provoked by intake of viruddha ahara, adverse environmental conditions etc. and that person are captured by the sannikrishta anurjaskara factors like dust, and smoke etc. results in anurjatajanya shvasa.
- Relating about the symptoms of allergic asthma, these are very strongly comparable to the tamaka shvasa. All these are described broadly in Ayurveda.
- Although un-precedental by name in Ayurveda, all the clinical parameters were screened in abundance in three treatises of brihattrayi. The highly significant results of trial drug in present study clearly indicate that Ayurveda is well efficient for the management of all kinds of asthma by its multi-dimensional approach.
- The patients of anurjatajanya shvasa(allergic asthma) need continuous and long duration treatment. As the treatment is withdrawn the symptoms may show recurrence.
- Vishaghna mahakashaya is efficacious in alleviating and reducing the morbidity of anurjata in the comparison of shvasahara mahakashaya.
- Vishaghna mahakashaya, drug of vishaghna effect is clinically established as an anti-allergic and a safe alternative medicine.
- No adverse effect was observed during the study period of trial drug.
- Patients of Group A (vishaghna mahakashaya) showed statistically highly significant results in the symptoms like ghurghurukam, ativativravega...
shvasa, kasa, and sannirudhyate; significant results in trit, Uddhvasate kanthah, and vishushkasyam and non-significant results in pratamayatati, Krichchhart Shaknoti bhaskitum, uchehritatkshah and lalate nasvidyata. On the other hand patients of Group B i.e. shvasahara mahakashaya showed statistically highly significant results in the symptoms like ghurghurukam, ativativravega shvasa, kasa, and sannirudhyate; significant results in trit, uddhvasate kanthah, lalate nasvidyata and Krichchhart Shaknoti bhaskitum and non-significant results in pratamayatati, uchehhr akshah and vishushkasyam.

Statistically significant reduction in Serum IgE, Eosinophils (TEC) and ESR was observed in patients of both groups, but % of change is more in Group A in the comparison of Group B showed vishaghna mahakashaya immuno modulatory activity in the body.

Statistically significant improvement in FVC (%) and peak expiratory flow was observed in patients of both groups, but % of change is more in Group A in the comparison of Group B.

Almost statistically equal efficacy was observed in both the groups but % of relief is more in Group A in the comparison of Group B.

References


सारांश:

21 वीं सदी में तनावपूर्ण जीनशैली के कारण विभिन्न नई और शारीरिक अवर्जित बालिकाओं की उत्पत्ति हुई है। विशेष रूप से इनमें प्रतिष्ठा प्राप्त की ज्यादा विवरण विवाह आंतरिक फूल विकार तथा अनूज्ताताज्य विकार शामिल है। विश्व स्वास्थ्य संगठन के अनुसार दुनिया भर में 300 मिलियन व्यक्ति का स्वास्थ्य प्रश्न योग्य है जिसमें यह प्रबुद्धता जारी रही तो यह आकड़ा 2025 तक 400 मिलियन तक बढ़ सकता है। उनमें से पांच प्रतिशत अनूज्ताताज्य कारणों से प्रभावित हैं। आम अनूज्तातात्त्विक उत्पत्ति में एक प्रमुख घटक है। आम प्रक्रिया के पक्ष में पूर्ववर्ती अध्ययनों ने प्रमाण उपलब्ध कराया है। वर्तमान कार्य में अनूज्तात्त्विक की स्वास्थ्य अवस्था को ध्यान में रखा गया है इसलिए यह इसका चिकित्सा सूत्र है। विषयानुसार हेतु श्रमण शिक्षा के रूप में विष्णु महाकाश्य को अनूज्ताताज्य विकार के रोगियों की चिकित्सा के लिए पुनः गठित गया था। अनूज्ताताज्य तंत्र के रूप में विष्णु महाकाश्य को ध्यान में रखा गया है। इस मूल्यांकन के लिए अनूज्ताताज्य तंत्र के रूप में श्वसन महाकाश्य के तुलनात्मक स्वास्थ्य नियंत्रण समूह के अलावा वातावरणिक चिकित्सीय अध्ययन आयोजित किया गया था। दोनों समूहों में सांख्यिकीय रूप से लगभग बराबर प्रभावकारी प्राप्त हुई लेकिन राहत का प्रतिशत गुप्त बी (श्वस्थरमहाकाश्य) की तुलना में गुप्त ए (विष्णुमहाकाश्य) में अधिक प्राप्त हुआ।
A Clinical evaluation of safety and efficacy of ‘Triphaladi Kwatha’ and ‘Karanjadi lepa’ in the management of Vicharchikia [Neuro Dermatitis]

*Dr. Monu Gupta, **Dr. Harish Bhakuni, ***Dr. Jai Prakash Singh, ****Prof. Puneet Bhargava

*Lecturer, M.M.M. Govt. Ayurveda College Udaipur, **Associate Prof. Dept of Kayachikitsa, N.I.A, Jaipur
***Associate Prof. BHU Varanasi, ****Professor, Dept. Of Dermatology, S.M.S. Medical College, Jaipur.

ABSTRACT

Eczema (also called dermatitis) is an inflammatory, chronically relapsing, non-contagious and extremely pruritic skin disease. With a prevalence of 2-5% (in children and young adults approximately 10%), atopic eczema is one of the most commonly seen dermatoses. In Ayurveda counterpart it can be correlated with Vicharchika having symptoms Kandu, Pidika, Syava, Bahusrava. To develop effective Ayurvedic therapy the study was conducted in 25 clinically diagnosed patients of Vicharchika (Dermatitis).

All patients were advised Triphaladi Kwatha orally and Karanjadi Lepa for Local application. Study was carried out for one month. Result of study shows that there is highly significant result in EASI (Eczema Area and Severity Index) Score (which is main criteria of assessment of Eczema), Daha, Srava, Pidika, Vaivarnata, Raji, Hamilton Depression Scale, statistically as well as clinically and Significant result in Kandu (Itching Index).

Keywords: Vicharchika, Triphaladi Kwatha, Karanjadi Lepa, EASI Score, Hamilton Depression Scale.


Introduction:

Eczema is a clinical and histological pattern of inflammation of the skin seen in a variety of dermatoses with widely diverse aetiologies. Clinically, eczematous dermatoses are characterized by variable intensity of itching and soreness, and, in variable degrees, a range of signs including dryness, erythema, excoriation,
exudation, fissuring, hyperkeratosis, lichenification, papulation, scaling and vesiculation[1]. Histologically, the clinical signs are reflected by a range of epidermal changes including spongiosis (epidermal oedema) with varying degrees of acanthosis and hyperkeratosis, accompanied by a lymphohistiocytic infiltrate in the dermis. The term ‘Eczema’ & ‘Dermatitis’ are synonyms[2].

In Ayurvedic classics skin disorders are described under one broad term called Kushtha Roga, Careful study shows that there is resemblance in symptoms of Vicharchika and Dermatitis. Symptoms of Vicharchika mentioned by Acharya Charaka[3] are similar with wet eczema or acute eczema & features mentioned by Acharya Susruta[4] are similar with dry eczema or chronic eczema. Though the disease, Vicharchika is not life threatening, it makes the patient worried due to its appearance, severe itching, disturbing routine and its chronic nature. Due to its chronic and recurrent nature, it has a great impact on the quality of life of the patients.

Eczema (also called dermatitis) is an inflammatory, chronically relapsing, non-contagious and extremely pruritic skin disease, with a prevalence of 2–5% (in children and young adults approximately 10%), atopic eczema is one of the most commonly seen dermatoses. (World Allergy Organization [5])

In modern science and Ayurveda a lot of research work has been done on etiology, pathophysiology and treatment of dermatitis. But still now effective and promising cure for dermatitis is not found. Allopathic drugs have hazardous side effects. So there is a need of era to develop some herbal treatment for dermatitis so, this study was planned.

**Aims & Objectives**

- Clinical evaluation of the safety and efficacy of ‘Triphaladi Kwatha’ and ‘Karanjadi lepa’ in the management of Vicharchika.

**Material & Method**

**Selection of patient:**
The study was conducted on 25 clinically diagnosed and confirmed cases of Vicharchika (Neurodermatitis) from OPD and IPD section of Kayachikitsa department, Arogyashala, National institute of Ayurveda, Jaipur.

**IEC Approval:** Clinical study was approved by IEC, order no. F10(5)/EC/2014/7219 Dated 07/11/2014.

**Inclusion criteria:**
1. Patients willing for trial.
2. The patients who ages in between 16–70 years were selected.
3. The patients having clinical signs and symptoms of vicharchika (Neuro dermatitis).
4. The patients having disease less than 5 years duration.

**Exclusion criteria:**
2. Patients having concomitant illness like HTN, DM-II.
3. Patients with evidence of malignancy.
4. Smoker/ alcoholics and/or drug abusers.
5. Pregnant or lactating women.

**Criteria for Diagnosis:**
1. Classical signs & symptoms of Vicharchika (Neurodermatitis) according to Ayurveda and Modern system of medicine.
2. A special Proforma was prepared incorporating all the signs & symptoms of Vicharchika and Eczema as well as the Dushti Lakshana of Dosha, Dushya, Srotas and Agni etc. On the basis of the Proforma, all the patients of the present study were examined in detail.

**Method of study (protocol of Study):**

**Consent:** Written informed consent was taken on prescribed Proforma before the inclusion of patient in trial. They were briefed about merits and demerits of research plan before taking consent.

**Randomization of patients:**

Total 25 clinically diagnosed and registered patient of Vicharchika were treated by Triphaladi Kwatha (40 ml), before meal two times in a day for 30 days and Karanjadi lepa twice daily for 30 days application on the lesion of Vicharchika.

**Trial Drug:**

1. **Triphaladi Kwatha;**

*Triphaladi Kwatha contain drugs:* Amalki, Haritki, Vibhitki, Nimba, Manjistha, Vacha, Patola, Rajni, Rohini. in equal amount.

*Preparation of trial drugs:* At first Yavakutta churna was prepared by all nine drugs from GMP certified, and than was instructed to make the Kashaya. Kwatha of the Yavakutta drugs was prepared according to the instruction given in “Kwatha kalpana”.

**Dose:** 40ml twice daily

**Dosage form:** Kwatha

**Duration:** Twice a day before meal

**Method of administration:** oral

2. **Karanjadi Lepa ;**

*Karanjadi Lepa contain drugs:* Karveera, Kustha, Chakramardaa long with Gomutra.

*Preparation of trial drugs:* Firstly paste is made with the help of Gomutra of above three drugs in equal amount (fine powder), after this above formed paste is locally applied over the affected area and kept till drying. After drying it is washed with luke warm water.

**Dose:** depend on affected area

**Dosage form:** lepa

**Duration:** Twice a day

**Method of administration:** local application

**Study design:** Randomized, Open & Interventional Clinical study.

**Criteria of Assessment:**

**Subjective parameters:**

1. **Kandu** (pruritis)
   0 - No itching
   1 - Mild itching not disturbing normal activity
   2 - Occasional itching disturbs normal activity
   3 - Itching present continuously & even disturbing sleep

2. **Daha** (burning)
   0 - No burning sensation
   1 - Mild type of burning not disturbing normal activity
   2 - Occasionally burning disturbing normal activity
   3 - Burning present continuously & even disturbing sleep

3. **Srava** (oozing)
   0 - No discharge
   1 - Occasional discharge after itching.
   2 - Occasional oozing without itching.
   3 - Excessive oozing making clothes wet

4. **Rukshta** (Dryness)
   0 - No dryness
   1 - Dryness with rough skin (Ruksha)
   2 - Dryness with scaling (Khara)
   3 - Dryness with cracking (Parusha)

5. **Pidikotpatti** (eruption)
   0 - No eruption in the lesion
   1 - Scanty eruptions in few lesions
   2 - Scanty eruptions in at least half of the lesion
   3 - All the lesions full of eruption

6. **Vaivaranyata** (Discolouration)
   0 - Nearly normal skin colour
   1 - Brownish red discolouration
   2 - Blackish red discolouration
   3 - Blackish discolouration

7. **Thickening of skin**

0 - No thickening of skin
1 - Thickenning of skin but no criss-cross marking
2 - Thickenning with criss-crossmarking
3 - Severelichanification

2. Objective parameters:
1] Heamatological Test: Hb%, TLC, DLC, ESR.
2] Biochemical Investigation: Blood sugar (RBS)
3] Renal Function Test (Blood urea, Sr. Creatinine),
4] Liver Function Test (SGOT, SGPT)

Results:
All the Results are calculated by using Software: InStat GraphPad 3.
The results were considered as bellow-
- Insignificant/Nonsignificant : P>0.05
- Significant : P<0.05
- Highlysignificant : P <0.01, P <0.001,P<0.0001

Table No.I: Showing Effect Of Therapy In Subjective Parameters (Within Group) (Wilcoxon Matched Paired Single Ranked Test)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Mean Diff.</th>
<th>% Relief</th>
<th>SD±</th>
<th>SE±</th>
<th>p value</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kandu</td>
<td>2.12</td>
<td>1.6</td>
<td>0.52</td>
<td>24.5%</td>
<td>0.96</td>
<td>0.192</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>Srava</td>
<td>1.44</td>
<td>0.36</td>
<td>1.08</td>
<td>75%</td>
<td>1.115</td>
<td>0.22</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Daha</td>
<td>1.0</td>
<td>0.68</td>
<td>0.32</td>
<td>32%</td>
<td>0.476</td>
<td>0.095</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Vaivaran-yta</td>
<td>2.08</td>
<td>1.24</td>
<td>0.84</td>
<td>40.3%</td>
<td>0.553</td>
<td>0.110</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Raji</td>
<td>1.12</td>
<td>0.28</td>
<td>0.84</td>
<td>75%</td>
<td>0.688</td>
<td>0.137</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Pidika</td>
<td>1.08</td>
<td>0.20</td>
<td>0.88</td>
<td>81.48%</td>
<td>0.88</td>
<td>0.176</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Rukhsa</td>
<td>0.56</td>
<td>0.56</td>
<td>0.0</td>
<td>0%</td>
<td>0.50</td>
<td>0.10</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>EASI Score</td>
<td>8.084</td>
<td>3.38</td>
<td>4.70</td>
<td>58.13%</td>
<td>3.941</td>
<td>0.788</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

| Hamilton D.S. | 3.32 | 0.92 | 2.4 | 72.2% | 1.15 | 0.23 | <0.0001 | HS |

Table No .II : Effect Of Drug On Objective Parameters In Both Groups (Paired ‘T’ Test)

<table>
<thead>
<tr>
<th>Variable (gm %)</th>
<th>Mean BT</th>
<th>Mean Diff</th>
<th>Mean Diff % Relief</th>
<th>SD±</th>
<th>SE±</th>
<th>t value</th>
<th>P value S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb %</td>
<td>12.25</td>
<td>12.64</td>
<td>0.38</td>
<td>1.68</td>
<td>0.336</td>
<td>1.555</td>
<td>&gt; 0.05 NS</td>
</tr>
<tr>
<td>TLC</td>
<td>7820</td>
<td>6564</td>
<td>1256</td>
<td>2676</td>
<td>535.2</td>
<td>2.347</td>
<td>&lt; 0.05 S</td>
</tr>
<tr>
<td>ESR</td>
<td>17.72</td>
<td>12.4</td>
<td>5.32</td>
<td>9.44</td>
<td>1.889</td>
<td>2.816</td>
<td>&lt; 0.001 HS</td>
</tr>
<tr>
<td>D.L.C (Eosi.)</td>
<td>3.16</td>
<td>2.76</td>
<td>0.40</td>
<td>1.80</td>
<td>0.360</td>
<td>1.109</td>
<td>&gt; 0.05 NS</td>
</tr>
<tr>
<td>R.B.S</td>
<td>88.64</td>
<td>90.84</td>
<td>2.2</td>
<td>22.43</td>
<td>4.48</td>
<td>0.490</td>
<td>&gt; 0.05 NS</td>
</tr>
<tr>
<td>S.G.O.T</td>
<td>34.48</td>
<td>38.04</td>
<td>3.5</td>
<td>13.59</td>
<td>2.719</td>
<td>1.310</td>
<td>&gt; 0.05 NS</td>
</tr>
<tr>
<td>S.G.P.T</td>
<td>24.12</td>
<td>24.24</td>
<td>0.12</td>
<td>8.26</td>
<td>1.65</td>
<td>0.072</td>
<td>&gt; 0.05 NS</td>
</tr>
<tr>
<td>B.Urea</td>
<td>32.32</td>
<td>31.92</td>
<td>0.40</td>
<td>5.93</td>
<td>1.187</td>
<td>0.336</td>
<td>&gt; 0.05 NS</td>
</tr>
<tr>
<td>S.Cret.</td>
<td>0.756</td>
<td>0.728</td>
<td>0.08</td>
<td>0.231</td>
<td>0.046</td>
<td>0.603</td>
<td>&gt; 0.05 NS</td>
</tr>
</tbody>
</table>

Follow-Up Study:
Regular follow up during the trial & after 1 months of successful completion of trial was done. Regular follow up after trial was done after 15 days & 30days.

Discussion:
Probable Modes Of Actions Of The Drug:-
1. Triphaladi kwatha:-

- All drugs are having mostly Katu, Tikta, Kashaya Rasa as well as Laghu Ruksha Guna which act on vitiated Kapha Dosha. Vicharchika is a Kapha predominant disease so drug Triphaladi Kwatha works as Doshapratyanika Chikitsa. Drug like Haritki, Amalki, Rajni act as Kushthaghna i.e. Vyadhi pratyanika Chikitsa.
- As described by Acharya' Charak Tikta Rasa\(^{6}\) has the property of Deepana and Pachana and thus it
helps in Amanashana formed due to Nidanasevana. Tikta Rasa also has the property of Raktaprasadana, Vishaghna, Kushtthagha, Kandughna and dahaprashamana. It also has Kaphaghna property. Thus through these properties acts on Vicharchika.

- Also Katu Rasa possesses Deepana and Pachana properties through which it acts at level of Agni and stops Ama formation. One property of Katu Rasa described by Acharya Charak is “Marganvivrunoti” which means it clears the Srotas and stop pathogenesis by prevent Doshdusya Samurchana.

- Other properties of Katu Rasa described by Acharya Charaka are Vishaghna, Kandughna, Krimighna and Vranaprasadana.

- When we study the predominant Gunas presents in Triphaladi Kwatha, it is evident that majority are possessing Laghu, Raksha and Tikshna Gunas. Laghu Guna possess Kaphashamaka property. It also has Agnideepana property through which it helps in alleviating Agnimandya. Acharya Sushruta has described Lekhana and Ropana properties of Laghu Guna. Lekhana property might help in management of Lichenification which leads to thickening of skin.

- Looking to the Karma, it is clear that almost all the drugs are having Kushtthagha, Kandughna, Raktashodhak, Twagdosahara, Krimighna, Vishaghna and Rasayana properties, which clearly explain its mode of action in Vicharchika.

- Thus Kapha Pitta Shamaka properties of drug help in breaking the Srotorodhaand digestion of Ama, which leads to proper functioning of the body.

According to modern research proved that Haritaki has wound healing activity, Antioxidant activity, Anti allergic activity, Anti inflammatory activity, Vibhitak has Antimicrobial activity, Wound healing activity, Amalki has Hepatoprotective activity, Good for the skin, Chelating agent, Haridra has anti inflammatory activity, , anti allergic activity, anti oxidant activity, , immunomodulatory activity, , Hepatoprotective, Nimba has Blood purifier, , Antihistaminic activity, Antibacterial activity, Patola having Anti-inflammatory, Immunomodulator, Hepatoprotective, Manjistha has promote the increase of leucocyte count in leucopenia, anticancer principle, inhibits keratinocyte proliferation in vitro and promotes keratinocyte differentiation in vivo, anti-proliferative properties. Recent research work by Mollugin shows it has protection of mast cell degranulation in rats. Kutuka having hepatoprotective, antistress, antioxidant, immunomodulating, Vacha has (Antibacterial,antipyretic,analgesic, anti-inflammatory) anti cancigenic activity.

- Triphaladi Kwatha contains anti-inflammatory, antihistaminic and mast cell stabilizer property which means Triphaladi Kwatha reduces inflammation and pruritis which is main symptom of disease.

- Eczema is chronic in nature so patients are also suffering from Dhatukshaya and Psychosomatic disorders. Triphaladi Kwatha has antioxidant and mood elevator property, so it manages both Dhatukshaya and Psychosomatic disorders.

- Eczema is chronic in nature and the itching is main symptom. Due to continuous scratching increased possibility of secondary infections (Bacterial and fungal infection). Triphaladi Kwatha and KaranjadiLepa are having antifungal and anti bacterial properties.

- Due to chronicity of disease patient take lot of medicine. e.g. Steroids and cytotoxic drug. The steroids and cytotoxic drugs hamper the hepatic and renal functions. Triphaladi Kwatha has hepatoprotective property.

Karanjadi Lepa:

Karanjadi Lepa contains drug Karveer, Kustha, Chakramard.

Base used in Lepa Kalpana

Karanjadi Lepa is taken from the Charaka Samhita.
Sutra Sthana Aragvadhiya Adhyaya, where in the paste of the drugs is advised to be applied daily with Gomutra. Gomutra has Kaphaghna and Ushna Veerya properties & can be used locally to treat the Vicharchika (Eczema) which has Kapha dominance.

Karveera has Katu Tikta Rasa, Laghu Ruksa, Ushna Veerya, it act as Kusthaghana, Swedajanana, Vranasodhana, Vranaropana, Shothahara, Anti-bacterial Activity, Anti-inflammatory Activity, Hepatoprotective Activity, Antioxidant and Anti-hyperammonemic Activity.

Kushtha has Katu Tikta, Madhura Rasa Laghu, Tikshna, Ruksa Guna, Ushna Virya, it act as Kusthaghna Varnya, Raktashodhaka, Vatahara Kaphanissaraka, Anti-inflammatory properties.

Chakramard has Katu Rasa, Laghu, Tikshna, Ruksa Guna, Ushna Virya, it act as Kusthaghna Varnya, Raktashodhaka, Daurgandhyanashana, hepatoprotective, anti-inflammatory, antigenotoxic, hypolipidemic, antiproliferative, immunostimulatory, purgative, and, antioxidant, antifungal, antishigellosis, anthelmintic, antimutagenic, antibacterial activities.

Upon topical application, the active principle of the Lepa reaches to the deeper tissues through Sira Mukha & Swedavahi Srotasa by virtue of its stains it with its Sukshma & Tikshna property. Due to its Ushna, Laghu, Ruksa properties it removes the obstruction in Swedavahi Srotasa & allows the local toxins to flow out through the Sweda, thus clearing out the micro channels. In most of the patients Kandu was relieved significantly due to the Kusthaghna and Kandughna properties of drugs of Lepa.

Conclusion:

★ Triphaladi Kwatha and Karanjadi Lepa provides very good result in symptoms of sravi Vicharchika (wet eczema) like, Srava, , Pidika, etc.

★ The study has revealed that there was no adverse effect on renal and liver function Tests, with which it may be concluded that the drug Triphaladi Kwatha is safe for oral use in the patients of Vicharchka (Eczema).

★ The Ayurvedic Medication Triphaladi Kwatha has non Sedative effect as Cetrizine has sedative effect, on the other hand Betamethasone on prolonged application causes dry skin which is not evident in the application of Karanjadi Lepa.

★ Relapsing nature of Vicharchika is most common, which suggest that, long term intensive therapy is necessary for eradication of the disease.

★ This Clinical study proved that most of the Ayurvedic drugs used in this research project posses Immnomodulator, Bloodpurifier, anti-inflammatory, anti-histaminic, mast cell stabilizers and antioxidant properties.

Thus finally we can conclude that is 'Triphaladi Kwatha' and 'Karanjadi Lepa' effective in management of Vicharchika (Neurodermatitis) as it is safe, cost effective & free from any side effects. It also prevents the relapse considerably.

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11. * ibidem, Charaka Sutrasthana 26/4 pg no. 483
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48. Pharmacologyonline 3: 78-96 (2011) ewsletter Choudhary et al. 78 CASSIA TORA: ITS CHEMISTRY, MEDICAL USES AD PHARMACOLOGY Manjusha Choudhary*1, Yuvraj Gulia1, Nitesh2 1 Institute of Pharmaceutical Sciences, Kurukshetra University, Kurukshetra 2R. P. Educational Trust Group of Institutions, Bastara, Karnal

**Saransh:**

एक्जिमा (जिसे डम्ब्याटिटिस भी कहा जाता है) एक सूजन, कालानुक्रमिक रुप से फैलने वाली, गैर संक्रामक और बेहद स्थायी वाली लक्षण की बीमारी है। 2.5% (बच्चों और युवा वयस्कों में लगभग 10%) की व्यापकता के साथ, एटोपिक एक्जिमा सबसे अधिक देखे जाने वाले उदाहरण में से एक है। आयुर्विद के समक्ष में इसे लक्षण, कण्डु, पीडिका, श्यावत, बुनाबन के लक्षण के साथ सहसंबंध किया जा सकता है। प्रभावी आयुर्विदिक विकल्प को विकसित करने के लिए 25 नैदानिक रुप से निदान किए गए रोगियों में विचरिता (डम्ब्याटिटिस) का अध्ययन किया गया था। सभी रोगियों को स्थानीय आयुर्विद के लिए मौखिक रुप से विकल्पित क्या और कर्तव्य प्रदान किया गया था। एक महीने तक अध्ययन किया गया। अध्ययन के परिणाम से पता चलता है कि इंडस्माइट (एक्जिमा क्षेत्र और गंभीरता स्तर को) स्कोर में अंतर्भवित महत्वपूर्ण परिणाम है (जो एक्जिमा के मूल्यांकन का मुख्य मापदंड है), दाह, श्यावत, पीडिका, धार्मिक वैषयिकता, राजी, हैमिल्टन डिस्ट्रेशन स्कोर, साखियों और साथ ही नैदानिक रुप से। और कण्डु (स्थायी स्तर को) में महत्वपूर्ण परिणाम मिला है।
ABSTRACT

Avaleha Kalpana is one of the most important pharmaceutical preparation of Ayurveda. Brahma Rasayana is one of the popular Avaleha preparation and is recognized as a very effective formulation for Rasayana, Jara disorders and helps to increase longevity of life, Medha-Dhee and Smriti etc. The formula Brahma Rasayana was prepared in accordance with Charaka Chikitsa Rasayana Pada and the current method of preparation can be considered as standard. An attempt was also made to develop analytical profile for Brahma Rasayana. The sample shows smooth, velvete texture, pleasant smell and sweet astringent in taste.

The LOD (12.36%), pH value (3.4), Ash value (0.77%w/w), Acid Insoluble Ash value (0.40% w/w), Water Soluble Ash value (0.40% w/w), Alcohol soluble extractive (56.25%w/w), Water soluble extractive value (58.85%w/w), total solid content(87.64% w/w), Total sugars(50.72%w/w). The preparation was free from heavy metals and microbial contamination.

Keywords: Brahma Rasayana, Rasayana, Standardization.


Introduction:

Avaleha Kalpana[1] is one of the most important pharmaceutical preparation of Ayurveda. Avaleha Kalpana may be defined as a process where various things like decoction, powder, sweetening agents, fat material and perfuming substances are employed for the preparation of soft, semi-solid ingestible medicament. This process ensures absorption of active therapeutic...
properties of ingredients used. In Ayurveda, Avaleha Kalpana is first mentioned by Acharya Charaka but its pharmaceutical principles was first described by Acharya Sharangadhara, the author of Sharangadhara Samhita.

The literary review of Avaleha suggests that these are preparations prepared from aqueous extracts of the plants used as a base and powders, pulp, sugar and Prakshepa are incorporated to the base Kashaya or prescribed liquid media. It is claimed that the therapeutic activity of the Avaleha preparation depends on the drugs which are thus used. These are referred as chief ingredients, Kwatha Dravyas, sweetening agent and Prakshepa Dravyas etc.

Brahma Rasayana\(^{[2]}\) is one of the popular Avaleha preparation in Ayurveda. It is recognized as a very effective remedy for Rasayana and other diseases such as Jara disorders, longevity of life, Medha-Dhee and Smriti etc. Though it is an effective remedy for stress and anti-ageing, but till date no work has been carried out to standardize the formula. Hence, an attempt has been made to standardize the poly herbal formulation on pharmaceutical and analytical grounds.

**Materials and Methods:**

The raw drugs were procured from the pharmacy of NIA, Jaipur, fresh Haritaki from Udaipur College herbal garden and fresh Amalaki from local market, Jaipur, the raw drugs were authenticated from Drug testing laboratory of the department and method adopted as mentioned in Charaka Chikitsa Rasayanaadhikar.

**Pharmaceutical Preparation:**

**Table No I- Showing The Raw Materials Of Brahna Rasayana**

<table>
<thead>
<tr>
<th>Sr .no</th>
<th>Ingredient</th>
<th>Part Used</th>
<th>BR1 (in gms)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pradhan Dravya</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Haritaki</td>
<td>Wet Fruits</td>
<td>10 nos - 160gms</td>
</tr>
<tr>
<td>2.</td>
<td>Amalaki</td>
<td>Wet Fruits</td>
<td>30 nos- 900gms</td>
</tr>
<tr>
<td><strong>Kwatha Dravya</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Bilva</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>4.</td>
<td>Syonaka</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>5.</td>
<td>Kashmari</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>6.</td>
<td>Agnimantha</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>7.</td>
<td>Patala</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>8.</td>
<td>Salaparni</td>
<td>Wh Pl</td>
<td>4.8</td>
</tr>
<tr>
<td>9.</td>
<td>Prisniparni</td>
<td>Wh Pl</td>
<td>4.8</td>
</tr>
<tr>
<td>10.</td>
<td>Brihati</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>No.</td>
<td>Drug</td>
<td>Part</td>
<td>Quantity</td>
</tr>
<tr>
<td>-----</td>
<td>----------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>11.</td>
<td>Kantakari</td>
<td>Wh Pl</td>
<td>4.8</td>
</tr>
<tr>
<td>12.</td>
<td>Gokshura</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>13.</td>
<td>Bala</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>14.</td>
<td>Punarnava</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>15.</td>
<td>Eranda</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>16.</td>
<td>Masaparni</td>
<td>Wh Pl</td>
<td>4.8</td>
</tr>
<tr>
<td>17.</td>
<td>Mudgaparni</td>
<td>Wh Pl</td>
<td>4.8</td>
</tr>
<tr>
<td>18.</td>
<td>Shatavari</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>19.</td>
<td>Shatavari</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>20.</td>
<td>Jivanti</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>21.</td>
<td>Vidarikanda</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>22.</td>
<td>Vidarikanda</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>23.</td>
<td>Shali</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>24.</td>
<td>Kasa</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>25.</td>
<td>Shara</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>26.</td>
<td>Darbha</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td>27.</td>
<td>Ikshu</td>
<td>Rt</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td>120</td>
</tr>
</tbody>
</table>

Water used for Kwatha were 12 litres and reduced to 1.2 litres

**Prakshepa Dravya**

<table>
<thead>
<tr>
<th>No.</th>
<th>Drug</th>
<th>Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>28.</td>
<td>Mandukparni</td>
<td>Wh Pl</td>
<td>1.9</td>
</tr>
<tr>
<td>29.</td>
<td>Pippali</td>
<td>Fr</td>
<td>1.9</td>
</tr>
<tr>
<td>30.</td>
<td>Shankhapispi</td>
<td>Wh Pl</td>
<td>1.9</td>
</tr>
<tr>
<td>31.</td>
<td>Kevthimotha</td>
<td>Rt</td>
<td>1.9</td>
</tr>
<tr>
<td>32.</td>
<td>Musta</td>
<td>Rz</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>33.</td>
<td>Vidanga</td>
<td>Fr</td>
<td>1.9</td>
</tr>
<tr>
<td>34.</td>
<td>Chandana</td>
<td>Hr wd</td>
<td>1.9</td>
</tr>
<tr>
<td>35.</td>
<td>Agaru</td>
<td>Hr wd</td>
<td>1.9</td>
</tr>
<tr>
<td>36.</td>
<td>Yastimadhu</td>
<td>Rt</td>
<td>1.9</td>
</tr>
<tr>
<td>37.</td>
<td>Haridra</td>
<td>Rz</td>
<td>1.9</td>
</tr>
<tr>
<td>38.</td>
<td>Vacha</td>
<td>Rz</td>
<td>1.9</td>
</tr>
<tr>
<td>39.</td>
<td>Nagakeshara</td>
<td>Stemen</td>
<td>1.9</td>
</tr>
<tr>
<td>40.</td>
<td>Ela</td>
<td>Seeds</td>
<td>1.9</td>
</tr>
<tr>
<td>41.</td>
<td>Twak</td>
<td>St bk</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>26.9</td>
</tr>
</tbody>
</table>

**Sneha Dravya**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>42.</td>
<td>Ghee</td>
<td></td>
</tr>
<tr>
<td>43.</td>
<td>Tila Taila</td>
<td></td>
</tr>
</tbody>
</table>

**Madhura Dravya**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>44.</td>
<td>Sitopala</td>
<td></td>
</tr>
<tr>
<td>45.</td>
<td>Honey</td>
<td></td>
</tr>
</tbody>
</table>

The Kwatha Dravyas ((Sr no 3 – 27) are made into coarse powder and were taken into the stainless steel container containing 12 litres of water and kept for overnight for proper soaking.

Next day, Wet fruits (Haritaki and Amalaki) were bundled in a clean piece of cotton cloth and immersed in the container in the mixture of Kwatha Dravyas and the whole unit was subjected to mild heat for boiling. The Amalaki and Haritaki fruits bundle were taken out and the rest unit was kept on mild fire till the initial volume of water reduced to 1/10 th part (1.2 Litre). Thereafter the Kwatha was strained through a piece of clean cloth and kept a side. The temperature maintained during the procedure was 85-90° C.

The seeds of the boiled Haritaki and Amalaki were removed and pulp was made into fine paste by using an electric grinder and sieved (with stainless steel of 40 mesh) over a stainless steel container and separated the fibers.
Table No II: Showing Observations Of Pulp Preparation

<table>
<thead>
<tr>
<th>Material</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight of <em>Amalaki</em> pulp</td>
<td>800gms</td>
</tr>
<tr>
<td>Weight of <em>Amalaki</em> seeds</td>
<td>55 gms</td>
</tr>
<tr>
<td>Weight of <em>Amalaki</em> fibres</td>
<td>45 gms</td>
</tr>
<tr>
<td>Weight of <em>Haritaki</em> pulp</td>
<td>105 gms</td>
</tr>
<tr>
<td>Weight of <em>Haritaki</em> seeds</td>
<td>20 gms</td>
</tr>
<tr>
<td>Weight of <em>Haritaki</em> fibres</td>
<td>30 gms</td>
</tr>
</tbody>
</table>

*Sitopala* was dissolved into the filtered *Kwatha*, at 85-90° C then pulp of *Haritaki* and *Amalaki* were added and stirred and *Ghee* and *Tila Taila* were added to the mixture. After some time, the fine powders of *Prakshepa Dravya* (Sr no 28-41) were added and cooked on mild fire till *Avaleha Siddhi* [3] characters were achieved.

Then the container was kept down from fire and allowed to self cool then the mentioned amount of honey was added to the prepared *Avaleha* and was mixed thoroughly to form a homogenous mixture.

The final preparation was filled in sterile dry and air tight container and sealed with proper label and used for further studies.

Table No III: Showing Initial Wt. & Final Results Of Brahma Rasayana

<table>
<thead>
<tr>
<th>Material &amp; Parameters</th>
<th>Weight &amp; Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Kwatha</em></td>
<td>1.2 litre</td>
</tr>
<tr>
<td><em>Paste of Haritaki + Amalaki</em></td>
<td>905 gms</td>
</tr>
<tr>
<td><em>Ghee</em></td>
<td>92.1 gms</td>
</tr>
<tr>
<td><em>Tila Taila</em></td>
<td>61.4 gms</td>
</tr>
<tr>
<td><em>Sitopala</em></td>
<td>528 gms</td>
</tr>
<tr>
<td><em>Prakshepa Dravya</em></td>
<td>26.9 gms</td>
</tr>
<tr>
<td><em>Honey</em></td>
<td>76.8 gms</td>
</tr>
<tr>
<td>Mean temperature</td>
<td>70-85° C</td>
</tr>
<tr>
<td>Total duration</td>
<td>9.45 hr</td>
</tr>
<tr>
<td>Total yield</td>
<td>1.480 kg</td>
</tr>
</tbody>
</table>
Analytical Studies:

The prepared sample was subjected to organoleptic, physio-chemical, nutritional studies, Vit C content, heavy metals tests and test for microbial contamination in order to develop analytical profile

Table No IV: Showing The Results Of Organoleptic Characters

<table>
<thead>
<tr>
<th>Sr no</th>
<th>Parameters</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Rupa</td>
<td>Brownish black</td>
</tr>
<tr>
<td>2.</td>
<td>Rasa</td>
<td>Madhura kashaya</td>
</tr>
<tr>
<td>3.</td>
<td>Gandha</td>
<td>Characteristic</td>
</tr>
<tr>
<td>4.</td>
<td>Sparsha</td>
<td>Soft &amp; Semisolid</td>
</tr>
</tbody>
</table>

Table No V: Showing The Results Of Physicochemical Parameters

<table>
<thead>
<tr>
<th>Sr no</th>
<th>Parameter</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>LOD</td>
<td>12.36 %</td>
</tr>
<tr>
<td>2.</td>
<td>pH</td>
<td>3.4</td>
</tr>
<tr>
<td>3.</td>
<td>Ash value</td>
<td>0.77 %</td>
</tr>
<tr>
<td>4.</td>
<td>Acid insoluble ash</td>
<td>0.25% w/w</td>
</tr>
<tr>
<td>5.</td>
<td>Water soluble ash</td>
<td>0.40 % w/w</td>
</tr>
<tr>
<td>6.</td>
<td>Alcohol soluble extractive</td>
<td>56.25% w/w</td>
</tr>
<tr>
<td>7.</td>
<td>Water soluble extractive</td>
<td>58.85% w/w</td>
</tr>
<tr>
<td>8.</td>
<td>Total Solids</td>
<td>87.64% w/w</td>
</tr>
<tr>
<td>9.</td>
<td>Total Sugars</td>
<td>50.72%</td>
</tr>
<tr>
<td>10.</td>
<td>Reducing Sugar</td>
<td>46.15 %</td>
</tr>
<tr>
<td>11.</td>
<td>Non Reducing Sugar</td>
<td>4.57 %</td>
</tr>
</tbody>
</table>
Table No VI: Showing The Results Of Nutritional Studies

<table>
<thead>
<tr>
<th>Sr no</th>
<th>Parameters</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Crude fibre</td>
<td>01.37%</td>
</tr>
<tr>
<td>2.</td>
<td>Crude protein</td>
<td>0.77%</td>
</tr>
<tr>
<td>3.</td>
<td>Total fat</td>
<td>7.09%</td>
</tr>
<tr>
<td>4.</td>
<td>Carbohydrate</td>
<td>77.69%</td>
</tr>
<tr>
<td>5.</td>
<td>Energy</td>
<td>377.65 kcal/100gms</td>
</tr>
</tbody>
</table>

Table No VII: Showing The Results Of Vitamin C Content

<table>
<thead>
<tr>
<th>Sr no</th>
<th>Parameter</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Vitamin C</td>
<td>9.21 mg/100 gms</td>
</tr>
</tbody>
</table>

Table No VIII: Showing The Results Of Test For Microbial Contamination:

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Parameter</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total Aerobic Microbial Count</td>
<td>450 cfu/gm</td>
</tr>
<tr>
<td>2.</td>
<td>Total Yeast and Mould Count</td>
<td>81 cfu/gm</td>
</tr>
</tbody>
</table>

Table No IX: Showing The Results Of Test For Heavy Metals

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Parameter (in ppm)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Cadmium</td>
<td>Not detected</td>
</tr>
<tr>
<td>2.</td>
<td>Lead</td>
<td>Not detected</td>
</tr>
<tr>
<td>3.</td>
<td>Mercury</td>
<td>Not detected</td>
</tr>
<tr>
<td>4.</td>
<td>Arsenic</td>
<td>Not detected</td>
</tr>
</tbody>
</table>

Discussion:

The formula indicates that the roots to be taken as a useful part for Kwatha Dravyas but due to unavailability of these parts, in the present study their stem barks used as substitute wherever required necessary. As regards the selection of Jivaka, Rishabhaka and Meda in the preparation, it is quite controversial problem because a dozen of similar drugs are sold in the market by the name of these drugs. Hence, the following substitutes were used in accordance with Bhava Prakash[4].
The number of Haritaki and Amalaki are similar in all the texts. As per Acharya Charaka, the Kwatha Dravyas are prescribed to be taken 2 Palas each but as per the Commentary of Acharya Chakrapani it was advised 10 Palas of each Mula where as Astanga Hridaya has been mentioned total 250 Palas i.e. means 10 Pala of each drug. As a result Kwatha drugs were taken 10 Palas of each quantity. Regarding Sitopala, Acharya Charaka prescribed it as 1100 Pala i.e. SahasraPalam Tulyadhikam (1000 + 100 Palas = 52.000kg) where as Ashtanga Hridaya and AFI it has been mentioned Ardhabhara (1000 Palas=48.000 kg.) Hence, in the present study Sitopala was considered as per the reference of Acharya Charaka. The ratio of Ghee and Taila remained same in all the texts. The addition of honey according to Charak Samhita it is Snehardha i.e. half amount of indicated Ghee and Taila (2½ Adhaka = 7.680 kgs) whereas in Astanga Hridaya and AFI it is prescribed 320 Pala i.e. 15.360 kgs.

According to Charak Samhita, the formula has to be prepared in the ‘Sadhyam Oudumbare Patre’ i.e. means the preparation should be prepared in the Tamra Patra. But text Rasatantara Sara Va Siddha Prayoga Sangraha mentioned that the preparation should be done in a vessel prepared form Ficus glomerata (Gular). Acharya Charaka mentioned that the Tila Taila is to be taken two Adhaka in quantity along with Ghee but the text Rasatantrasara Va Siddhla Prayoga Sangraha formula contains only Ghee and no Tila taila. This is because; the formula gives oily smell and Utkledanatwa property. But in present study stainless steel vessel is used.

The two strings of Paka of Avaleha was identified by using hand refractometer and it was fixed 72X.

Physiochemical standards are useful in identification and authentication of the plant materials used in the preparation. Moisture content should be minimum to prevent degradation of product which was found to be 12.36 %. pH of Brahma Rasayana was 3.4 and found to be acidic as the chief ingredients are basically acidic in nature.

The total ash is particularly important in the evaluation of purity of drugs i.e presence or absence of inorganic matter such as metallic salts and/or silica. The total Ash was found to be 0.77%. The acid insoluble was 0.25 % indicating the percentage of inorganic contents insoluble in acid which were present in the ash the water soluble ash was found to be 0.40 %

The water soluble extractive and alcohol soluble extractive were found to be 56.25 and 58.85 % respectively, indicating considerable amount of polar compounds in the sample. Total solid content was 87.64 %w/w which in turn shows low moisture content, important factor for longer stability period Total sugar found to be in the range of 50.72 % w/w suggesting considerable amount of sugar in the sample. Also exhibits solubility of the product and nutritional value in terms of carbohydrates Reducing sugar was found in the range of 46.15 %w/w.

Protein is an essential nutrient in diet. It was found in the range of 0.77 %. Carbohydrate was found to be 77.69 % Crude fibre was 1.37 % present in Brahma Rasayana as the herbs are powdered and mixed with the Sugar syrup/ honey while preparing the Brahma Rasayana. The total fat was found to be 7.09%. As Brahma Rasayana is also used for giving energy, it is expected to be high in Calorific Value. The caloric intake from Brahma Rasayana ranges from 377.65 kcal/100gms.

Vitamin C or Ascorbic acid is a natural antioxidant that helps to protect against cancers, heart disease and stress etc. It helps in maintaining a healthy immune system and is required for the growth and repair of tissues in all parts of the body. It is expected to be higher in Brahma Rasayana as the basic ingredient is Amalaki which has maximum vitamin C content. The 100 gm of Brahma Rasayana, contains Vit C 9.21 mg.

All the samples of Brahma Rasayana had met the requirements for microbiological contamination given by
WHO. *Brahma Rasayana* shows absence of heavy metal contents. This indicate that the raw materials used in the samples were genuine and preparation was carried under GLP conditions.

**Conclusion:**

*Avaleha Kalpana* is one of the most important pharmaceutical preparation of *Ayurveda*. This process ensures absorption of active therapeutic properties of ingredients used. *Brahma Rasayana* comes under *Avaleha Kalpana* and is used widely all over the country as a medicine for *Rasayana*.

As there is no standardized analytical profile available on the formula. The Study on *Brahma Rasayana* is a step towards pharmaceutical and analytical standardisation. The research work was carried out on various parameters and fixed in house quality standards for *Brahma Rasayana*. It is worthy to note that the Vit. C has not lost even on boiling with *Kwatha* and exposing to heat.

Further there is lot of scope for researchers for identification of individual constituent ingredient and pre-clinical and clinical studies.

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ORIGINAL RESEARCH ARTICLE - CONCEPTUAL STUDY

An Ayurvedic Approach towards Asthi-Kshaya with Special Reference to Postmenopausal Osteoporosis

*Dr. Vibha Sood, **Prof. K. L. Meena, ***Late Dr. Govind Pareek

*Assistant Professor, Dept. of Basic Principles, Mai Bhago Ayurvedic College, Muksar, Punjab,
** Professor & H.O.D., *** Associate, Dept. of Basic Principles, National Institute of Ayurveda, Jaipur

ABSTRACT

In present era where population is growing very fast, struggle to survive for basic needs have become very tough. People are being more materialistic and ambitious neglecting their health issues. Due to their irregular daily routine and dietary habits, lifestyle disorders have become very common now. Osteoporosis is one among them. It is a metabolic disorder, in which bones become thin, weak and fragile and more likely to break down eventually. In women, after menopause due to hormonal insufficiencies tendency to fall into osteoporosis is very high.

In Ayurveda, the disease is not mentioned as such by name; but signs and symptoms of Asthi-Kshaya are found very similar to osteoporosis. Asthi-Kshaya is mentioned as a Vata related disorder because aggravation of Vata is a main cause of Asthi-Kshaya. In Charak Samhita, the categorical principle of treatment is mentioned as, “Samanagunabhyaso Hi Dhatunaam Vruddhi Karanam”. According to it, things, which contain similar properties to a particular Dhatu of body, can be helpful to increase that one Dhatu if they are used in a practice. So the Aushadh, Ahara and Vihara having similar properties to Asthi Dhatu, can be very effective to promote bone cells in body.

Keywords: Ayurveda, Asthi-Kshaya, Postmenopausal Osteoporosis, Rajonivrittijanya Asthi-Kshaya

Address of Correspondence: Dr. Vibha Sood
Dept. of Basic Principles,
Mai Bhago Ayurvedic College, Muksar, Punjab
Email ID: drvibhasood@gmail.com
Contact No: 8742093129

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Introduction:

Ayurveda is the most ancient healthcare system in the world that unites the profound thoughts of medicine and philosophy. It is the science of life and longevity with the aim of prevention of disease, rejuvenation of our body system, and extension of life span. In modern era, where survival for basic needs have become very hard,
people are neglecting their health care and daily routine. So today, life style disorders have become very common. Among them osteoporosis is one of the growing health problem. It is a metabolic disorder. World health organization defines osteoporosis as a “progressive systemic skeletal disease characterized by low bone mass and micro architectural deterioration of bone tissue with a consequent increase in bone fragility and susceptibility to fracture”. Osteoporosis, the term is given by Pommer; which means porous bones. Due to Osteoporosis bones become thin, weak and fragile and more likely to break. It is called a silent disease because it can develop gradually over many years without causing any symptoms. Although the disease affects both men and women but women suffer from it in majority due to their genetic phenomena. Women are at greater risk for osteoporosis after menopause.

A major cause behind it is that women’s bodies produce less oestrogen after menopause and oestrogen hormone plays an important role to prevent the bone loss. Hence, older women have a much higher rate of osteoporosis than younger women. In Ayurveda, old age is considered prone to Vata related disorders. Vitiation of Vata is said responsible for producing 80 types of disorders. Many of them are related to bones. This is because of the unique relationship between Vata and Asthi, called Ashraya- Ashrayi Bhava. In Charak Samhita, the categorical principle of treatment is mentioned as, “Samanagnabhyasah Hi Dhatunaam Vruddhi Karanam”. According to this principle, the things which contain similar properties to a particular Dhātu in body, can be helpful to increase that one Dhātu, if they are used in a practice. So the Aushadh, Ahara and Vihara having similar properties to Asthi Dhātu, can be very effective to promote Asthi Dhātu in body.

Methods:

(Present study has Ethical Clearance No F10 (5)/ EC/ 2014/ 7225)

In Ayurveda, Nutrition of the body is explained in the form of proper formation of Dhatus\(^{(1)}\). By taking proper diet regimen these Dhatus remain in their balanced condition. In process of Sapta Dhatu Nirmana, the nutritive part of Rasa contributes nourishment to Rakta, Rakta to Mamsa, Mamsa to Meda, Meda to Asthi, Asthi to Majja and Majja finally provides nourishment to Shukra. Garbha (foetus) derives from Prasada Bhaga of Shukra\(^{(2)}\). But when proper dietary regimen is not followed, it results into Kshaya of all Dhatus. Asthi-Kshaya is one among them\(^{(3)}\). Total 18 types of Kshaya are described in classics.

The word Asthi is derived from As+ Kthin Dhātu that means ‘to throw’, ‘to stay (Shabdakalpadruma). Acharya Charaka has mentioned that after digestion by Medagni, Prithvi, Agni and Anil Mahabhutha become dominant in Meda Dhātu. So now it turns into Khara Roopa (hard and rough) and is called Asthi Dhātu\(^{(4)}\). Further Asthi too is digested by its own Agni and produces waste portion in the form of Kesha, Loma, Shmashru, large portion of Asthi itself and a small portion of next one Dhātu called Majja\(^{(5)}\). Vayu creates porosity into bones and this porous space is further fulfilled by Meda Dhātu\(^{(6)}\). (Ch. Su. 26/10), Asthi Dhātu is also not an exception. But Prithvi Mahabhoota constitutes a large portion of it that makes it the hardest and strongest Dhātu\(^{(7)}\). There are two causes for vitiation of Asthivaha Srotas; one is excessive exercise causing friction and inflammation of bones and second one is intake of food that aggravates Vata\(^{(7)}\).

Poorvarupa of Asthi- Kshaya:

The Poorvarupa of Vata Vyadhi can be considered as Purvaroopa of Asthi- Kshaya that remain in ceased form\(^{(8)}\) and it is the unique feature of Vata.

Rupa (Sign & Symptoms) of Asthi- Kshaya:

Falling of hair, nails, hair of beard as well as moustaches, teeth, fatigue and looseness of joints are the signs and symptoms found in Asthi- Kshaya\(^{(9),(10)}\).

Chikitsa Sutra for Asthi- Kshaya:

"Samanagnabhyaso Hi Dhatunam Vruddhi Karanam..."

This principle denotes that the things having similar
qualities to particular Dhatu, when are used constantly, cause enhancement of that particular Dhatu[11]. Also it is mentioned in classics that similarity of all substances is always the cause of increase and dissimilarity the cause of decrease. Both effect by their application[12].

Asthi-Kshaya is found naturally while aging starts but in postmenopausal women its occurrence is earlier.

Rajonivritti-

The term 'Rajonivritti' is made up of two separate words viz. "Rajaḥ" and "Nivritti" which means cessation of menstrual blood. According to Sushruta and various other references too[13], 50 years is mentioned as the age of Rajonivritti, when the body is fully in grip of senility.

Rajonivritti-janya Asthi-Kshaya-

Rajonivritti is mainly a stage of Jaravastha. Aging confers Kshaya of all Dhatus due to dominant Vata Dosha. Acarya Charaka admitted occurrence of Jaravastha from the age of sixty while Sushruta considered it at the age of forty. It is a natural event of human's life. It can be considered under Kala and Svabhava. But when its onset occurs unduly it is classified under a disease. Vata Vriddhi results into much decrease of Asthi Dhatu due to Ashraya-Ashrayi Bhava[14]. The possible etiopathogenesis for Rajonivritti-Janya Asthi-Kshaya can be discussed as under:

Nidana:

1). Sahaja Nidana:

A. Vitiation of Beeja, Beejabhaga, Beejabhagavayava: It may lead to weak and disease prone Asthi Dhatu in the progeny[15,16].

B. Pitrija Bhava: Pitrija Bhava is responsible for formation of Asthi Dhatu. Therefore Pitrija Bhava Dushti can be a cause of improper Asthi Dhatu Nirman[17].

C. Prakriti: Vata dominant Prakriti is prone to develop the disease.

2) Jataja Nidana[18,19]:

Due to Ashrayashrayi Bhava, factors, which aggravate Vata Dosha certainly affect Asthi Dhatu. Ahara and Vihara which aggravate Vata, lead to imbalance of Asthi Dhatu proportion in body.

A. Ahara (Dietary factors): Excessive intake of food having Ruksha Laghu, Sheeta, Vishad, Chala Guna cause aggravation of Vata, excessive intake of Katu, Tikta, Kashya Rasa, Anashana, Alpashana, Pramitashana, less intake of Snigdha, Guru Guna Ahara and Ksheera Dravya like Ksheera, Ghrita, Navneeta etc. or Rasayana Dravyas, Ama Doshotpatti in Shareera by Vishamagni.


3). Svabhava Nidana: Postmenopausal osteoporosis is peculiar in women due to women's genetically low bone mass than men. In Ayurvedic texts too, references regarding to this are given at various places. Following special characteristics of women contrary to men given in classics, are considered under Streekara Bhava[18,21].

1. Samhanana: Samhanana is measured by proper distribution of Asthi Dhatu quality and quantity wise). While Asamhanana is absence of solidity or Dridhatva. So it is clear that Dridhatva is a function of Asthi Dhatu and it is not found proper in women.

2. Shaithlya indicates looseness of joints and other body parts.

3. Mardava denotes softness of all body parts.

4. In Dantajanmik Adhyaya Acharya Kashyapa has explained the features of Danta in Kumari(female child) and Kumara (male child). Teeth in girls is not as painful as in boys because teeth in girls are naturally Mridu and Sushira in constitution, All
these facts show that *Asthi Dhatu* is naturally weak in women as compared to men. Therefore, in women after *Rajonivritti*, where *Kshaya* of all *Dhatus* becomes fast, *Asthi Dhatu* is markedly affected because of already having weak constitution of it.

4) *Jara*:

During *Jaravastha* aggravation of *Vata* and *Dhatu Kshaya* are natural event. So the degeneration in bones also occurs.

**Samprapti Ghataka of Postmenopausal Osteoporosis:**

**Dosha:**

*Rajonivritti-Janya Asthi-Kshaya* is a disease concerned to *Jaravastha* and *Asthi Dhatu* hence *Vata Dosha* is a primary cause for its occurrence. Simultaneously *Kshaya* of *Kapha* occurs along with it. So the symptoms related to *Vata Prakopa* and *Kapha Kshaya* show like *Shoola*, *Raukshya*, *Ruja*, *Shrama* etc.

**Dushya:**

This disease is related to *Asthi* and its *Mala*, *Nakha* and *Kesha*. Among them *Asthi* is a main place affected by it.

**Srotas:**

*Asthivaha Srotas* get affected. So *Poshakansha* of *Asthi Dhatu* is not supplied to *Asthi Dhatu* through *Asthi Vaha Srotas*.

**Agni:**

In *Jaravastha*, due to vitiation of *Jatharagni*, formation of *Dhatu* does not occur because *Jathargni* affects both *Dhatvagni* and *Bhootagni*. *Agni* is *Vishama* in this period.

**Roga Marga:**

Initially the disease involves *Bahya Roga Marga* but later on due to severity of it *Madhyama Roga Marga* like *Asthi-Sandhi* also becomes involved.

**Probable etio-pathogenesis of the disease:**

The factors which have considered under *Svabhavaja Nidana* as *Streekara Bhava-Asamhanana* together with *Sahaja Nidana* i.e. *Beeja Duṣṭi* and *Pitrija Bhava Dushṭi* cause vitiation of *Asthi Sthana*. More intake of *Vataja Ahara-Vihara* and less consumption of *Snigdha Prakriti Ahara* cause aggravation of *Vata* especially in old aged people.

In *Jaravastha*, vitiated *Agni Bala* affects *Poshana* of all *Dhatus* excessively. So the proper formation of *Rasadi Dhatu* cannot be performed. Due to this *Kshaya* of all *Dhatus* occur as there is no further new formation. The main reason behind this decay is *Vata Prakopa*. *Vata Dosha* with its all *Guna* spreads in entire body. This stage is the *Prasara Avastha*. Since *Vaigunya* of *Asthi Dhatu*, aggravated *Vata* deposits here and also *Asthi* is a place for *Vata*. This stage is a *Sthanasanshraya Avastha*. In this stage *Vata* produces symptoms of *Rachanatmaka* and *Kriyatmaka Vikriti* in *Asthi*. *Khara, Ruksha, Chala* etc. *Guna* of *Vayu* cause *Shoshana* of *Asthi Dhatu* which turns into *Kshaya* of it. Eventually it leads to hindering the functions of *Asthi Dhatu* and appears as *Sandhi Saithilya* etc.

**Sadhyasadhyata:**

*Asthi* is *Gambheera Dhatu* situated *Vyadhi*. The diseases of *Gambheera Dhatu* are mentioned as *Yapya* or *Kashta Sadhya*. In *Jaravastha* the disease occurs so it can be considered as *Yapya*.

**Postmenopausal Osteoporosis -**

The term Menopause is made up of two words “Meno” and “Pause”. Meno means Menstruation (month) and Pause denotes to cessation. Therefore, Menopause refers to permanent cessation of Menstruation. The time of Menopause is determined genetically and occurs at a median age of 51 yrs. This age is lower in non-white and non-European including Indian women. In India age varies between 45-50 yrs. According to W.H.O. osteoporosis is defined based on the following bone density levels:

- BMD is compared to two norms – healthy young adults (T-score) and age matched (Z-score). A T-score within 1 SD (+1 or -1) of the young adult mean indicates normal bone density.

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- A T-score of 1 to 2.5 SD below the young adult mean (-1 to -2.5) indicates low bone mass.
- A T-score of 2.5 SD or more below the young adult mean (> -2.5 SD) indicates the presence of osteoporosis[26].

**Signs and Symptoms:**

Osteoporosis is a silent disease, until a fracture is sustained.

- Episode of acute pain in middle to low thoracic region or high lumber regions.
- Pain in above mentioned regions while at rest or during routine daily activity is the earliest symptom of osteoporosis.
- The onset of pain is sudden and patient indicates exact moment of its beginning and specific site i.e. vertebral level where the pain originated.
- Spinal movement is severely restricted. Pain intensifies with movements –sitting or standing and is relieved considerably with bed rest in fully recumbent position.
- Vertebral compression fractures may be asymptomatic except some discomfort in the costal margins.
- Incremental loss in height and mild thoracic kyphosis may be evident.

**Clinical Findings:**

In early stages, following acute thoracic compression fracture, patients exhibit marked discomfort on sitting and standing.

- Gait is normal but slow. Spinal movements considerably reduced, with more restriction in flexion than in extension.
- Dowager’s hump (thoracic kyphosis) may be present as a result of previous anterior compression fractures.
- Involvement of lumbar spine is noted by progressive loss in lumber lordosis.
- Axial height may be decreased.

- Paravertebral muscle spasms are palpable and often visible. Spine and paravertebral muscles are tender on palpation and percussion over the level of fracture.
- Bony point tenderness is usually absent as the fracture is in the anterior vertebral body of spine which are not palpable.
- Most patients are totally pain free during the intervals between compression fractures; whereas some may complain of chronic, dull, aching postural pain in mild thoracic and upper lumbar region. This responds symptomatically to frequent, intermittent horizontal rest.
- Loss of height may be upto 2 to 4 cm with each episode of segmental vertebral collapse and progressive kyphosis.
- There is no significant loss of height when the lower ribs come to rest on iliac crest due to collapsed spine. Yet loss of bone mass continues.
- This results in decrease in size of thoracic and abdominal cavities, which are responsible for clinically disturbing side effects – exercise tolerance is reduced.
- Abdominal distension, protrusion is a common manifestation secondary to severe lumbar vertebral collapse.
- Circumferential pachydermal skin folds develop at the rib and pelvic margins as the disease progresses[27,28,29].

**Role of Estrogen in Osteoporosis:**

An influence of estrogens on bone mass prior to the menopause was suggested by number of observations in reproductive state. Some studies have shown positive association between bone mass and parity in premenopausal women. Also oral contraceptive use has been associated with higher bone mass in some women, but not in all studies. A number of hypo-estrogenic states in premenopausal women are associated with reduced bone mass. Amenorrhoea in female athletes and ballet dancers is associated with low bone mass and fracture
risk[30].

**Chikitsa of Rajonivritijanya Asthi- Kshaya:**

For Asthi Dhatu, Asthi Tarunasthi is mentioned as Dravya Samanya[31]. While describing management of Asthi Kshaya, Acharya Vagbhatta quoted that Basti containing Ksheera, Ghrita and Tikta Rasa should be given[32]. Basti is regarded as Shreshthā Chikitsa for Vata Prakopa, and Tikta Rasa is Asthiyvirdhikara. But Tikta Rasa is Vata provocative too. Dravayas, which are Snigdha, Shoshana and Khara in Guna causes Vriddhi of Asthi as Asthi is Khara in nature. This combination is not present in any single Dravya.

Hence Tiktra Rasa which has Shoshana Guna, with Basti of Ksheera or Ghrita, which is Snigdha, is recommended in Asthikshaya. Ksheera or Ghrita along with Basti will act as Vata Shamaka and Tikta Rasa because of its Panchabhaulita composition and Khara, Shoshana Guna will increase Asthi Dhātu.

The same line of treatment is given for management of Asthipradoshaja Vyadhi in Ch. Su. 28 /24. Panchakarma, especially Basti and use of Ksheera and Ghrita Siddha with Tikta Rasa should be given. Hemadri while quoting same Shloka in Ayurveda Rasayana on Ashtanga Hridaya mentioned the view of Kharanada that Basti and oral Tikta Rasa with Ksheera and Ghrita could be given in Asthi Kshaya.

This disease falls under Jaravastha. Jara is classified under Svabhavaja Vyadhi which becomes Yapya by Rasayana treatment. Hence for preventing Asthi Kshaya, Dravya that is Tikta in Rasa, Snigdha in Guna and possessing Rasayana Prabhava should be selected.

**Discussion:**

Rajonivritti is a stage of Vata Vriddhi. It is a joint period of Madhyavastha and Vriddhavastha. So the symptoms related with Vriddhi of Pitta and Vata are found combined during this period. Treatment given in allopathic science for the disease, is mainly hormonal substitutes and phytoestrogen (i.e. HRT and SERM). But both these therapies have many hazardous effect on body in the form of breast cancer, heart diseases etc. These treatment ultimately down the quality of life. So Ayurveda can be a great substitute to cure the disease.

**Conclusion:**

In Ayurveda, Tikta Ksheea and Ghrita Basti along with Rasayana are the best treatment to overcome the disease. Tikta rasa has the quality of Khara and Shoshana which is similar to the Guna of Asthi. Ksheera is found a rich source of calcium in studies. Some more Dravya like Pravala, Kapardika Bhasma, Mukta Bhasma etc. are best calcium supplement. Ashwagandha, Shatavari are natural phytoestrogen without any side effect. Hence, Ayurveda can play a major role to treat osteoporosis.

**References**

Sood V, Meena KL, Pareek G, An Ayurvedic Approach towards Asthi- Kshaya with Special Reference to Postmenopausal Osteoporosis, JOA XIII-1, 2019; 90 - 96


सारांश:

वर्तमान युग में जहां जनसंख्या तेजी से बढ़ती जा रही है, मूलभूत आवश्यकताओं के प्रति संवेदनशीलता भी बढ़ती होती जा रही है। लोग अधिक भीतिकाफ्की और महत्वकाफ्की होने के कारण अपने स्वास्थ्य को भी अनदेखा कर रहे हैं। उनके अनियमित रहन-चरण के कारण लालच स्टेटस इंडिकेटर्स अवयव समाहय हो चुके हैं।

ऑस्ट्रियोसेसिस भी उनमें से एक है। यह एक मेटाबॉलिक डिसोर्डर है जिसमें हड्डियाँ अवयव पतली, कमजोर और भूंपर हो जाती है। महिलाओं में रोजनिमुलि के परिवर्तक होमोस्टेसिस की कमी के कारण ऑस्ट्रियोसेसिस की समापति बढ़ जाती है। आयुर्यों में इस व्यवस्था का नामकरण नहीं किया गया है परंतु इसके लक्षणों को देखने के बाद इसे अर्थकार्य के समक्ष माना जा सकता है। अर्थकार्य को वात समाधी रोग माना जाता है यूकर्क का वात दोष का इसमें मुख्यतः प्रकृति होता है।

चर्च संहिता में एक मौलिक सिद्धांत का वर्णन है "सामान्यणायासों हि धातुआयाम वृद्धिकारणम्" इसके अनुसार जो पदार्थ शारीरिक धातुओं के समान युग रखते हैं उनके सेवन से उन गुणों की शरीर में वृद्धि में सहायक होते हैं और वे निरंतर सेवन किये जाएं। इस प्रकार जो भी औषधि, आहार तथा विहार अथवा धातु के समान गुणधर्म रखते हैं वे अथवा धातु को बढ़ाने में अत्यंत प्रभावी हो सकते हैं।
ORIGINAL RESEARCH ARTICLE - CONCEPTUAL STUDY

An Ayurveda and Modern concept of Blood vis-à-vis Thrombosis

*Dr. Sarvade Dattatray D., **Prof. Jaiswal Mohanlal

*Ph.D Scholar, Dept. of Dravyaguna vigyana, IPGT & RA, Gujarat Ayurved University, Jamnagar,
**Professor, Dept. of Dravyaguna vigyana, National institute of Ayurveda, Jaipur.

ABSTRACT

Thrombosis is the formation of a blood clot (thrombus) inside a blood vessel, obstructing the flow of blood through the circulatory system. When a blood vessel is injured, the body uses platelets (thrombocytes) and fibrin to form a blood clot to prevent blood loss. Even when a blood vessel is not injured, blood clots may form in the body under certain conditions. A clot that breaks free and begins to travel around the body is known as an embolus. According to Global Burden of Disease Study 2010, worldwide one in four people die from causes related to thrombosis.

As such, any thrombus related disease is not explained in Ayurveda. Still, grathitarakta pitta is a condition explained by charaka. Which is similar to the clotted blood. This article aims at reviewing all possible views regarding blood and thrombus related disorders.

Keywords: Ayurveda, Thrombosis, Blood clot, Embolus

Introduction:

Rakta which is described in Ayurveda can be correlated with blood. As mentioned by Sushruta, Rakta is very essential for dharana of sharira. When it is shuddharakta, it does all its physiological functions. Ashuddharakta evokes variety of diseases.

Concept Of Rakta

The basic structural elements of the body are dosha, dhatu and mala. Dhatu (elementary tissues) are seven in number. They are called dhatu, because they support (dharana) and nourishes (poshana) the body and other dhatus.
Rakta is considered as a second dhatu in the sequence of formation of seven dhatus. It supports the body and nourishes the next dhatu i.e. mamsa, hence included under the dhatu. It is being constantly formed, destroyed and reformed with appropriate materials derived from poshakadravyas (nutrient tissues). Like, other dhatus, it is also of two types viz. ashthayi or poshaka (unstable) raktadhatu and sthayi or poshya (stable or gross) raktadhatu. Ashthayiraktadhatu is the nutrient tissues that are required for the formation and nourishment of sthayi (stable/gross) raktadhatu. There is also an intermediate stage called Parinama Apadyamana Rakta Dhatu i.e. raktadhatu in the process of transformation. In absolute term, rakta means Sthayi Rakta Dhatu.

All the schools of Ayurveda, consider rakta as dhatu, but they also consider it as dushya because it is vitiated by the doshas. Some scholars having divergent view opine that rakta also comes under the dosha. This, hypothesis has got support and opposition from the scholars belonging to various schools. In some places, rakta has also been described as dosha.

- Derivation of rakta: The term rakta is derived from the root Ranja rage (to colour) with the suffix ktah
- Etymology: rakta is that, by which anything is made coloured i.e. Ranjate Raktavaranam Kriyate- AnenitiRaktam.
- Monier-Williams: Gave the meaning of rakta as, coloured, dyed, painted or reddened, red and crimson.
- Synonymy of rakta(by Anarkosha): Rudhira, lohita, sonata, asra, asrk etc.

Relationship between, rasa, rakta and blood

The Rasa though Apya (liquid, possessing properties & actions of water) after reaching Yakrita (Liver) & Pleeha (spleen) attains red color. The Apya Rasa (Water like-rasa) after getting red color by the Tejas (heat, fire-like agency) present in the body (in the liver & spleen) remaining uninitiated & clear, comes to be called as Rakta (blood). Blood in modern physiology is a crimson red coloured complex fluid that circulates in the vessels throughout the body. But, this fluid, in ayurvedic view, is both rasa and raktadhatu. Charaka has described that rasa is colourless and Sushruta stated that it spreads like, modern blood throughout the body, from its primary site hridaya, through 24 dhamans, and constantly soothens, maintains and irrigate the body by oozing. It permeates the entire body. This description of rasa is like blood of modern physiology, but rasa is not blood, as it is not coloured like blood. According to Sushruta view, the rasa becomes coloured red while passing through yakrit and pleeha under the influence of the tapa (heat) of tejas(pitta), and called as rakta, also indicates that rasa and rakta are different and rasa is not the rakta. During circulation, homologues of rakta derive from ahaar, present in rasadhatu are converted into raktadhatu, while they passes through raktasthanas (yakrit and pleeha). Dhaturuparaka (red coloured), is then transported from raktasthana by the colourless rasa dhatu which also appears as red, while in the circulation. It is for this reason that the circulating rasa dhatu is generally spoken as rakta. In fact, this circulating fluid is rasa dhatu cum raktadhatu. So, the rasa is the medium through which raktaias transported throughout the body. Due to this intimate correlation between rasa and raktadhatu, it is said that rakta is rasa and rakta itself ie. both rasa and rakta.

Elsewhere in the same work it is also mentioned that rasa itself is rakta and rakta itself is rasa. Yoganandanatha (15th cent. A.D.) has commented over the above as rakta, since it is formed of one rasa when it is situated within the body, it is known as rakta. At the level of hridaya, dharami and sira, rasa forms part of circulating rakta from which later rasa separates, at the level of shrotansi, to return back to hridaya again.[4]

Features of Shuddha Rakta – Pure Blood

Pure blood can be likened to gold (purified with fire), firefly (Indragopa), Red Lotus, Lac fruit of Gunja in color depending upon the individual constitution.[5]
Acharya Sushruta says, Blood which resembles Indragopa- Cochineal insect (bright red in color), not thick & not discoloured should be understood as being normal.[6]

Characteristic features of Rakta[7]: Rakta is neither hot nor cold (moderate), sweet in taste, unctuous, red in color, heavy, bad smelling, after improper cooking, it is like Pitta (Sour is taste & causing burning sensation).

Physical properties of Rakta dhatu: Drava (Liquid), Sara (fluid), Manda (opaque), Snigdha (Unctuous), Mridu (Soft), Picchila (Viscous), Asamhata (not of any shape), Indragopasamavarna (red in colour), Madhuram (sweetish), Lavanam (saltish).

Special properties of Rakta dhatu[8]: Visrata (smelling fleshy), Dravata (liquid in nature) Raga (colored), Spandana (Movement), Laghuta (light)

Functions of Rakta dhatu: Varna Prasadan (imparts color), Mamsapushti (Nourishes the Mamsa), Jivanam (enlivening), Sparshagnyana (Responsible for tactile sensation), Produces Vriddhi (growth) or Kshaya (wasting) of other dhatus.

Panchbhautika constitution of Rakta as explained by Acharya Dalhana, in his commentary as –

Guna`s of Rakta: Visrata, Dravata, Rago, Spandana, Aamagandhata, Dravswabhavata, Raktata, Kinchitwalan, Bhumigunaih, Ambugunah, Tejobhagunah, Vatagunah.

Formation of Rakta

Panchbhautika of Acharya Vagbhata, quoted that the sthana of Ranjaka Pitta as Amashaya.

According to Acharya Sharangadhara – रसद्रव उद्भयग्यातिः समान भारी पित्तः।

He explains – The Rasa obtained through Ahar-rasa, comes in Heart, through action/ Prerana of Samana – Vata. There it gets colored (becomes red) by Ranjaka pitta& through the action of Raktagni, after digestion get converted to Rakta.

Sthana (Seats) of Rakta[9]

Seats of Rakta are Yakrita, Pleeha & Rakta Vahi Dhamni. Marrow is found inside large bone, whereas a substance similar in appearance & found inside other bony structures (cartilages) should be considered as Meda, mixed with blood.

Pramana of Rakta[10] - 8 anjali

Circulation of Rakta[11] - The word Rasa is also used in indication used for Rakta. It explains that from Heart (arteries), Rakta spreads all over the body & by means of Sira (Veins) it returns to Heart. Rasadhatu circulates throughout the body in subtle ways like the continuity of sound, flame & water.[12]

Dalhana explains this simile interpreting the continuity of sound as sideward movement, that of flame as upward movement and that water as downward movement. Charaka, described that Rasa moves in continuous way in a circular motion like Chakra (i.e. Blood directs from Heart all over body & from body toward Heart). The blood in its normal state, flows through its specific Siras. Vyanawayu is the vehicle or medium, useful to move the Rasa-Raktadhatu all over the body, at once, in a continuous pattern[13]

Dusta Rakta Lakshana- Signs of Vitiated Blood[14],[15]

Decrease & increase of the dhatus is caused by Shonita (blood).

Features of the blood, vitiated by Vata-

Blood is frothy, slightly reddish to black; no slimy, thin
Features of blood when vitiated by Pitta:
Blood is bluish, yellow, green or black in color, unpleasant smell, not liked by ants & flies; & not clotting.

Features of blood when vitiated by Kapha:
Color similar to solution of Gairika (red ochre), unctuous, cold, thick, slimy, flowing slowly & resembles a muscle.

Features of blood vitiated by combination all the 3 doshas together:
All above features, this resembles Kanjika (rise gruel) & having very bad smell especially.

Signs & symptoms of Rakta dhatu kshaya (decrease of dhatu):

- roughness, dryness, cracks over skin & loss of its luster, craving (desire) for sour & cold things, looseness of the veins and emptiness of blood vessels.

Dhatu Vriddhi Lakshanas:
An increase in Rakta (blood), produces Red coloration of the body & eyes, fullness of veins etc.

Diseases produced due to vitiated Rakta:
These are – Kustha, Visarpa, Pidka, Raktapitta, Menorrhogia, Inflammation of the rectum, Phallus & mouth, Splenic disorders, Gulma, Nilika (blue moles) jaundice, Vyanga, Piplu (profane mark), Tilkalaka (black mole), Ringworm, Dermatitis, Leucoderma, Papules, Kotha, Urticaria & Astramandala (red circular patches) etc.

Characteristics of persons having vishuddharakta (pure blood).
Charaka, in another place has also pointed out the features of man having pure (Vishuddha = non-vitiated) blood. According to him. Such persons are characterized by the clarity in complexion, normal functioning of sense organs, unobstructed digestion and excretion, happiness, contentment (nourishment) and strength (Ch.S.Su.24/24).

Skandana Property Of Rakta

In Ayurveda, it is mentioned that the pure blood has asamhatam property in it. That is, it is not thick, so that its fluidity is maintained in the body. This is what called the ‘asamhatam’, property of rakta. Due to this property, rakta never stops at any place and it keeps flowing. Skandanais a phenomena of blood coagulation. If it works properly in a body, it protects the body from excessive blood loss. But if it increases from its normal limits then it causes various thrombotic disorders.

According to charaka, pure blood can be likened to gold (purified with fire), firefly (Indragopa), Red Lotus, like fruit of Gunja in color depending upon the individual constitution.[19] Sushruta quoted that blood which resembles Indragopa- Cochineal insect (bright red in color), not thick & not discolored should be understood as being normal.[20]

Sushruta also told that when the rakta gets vitiated by vata and pitta their skandi property gets changed into askandi, that means for the rakta to be called pure it must have skandana property in it[21]. But this skandana property of rakta must be in normal limits, if it increases from the normal range it will gets accumulated as a clot, and may cause the conditions like grathitarakta pitta, as explained by charaka.

From the above discussion it can be concluded that, if the skandana property of rakta not remains in its normal state, it can cause two types of disorders in the body, viz

1. Prolonged bleeding: as in the case of vata and pittadushitarakta (Su.S.Su.14/22), which causes decrease in the skandanaguna of rakta and thus causing, blood thinning and increases the fluidity of rakta causing abnormally prolonged bleeding

2. Abnormal clotting: whenever the skandi property of rakta gets abnormally increased or if blood loses its ‘asamhatam’ property, it causes abnormal clot formation inside the body, leading to conditions such as grathitarakta pitta.

Thrombus Related Diseases In Ayurveda
As such, any thrombus related disease is not explained in Ayurveda. Still, *grathitaraka pitta* is a condition explained by charaka. Which is similar to the clotted blood.

**Grathita Rakta pitta**

Definition of *Grathita Rakta pitta*

1. Acharya Charaka, is the first, who defines *Grathita Rakta pitta* for first time. The diseased state of *Raktapitta*, whenever there is *doshika* involvement to it by *Kapha*, (kanthagata), it termed as *Grathita Rakta*.

2. In words of Acharya Vagbhata


4. Acharya Gangadhara explains in Jalpakalpataru- vyakhya that if *Kapha* develops as a sequel to hemothermia & if the hemothermic blood gets inspissated, it is called as *Grathita Rakta pitta*.

Blood is the “circulating tissue” of the body; the fluid and its suspended formed elements that are circulated through the heart, arteries, capillaries, and veins; blood is the means by which oxygen and nutritive materials are transported to the tissues, and carbon dioxide and various metabolic products are removed for excretion. Blood consists of a pale yellow or gray-yellow fluid, plasma, in which are suspended red blood cells (erythrocytes), white blood cells (leukocytes), and platelets.

In vertebrates, it is composed of blood cells suspended in blood plasma. Plasma, which constitutes 55% of blood fluid, is mostly water (92% by volume), and contains dissipated proteins, glucose, mineral ions, hormones, carbon dioxide (plasma being the main medium for excretory product transportation), and blood cells themselves. Albumin is the main protein in plasma, and it functions to regulate the colloidal osmotic pressure of blood. The blood cells are mainly red blood cells (also called RBCs or erythrocytes) and white blood cells, including leukocytes and platelets. The most abundant cells in vertebrate blood are red blood cells. These contain hemoglobin, an iron-containing protein, which facilitates transportation of oxygen by reversibly binding to this respiratory gas and greatly increasing its solubility in blood. In contrast, carbon dioxide is almost entirely transported extracellularly dissolved in plasma as bicarbonate ion.

**Constituents of human blood**

Blood accounts for 7% of the human body weight, with an average density of approximately 1060 kg/m³, very close to pure water’s density of 1000 kg/m³. The average adult has a blood volume of roughly 5 liters (1.3 gal), which is composed of plasma and several kinds of cells. These blood cells (which are also called corpuscles or “formed elements”) consist of erythrocytes (red blood cells, RBCs), leukocytes (white blood cells), and thrombocytes (platelets). By volume, the red blood cells constitute about 45% of whole blood, the plasma about 54.3%, and white cells about 0.7%. Whole blood (plasma and cells) exhibits non-Newtonian fluid dynamics; its flow properties are adapted to flow effectively through tiny capillary blood vessels with less resistance than plasma by itself. In addition, if all human hemoglobin were free in the plasma rather than being contained in RBCs, the circulatory fluid would be too viscous for the cardiovascular system to function effectively.

**Functions of Blood:**

Blood performs many important functions within the body including supply of oxygen to tissues (bound to hemoglobin, which is carried in red cells), supply of nutrients such as glucose, amino acids, and fatty acids (dissolved in the blood or bound to plasma proteins (e.g. blood lipids), removal of waste such as carbon dioxide, urea, and lactic acid, immunological functions including circulation of white blood cells, and detection of foreign material by antibodies. Coagulation, which is one part of the body’s self-repair mechanism (blood clotting after an open wound in order to stop bleeding), messenger functions, including the transport of hormones and
the signaling of tissue damage, regulation of body pH, regulation of core body temperature and hydraulic functions.

**Pathology of blood:**

**General medical disorders**

- **Disorders of volume**
  - Injury can cause blood loss through bleeding\(^{(28)}\)
  - Dehydration can reduce the blood volume by reducing the water content of the blood. This would rarely result in shock (apart from the very severe cases) but may result in orthostatic hypotension and fainting

- **Disorders of circulation**
  - Shock is the ineffective perfusion of tissues, and can be caused by a variety of conditions including blood loss, infection, poor cardiac output.
  - Atherosclerosis reduces the flow of blood through arteries, because atheroma lines arteries and narrows them. Atheroma tends to increase with age, and its progression can be compounded by many causes including smoking, high blood pressure, excess circulating lipids (hyperlipidemia), and diabetes mellitus.
  - Coagulation can form a thrombosis, which can obstruct vessels.
  - Problems with blood composition, the pumping action of the heart, or narrowing of blood vessels can have many consequences including hypoxia (lack of oxygen) of the tissues supplied. The term *ischemia* refers to tissue that is inadequately perfused with blood, and *infarction* refers to tissue death (necrosis), which can occur when the blood supply has been blocked (or is very inadequate)

**Hematological disorders**

- **Anemia**
  - Insufficient red cell mass (anemia) can be the result of bleeding, blood disorders like thalassemia, ornutritional deficiencies; and may require blood transfusion. Several countries have blood banks to fill the demand for transfusible blood. A person receiving a blood transfusion must have a blood type compatible with that of the donor.

- **Sickle-cell anemia**

- **Disorders of cell proliferation**
  - Leukemia is a group of cancers of the blood-forming tissues and cells.
  - Non-cancerous overproduction of red cells (polycythemia vera) or platelets (essential thrombocytosis) may be premalignant
  - Myelodysplastic syndromes involve ineffective production of one or more cell lines.

- **Disorders of coagulation**
  - Hemophilia is a genetic illness that causes dysfunction in one of the blood's clotting mechanisms. This can allow otherwise inconsequential wounds to be life-threatening, but more commonly results in hemarthrosis, or bleeding into joint spaces, which can be crippling.
  - Ineffective or insufficient platelets can also result in coagulopathy (bleeding disorders).
  - Hypercoagulable state (thrombophilia) results from defects in regulation of platelet or clotting factor function, and can cause thrombosis.

- **Infectious disorders of blood**
  - Blood is an important vector of infection. HIV, the virus that causes AIDS, is transmitted through contact with blood, semen or other body secretions of an infected person. Hepatitis B and C are transmitted primarily through blood contact. Owing to blood-borne infections, blood stained objects are treated as a biohazard.
  - Bacterial infection of the blood is bacteremia or sepsis. Viral Infection is viremia. Malaria andtrypanosomiasis are blood-borne parasitic infections.
It is obvious from the above study, that coagulation disorders are an important group of hematological disorders.

**Blood Coagulation**

Coagulation (thrombogenesis) is the process by which blood forms clots. It is an important part of hemostasis, the cessation of blood loss from a damaged vessel, wherein a damaged blood vessel wall is covered by a platelet and fibrin containing clot to stop bleeding and begin repair of the damaged vessel. Disorders of coagulation can lead to an increased risk of bleeding (hemorrhage) or obstructive clotting (thrombosis)\(^{[20]}\).

Coagulation begins almost instantly after an injury to the blood vessel which has damaged the endothelium lining the vessel. Exposure of the blood to proteins such as tissue factor initiates changes to blood platelets and the plasma protein fibrinogen, a clotting factor. Platelets immediately form a plug at the site of injury; this is called **primary hemostasis**. **Secondary hemostasis** occurs simultaneously: Proteins in the blood plasma, called coagulation factors or clotting factors, respond in a complex cascade to form fibrin strands, which strengthen the platelet plug\(^{[20]}\).

Sequence of clotting mechanism

i. formation of prothrombin activator

ii. conversion of prothrombin into thrombin

iii. conversion of fibrinogen into fibrin

Prothrombin activator is formed in two ways through:

- **Intrinsic pathway**
- **Extrinsic pathway**
- **Common pathway**

**Intrinsic pathway**— In this, formation of prothrombin activator is initiated by platelets, which are within the blood itself.

**Extrinsic pathway**— In this, formation of prothrombin activator is initiated by the tissue

\(\textbullet\) **Common pathway** — The common pathway consists of the cascade of activation events. Here, fibrinogen is converted into fibrin and finally the formation of clots takes place.

Proper coagulation process is very important in the body, since it ensures limited bleeding in traumatic conditions (whether internal or external). But, since there is a saying *too much good is always harmful*, if this property of clot formation increases from normal, it may cause several thrombotic disorders.

**Thrombotic Disorders**

**Thrombosis:**

Thrombosis is the formation of a blood clot inside a blood vessel, obstructing the flow of blood through the circulatory system.

When a blood vessel is injured, the body uses platelets (thrombocytes) and fibrin to form a blood clot to prevent blood loss. Even when a blood vessel is not injured, blood clots may form in the body under certain conditions. A clot that breaks free and begins to travel around the body is known as an embolus\(^{[31],[32]}\).

When a thrombus is significantly large enough to reduce the blood flow to a tissue, hypoxia (oxygen deprivation) can occur and metabolic products such as lactic acid can accumulate. A larger thrombus causing a much greater obstruction to the blood flow may result in anoxia, the complete deprivation of oxygen and infarction, tissue death. There are also a number of other conditions that can arise according to the location of the thrombus and the organs affected.

Thromboembolism is the combination of thrombosis and its main complication, embolism.

**Pathophysiology of thrombosis:**

Thrombosis is caused by abnormalities in one or more of the following (Virchow's triad):

- The composition of the blood (hypercoagulability or thrombophilia)
- Quality of the vessel wall (endothelial cell injury)
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- Quality of the vessel wall (endothelial cell injury)
- Nature of the blood flow (stasis, turbulence)

**Hypercoagulability**

Hypercoagulability is caused by, for example, genetic deficiencies or autoimmune disorders. Recent studies indicate that neutrophils play a pivotal role in deep vein thrombosis, mediating numerous pro-thrombotic actions.\[31\],\[34\],\[35\]

**Endothelial cell injury**

Causes of injury to the vessel’s wall include trauma, surgery, infection or turbulent flow at bifurcations. The main mechanism is exposure of tissue factor to the blood coagulation system.\[36\]

**Disturbed blood flow (stasis, turbulence)**

Causes of disturbed blood flow include stagnation of blood flow past the point of injury, or venous stasis which may occur in heart failure, or after long periods of sedentary behaviour, such as sitting on a long airplane flight. Also, atrial fibrillation, causes stagnant blood in the left atrium (LA) or left atrial appendage (LAA), and can lead to a thromboembolism. Cancers or malignancies such as leukemia may cause increased risk of thrombosis by possible activation of the coagulation system by cancer cells or secretion of procoagulant substances (paraneoplastic syndrome), by external compression on a blood vessel when a solid tumor is present, or (more rarely) extension into the vasculature (for example, renal cell cancers extending into the renal veins). Also, treatments for cancer (radiation, chemotherapy) often cause additional hypercoagulability.

**Classification**

**Thrombosis is basically of two types:**

i. Venous Thrombosis

ii. Arterial Thrombosis

**Venous thrombosis**

Venous thrombosis is the formation of a thrombus (blood clot) within a vein. There are several diseases which can be classified under this category: for eg. Deep vein thrombosis, portal vein thrombosis, renal vein thrombosis, Budd Chiari syndrome, Paget-Schroetter disease, Jugular vein thrombosis etc.

**Arterial thrombosis**

Arterial thrombosis is the formation of a thrombus within an artery. In most cases, arterial thrombosis follows rupture of atheroma, and is therefore referred to as atherothrombosis. Arterial thrombosis can embolize and is a major cause of arterial embolism, potentially causing infarction of almost any organ in the body. eg. Stroke, myocardial infarction etc.

**Embolization**

If a bacterial infection is present at the site of thrombosis, the thrombus may break down, spreading particles of infected material throughout the circulatory system (pyemia, septic embolus) and setting up metastatic abscesses wherever they come to rest. Without an infection, the thrombus may become detached and enter circulation as an embolus, finally lodging in and completely obstructing a blood vessel, which unless treated very quickly will lead to tissue necrosis (an infarction) in the area past the occlusion. If the occlusion is in the coronary artery, myocardial ischaemia is likely to occur, whereby cardiac myocytes cannot function properly due to lack of oxygen. This lack of oxygen is then likely to result in a myocardial infarction.

**Abnormalities of blood causing thrombosis**:

A. Platelet abnormalities: Increase in number, Platelet hyperactivity, Elevated levels of VWF.

B. Coagulation abnormalities

i. Situational: Prolonged immobilization, pregnancy, OCP, surgery, HRT, chemotherapy, Heparin induced thrombosis and thrombocytopenia.

ii. Inherited: Deficiency of natural anticoagulants, procoagulant factor accumulation, coagulant factor resistance to inactivation

iii. Acquired: Cancer, inflammatory bowel disease,
APLA, PNH, Hyperviscosity syndromes.

C. Fibrinolytic abnormalities: Deficiency of t-PA, High levels of PAI

Thrombophilia is synonymous with hypercoagulable state and refers to acquired or inherited abnormality resulting in increased risk for venous or arterial thrombosis.


Acquired thrombotic disorders[40]:


AT III deficiency

Inherited as AD condition resulting in Qualitative or quantitative abnormality of AT-III. Manifests mainly as venous thrombosis which occurs after precipitating event. Patients may show heparin resistance uncommonly. Patients should have assays on samples of blood collected before anticoagulants have been started. Patients with thrombosis need the usual anticoagulation continued for life especially if thrombosis is recurrent. Patients known to be deficient but with no thrombosis should receive prophylaxis for prothrombotic events and females should be advised to avoid OCP. AT infusions may be necessary to facilitate procedures in patients on anticoagulants when anticoagulation is contraindicated.

Protein C and S deficiency

These are Vitamin K dependant factors. Inheritance is AD and condition is associated with venous thrombosis. Protein C deficiency may be associated with foetal loss. Abnormality may be qualitative or quantitative. It is preferable to measure activity when patient is not on oral anticoagulation. Thrombosis occurs usually in the presence of other risk factors. Anticoagulation is given for thrombotic events and is lifelong if these events are recurrent or life threatening.

Activated Protein C Resistance (APC-R)

This is thought to be the commonest inherited cause of thrombophilia in Caucasians. Inheritance is AD and condition results in inability of patient to inactivate Factor Va. This is due to abnormality in Factor V called Factor V Leiden in majority of cases of APC-R.

Prothrombin mutations

Second most inherited cause of hypercoagulable state. Inheritance is AD and results in elevated levels of PT. Increased risk of MI seen in females with this mutation but not in males.

Hyperhomocysteinaemia

Homocysteine is produced when methionine is converted to cysteine. Elevated levels are associated with strokes, MI, peripheral arterial disease and VTE. Conversion pathways are dependant on Vitamins B12, B6 and folic acid. Thrombotic events are treated with anticoagulants and folic acid supplementation as long as B12 deficiency has been ruled out.

Antiphospholipid antibody syndrome (APA)

The two most important APA are lupus anticoagulant (LA) and anticardiolipin(aCL). These antibodies may or may not be associated with clinical syndromes including arterial and venous thrombosis, thrombocytopenia, obstetric complications such as recurrent spontaneous abortions and pre-eclampsia as well as neurologic and skin abnormalities. It is an acquired disorder in which antibody to phospholipid bound prothrombin results in prolongation of phospholipids dependant PT assay. Antibody binds to endothelium resulting in increased expression of adhesion molecules and cytokine secretion.
with resulting thrombus formation. This may be seen in a number of conditions not associated with lupus and despite prolonged PTT is associated with thrombus formation (misnomer).

Laboratory testing will demonstrate prolongation of PTT with no correction on mixing. Dilute russel viper venom time (DRVVT) will also be prolonged and LA is confirmed when correction occurs in presence of excess PL such as with addition of lysed platelets. Treatment of condition will be determined by specific clinical situation in patient with persistently positive LA.

HITT

This is an immune mediated condition in which antibodies to heparin PF-4 complex develops. It usually occurs within 5-14 days of heparin therapy and can occur with all types of heparin given by all routes. It is necessary to monitor the platelet count every 3 days in patients on heparin therapy during the time that this condition is likely to occur. Platelet activation and thrombosis results. If platelet count falls whilst patient is on heparin the diagnosis of HITT should be considered and investigated. Heparin should be discontinued and alternate non heparin anticoagulant such as DTI used.

Clinical situations in which thrombophilia should be suspected: VTE with no identifiable cause, VTE in unusual sites, Recurrent VTE, VTE in young patients, VTE with family history of VTE, Unexplained pregnancy loss.

Discussion: As such no any disorder has been mentioned in Ayurveda which can be correlated with Thrombosis. There are many references in Ayurveda texts which suggest that our Acharya’s had knowledge of blood coagulation related disorders. Thrombosis in modern aspect is one of the major emergency which probably ends into death if not treated at earlier stage. Conceptual study shows that Picchilaguna and Kapha are responsible for the formation of blood clot. If these guna’s doesn’t increase beyond their normal limits, blood will have Asamhatam property in it as per Dalhana. And if these guna’s increases from their normal limits, blood loses it’s Asamhatam property and form blood clots.

Conclusion: Thrombosis is a life threatening disorder. According to Ayurveda, this condition of blood would have occurred due to increased picchilaguna of rakta as well as kapha in body. According to modern science, there are various causes of thrombosis like atherosclerosis followed by vascular injury, hypercoagulability of blood due to various reasons etc.

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36. labtestsonline>Hypercoagulable Disorders This article was last reviewed on May 23, 2007 and was last modified on March 6, 2010

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सारांश:

श्रीम्बोसिस यानि शरीर में खून का थक्का (थ्रोम्बस) रक्त वाहिका के अंदर गठन होना है। जो की रक्त संचार प्रणाली के माध्यम से रक्त के प्रवाह को रोकता है। जब एक रक्त वाहिका सदृश हो जाती है, शरीर खून का थक्का बनाने के लिए प्लेटलेट्स (थ्रोम्बोसाइट्स) और फाइब्रिन उपयोग करता है ताकि शरीर में से रक्त का व्यय रोका जा सके। यहां तक कि जब कोई भी रक्त वाहिका घायल नहीं है, रक्त के थक्के कुछ शरीर के तहत शरीर में हो सकते हैं। एक थक्का जब मुक्त हो दूसरे जाता है और शरीर के चारों ओर बाधा करने के लिए शुरू होता है वह एन्वॉलस के रूप में जाना जाता है। ग्लोबल बर्डन ऑफ्हिसिज रिपोर्ट २०१० के मुताबिक, दुनिया भर में यार लोगों में से एक थ्रोम्बोसिस से संबंधित कारणों से मर जाते हैं। कोई भी थ्रोम्बस संबंधित रोग का आयुर्वेद में सपट उल्लेख नहीं है। फिर भी, ग्रंथियरक्षितत नाम की एक रक्तकंपत की अवस्था चरक द्वारा उद्धृत की गयी है। जो की ब्लड ल्कोट के समान है। इस लेख का उद्देश्य सभी संभव रक्त की एवं थ्रोम्बस संबंधित विकारों की समीक्षा करना है।
A critical re-evaluation on the concept of Aahara w.s.r. to Ritucharya

*Dr. Manju Kumari, **Dr. Durgawati Devi

*P.G. Scholar, **Associate. Prof., Dept. of Swasthavritta & Yoga, National Institute of Ayurveda Jaipur

ABSTRACT

Introduction: Ayurveda is a science of life. Ayurveda is evaluated on earth for the maintenance of health and various principles are described for achievement of this goal under the head of Swasthavritta. One of the important principles of Swasthavrittais Tryopstambha which includes Aahara, Nidraand Brahmacharya. Aaharahas been considered as the prime factor for the maintenance of Dhatusamya or health if utilized according to prescribed regimen as well as it has also considered as main causative factor for the causation of diseases if not taken according to prescribed regimen. Materials and methods: The related references have been collected from different Ayurvedic texts and its available commentaries. The collected references have been critically observed, compiled and discussed thoroughly. Discussion:There are various regimens and regulations are described in these contexts for the consumption of suitable and appropriate food. Acharyacharak says that even Matravat Aahara will not be fruitful, if not consumed according to Ritucharya.

Keywords: Aahara, Ritu, Ritucharya

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Introduction:

Ayurveda, the science of life is a time tested treasure of knowledge that has been handed down to us from our great ancestors. Ayurveda is evaluated on earth for the maintenance of health and various principles are described for achievement of this goal under the head of Swasthavritta. One of the important principle of its Swasthavrittais tryopstambha which includes aahara,nidra and brahmacharya. Here aahara has been enumerated first which shows its importance. Aahara is very important for the classic aim of total positive health including physical, mental and spiritual well-being. Aahara has been considered as the prime factor for the maintenance of Dhatusamyaor health if utilized according to prescribed regimen as well as it has also considered as main causative factor for the causation of diseases if not taken according to prescribed regimen.
Therefore various rules are described in the context of Aahara utilization and Kala or time is one of those. Ritucharya has described in context of various seasons and it includes various regimens of Aahara and Vihara. If these regimens are not followed properly various diseases will be manifested. It may be one of the causative factors for the evolution of life-style disorders which are increasing rapidly day by day.

Aims & Objectives:

1. To collect and critically re-evaluate the references regarding Aahara in the context of Ritucharya described in various Ayurvedic texts and its available commentaries.
2. Try to establish the relationship between the prescribed regimen of Aahara and evolution of rasa in particular Ritu.
3. To discuss the contemporary food pattern and its effects on health and prepare a regimen which practically and socially accepted by the people.

Materials And Methods:
The related references have been collected from different Ayurvedic texts and its available commentaries. Related websites have also been searched. The collected references have been critically observed, compiled and discussed thoroughly.

Benefits And Classification of Aahara:
Food sustains the life of living beings. All living beings in the universe require food. Complexion, clarity, good voice, longevity, geniuses happiness, satisfaction, nourishment, strength and intellect are all conditioned by food. Professional activities leading to happiness in this world, Vedicrituals leading to abode in heaven and observance of truth, Brahmacarya leading to salvation are all based on food.[6]

There is a detailed and exhaustive classification of dietary items available in ancient Ayurvedic texts. The basis of classification by Charaka has been mainly the type of food item i.e whether it is a cereal, pulse, Vegetables or fruits and so on.[6] Sushruta and other Acharayas have first broadly classified all the food items into liquid[6] and solid food[4] and then subdivided these in to two types accordingly.

Classification Of Ritu:
It is mentioned by Acharya Vagbhata that Ritu or seasons are recognized by the three following methods:[6]
1. Classification according to month
2. Classification according to sun in different zodiac
3. Classification according to characteristics of Shita, Usna, Varsha.

Considering with Ayana system all Acharya have mention these six ritus in a year-
Shishir (late winter), Basant (spring), Grishma (summer), Varsha (rain), Sharad (autumn), Hemant (early winter)

Aahar And Ritucharya:
Relationship Between Ritu & Taste (Rasa)
Rasa is an important nutritional concept in Ayurveda. Rasa is not merely incidental in terms of rendering the food palatable, but it is important in term of nutrition. As per Ayurveda, there are six Rasas, namely Madhur (sweet), Amla (sour), Lavana (salt), Katu (pungent), Tikta (bitter) and Kashaya (astringent). Rasas are also ultimately made up of the five Mahabhootas. However it is also observed that specific Rasas predominate in particular seasons and this has implications for how our food and regimen must change in various seasons.[6]

Ayurved mentioned food to eat according to different seasons. Dosaare predominant in different Ritu and the specific type of food also mentioned for particular Dosha according to the season.

Reason behind seasons:
The earth’s orbit around the sun is not a perfect circle. It is an ellipse. Seasons are not caused by how close the earth is to the sun. Seasons are the result of the tilt of the earth’s axis. Earth’s axis is tilted 23.5°. This tilting is why we
have seasons like rainfall, winter, spring, summer occurs. Summer is warmer than winter (in each hemisphere) because the sun’s rays hit the earth at a more direct angle during summer than during winter. Also the days are much longer than nights during the summer. During the winter, the sun’s rays hit the earth at an extreme angle, and the days are very short. These effects are due to the tilt of the earth axis.

**Climate & climatic zone:**

**Climate:** encompasses the statistics of temperature, humidity, atmospheric pressure, wind, precipitation, atmospheric particle count and other meteorological elemental measurements in a given region over long periods. Climate can be contrasted to weather, which is the present condition of these elements and their variations over shorter periods.[7]

**Climatic zone:** is a region of the world where the climate can be defined using a few key parameters. There are a number of different ways to classify the world’s climate zones, and a wide assortment of uses for this information.

**Discussion:**

The concept of Aahara is very important principle and have prime place for the maintenance of Dhatusamya. There are various regimens and regulations are described in these contexts for the consumption of suitable and appropriate food. Acharya Charak says that even Matravat Aahara will not be fruitful, if not consumed according to Ritucharya.

The concept of Ritucharya is based on adjustment with seasonal fluctuations. The climatic conditions of any region are totally depending on geographical nature of that particular region. But Ayurveda has given a scientific classification for the understanding of time or Kala in the context of seasonal fluctuations.

**Ritu Classification :**

1. **General (Swasthavritta)**

In Ayurvedic classics Samvtsara has been divided into six Ritus. That is Shishir, Vasant, Grishma, Varsha, Sharad, Hemanta With two months duration for each Ritu. The seasonal manifestation in different months depends upon transition of sun in various Rashis.

2. **According to Dosha Sanchaya, Prakopaand Prasara**

Another classification of Ritu given in Ayurvedic text is Dosha fluctuation in the body. It is well known concept that seasonal fluctuation results in Dosha fluctuation in the body. The purpose of this classification is the elimination of vitiated Dosha from the body.

In Ayurvedic classics the seasonal characteristics are divided into three groups that is cold, hot and rainy. Two Ritu are kept in each group.

<table>
<thead>
<tr>
<th>Cold</th>
<th>Sharad–Hemanta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot</td>
<td>Vasant–Grishma</td>
</tr>
<tr>
<td>Rainy</td>
<td>Pravrita–Varsha</td>
</tr>
</tbody>
</table>

Among two Ritu in each group the first Ritu has the mild characteristics of that season. While second Ritu has the intensive characteristics of that particular season. Two reasons are given for this purpose.

(1) In Sadharan Kala, seasonal manifestations are in mild form and weather is pleasant. Therefore, there is least chance of complications after Sanshodhankarma for Dosha elimination.

(2) Vitiation of Dosha occurs in Sadharan Kala.

**Current concept**

In current era, seasons are classified into four. That is spring, summer, autumn and winter. Spring starts from vernal equinox (21st march) to summer solstices (21st June). Summer starts from summer solstices and end at the autummal equinox (22nd September). Autumn starts from autumnal equinox to winter solstices (21st December). And winter starts from winter solstices to vernal equinox.
If we compare the traditional and modern classification of season, the *ayurvedic* classification is more comprehensive and elaborative. It includes all the possible changes occurring in environmental only but also in the body. In other words, first classification described here based on the seasonal changes and provides bases for the modification and adjustment in lifestyle. While second classification is intended for *dosha* fluctuations according to external seasonal fluctuations and its eliminations.

If we see the current classification, there is not much scope for the lifestyle modification and it is not indicated in the context of seasonal variation. Another important thing is that one season is of three month duration. It is too long for single lifestyle. Because there is a lot of environmental changes occurs in this long duration.

**Evolution of *Rasa* in different *Ritu* and its relation with diet and *Sanchya*, *Prakopa* and *Prasara* of *Dosha***

It has been mentioned in *Ayurvedic* text that movements of sun is responsible for the changes in season, *Bala*, *rasa* and *Dosha*. When sun moves through northward its intensity is increasing gradually. So dryness in environment increases and *Bala* of human being decreased gradually. Due to this increase in dryness, *Ruksha Rasa* become potent in respective *Ritu*; that is *Tikta* in *Shishir*, *Kashay* in *Vasant*, *Katu* in *Grishma*. The opposite thing is happened, when sun moves through southwards intensity of sun become feeble and thus intensity of moon is increased. This result in evolution of *Snigdha Rasa* in respective *Ritu*; that is *Amla* in *Varsha*, *Lavanain Sharad* and *Madhur* in *Hemanta*.

This pattern for evolution of *Rasa* in different season plays important role in *Sanchay*, *Prakopa* and *Prasar of Dosha*. One more thing is also important in this regard is diet pattern and status of *Agni*. These are both external and internal factors responsible for accumulation and vitiation of *Dosha*.

**Aahar and Ritucharya**: Seasonal changes in different *Ritu* are responsible for the changes in human body. Especially status of *Agni*.

This *Agni* status is bases for the design of diet pattern for particular *Ritu*. Each season will be discussed one by one.

**Hemanta & Shishir (Cold season)**:

These both *Ritu* consider together because their characteristics are same. Only difference in *Shishir Ritu* is more cold and dry than *Hemanta*. So the diet planned for this season must have *Madhur*, *Amla*, *Lavana Rasa* *Guru*, *Snigdha*, and *Ushna Guna* Predominantly. Some eg. are given.

**Cereals**- New grains-example *Rice*, *Wheat*, *Juwar*, *Bajra*, *Maizeetc*, **Pulses** – *Udad*, *Tuar*, *Chana*, *Rajma* etc. **Meat** – meat, fishes and poultry, **Vegetables** – seasonal vegetables **Fruits & dry fruits** – orange, guava, chikku, grapes, banana, pomegranate, dates, kiwi, passion apple, cashew nuts, **Milk & milk products**, **Sugar & its products**, **Oils & animals fat**, **Prepared food items** – stuffed *parantha* & *puri*, *kheer*, halwa, gravy *dishae*, *laddu*, *gaajak*, *paapad*, *khichdiete*, Water should be consumed slightly warm

**Vasant Ritu**

It is the season of *Kapha* aggravation and thus power of *Agni* is reduced. *Katu*, *Tikta* and *Kashay Rasa*, *Laghu*, *Tikshna* and *Ushna Guna* should be included in diet. To fulfill these requirements old grains should be consumed.

**Cereals** – *Yava*, rice, wheat etc, **Pulses** – *Munga*, *Masur*, *Tuar*, **Vegetables** – seasonal vegetables, *Lokki*, *Parval*, *Brinjal*, bitter guard etc, **Fruits** – seasonal fruits *Grapes*, *Aavula*, Bitter Melon, Strawberries, Pineapple, **Prepared food items** – veg. soup, *daal soup*, *roti* (thin), *rice*, *kadhi*, thin gravy preparations, Fermented traditional food items like *idly*, *dhokla* should be taken.

**Grishma Ritu**

In this season two major changes occurs in body that is *Agni* become more feeble and body is totally exhausted due to intensive heat of that atmosphere. To counteract this *Madhur Rasa*, *Sheeta*, *Snigdha* and *Drava Guna* should be taken predominantly.
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**Cereals** – Yava, wheat, rice, Pulses – Munga, Masur, Tuar, Rajma, Chana etc. **Vegetables** – lokki, bitter guard, lady finger, parval, cucumber, **Fruits** – seasonal fruits mango, papaya, water melon, musk melon, grapes, bel, apricots, honeydew melon, **Milk & its products** – cold and sweet milk, ghee, **Sugar & its products** – sugar cane juice, **Prepared food items** – veg. soup, dal soup, thin kheer, buuter milk, raita, sharbat, paanak, manth, coconut water, thin gravy items, thin roti, thin dalia and khichdi, sweets, fermented food items. Seasonal fruits juice and plenty of water should be taken.

**Varsha Ritu**

In this season Agniis feeble and all three Doshas are vitiated. Amla, Lavana, Katu and Kashaya Rasa, Ruksha, Ushna and Deepan Guna predominant diet should be taken.

**Cereals** – Yava, wheat, rice, **Pulses** – Munga, Masur, Chana, **Vegetables** – seasonal vegetables lokki, **Fruits** – seasonal fruits mango, **Sugar & its products** – honey(old), **Prepared food items** – soup, roti, boiled rice, butter milk, fermented food items, Madhudak

**Sharad Ritu**

It is the season of pitta aggravation. So Madhur, Tikta, Kashaya Rasa, Laghu, Sheeta Guna predominant diet should be taken.

**Cereals** – Yava, wheat, rice, **Pulses** – Munga, Masur, **Vegetable** – parval, lady finger, turyi, bitter guard, **Fruits** – seasonal fruits, **Milk & its products** – sweet milk, Sugar & its products – honey, **Prepared food items** – soup, roti, rice, thin and cold kheer, butter milk, sweets, thin gravy items. Ghee should be taken but oil should be avoided.

**Conclusion:**

- **Aahara & Ritucharya** are important principles of Swasthvritta and thus play a important role in health maintenance.
- Concepts of Ritu and meteorological environment approximately have similar characteristics.

- **Aahara** is very important principle and should be followed according to **Ritucharya** for health maintenance.
- This study is on conceptual bases and can be elaborated as experimental and survey projects.

**References**

आयुर्वेद एक जीवन विज्ञान है। इस सूचना पर आयुर्वेद का अवतरण स्वास्थ्य संस्थानार्थ हुआ है, इस उद्देश्य के लिए आयुर्वेद संस्कृत साहित्य में बहुत से सिद्धांतों का उल्लेख मिलता है जिनमें से त्रयोपसत्व एक प्रमुख सिद्धांत है। जिसके अन्तर्गत आहार, निद्रा और अष्टाध्याय आदि प्रमुख स्वास्थ्य संस्कृत विषय सम्बन्धित है। आहार कामाक्षी विधि से युक्त युद्ध प्रयोग किया जाए तो धारु साम्य का प्राथमिक कारण बनता है परमुत शास्त्री विधि से प्रयुक्त नहीं करने पर रोगों का कारण बनता है। सामग्री एवं कार्य प्रदर्शना: उपरोक्त शोध-पत्र को पूर्ण करने हेतु संदर्भ आयुर्विदीय ग्रंथों तथा उन पर उपलब्ध टीकाओं से लिये गये हैं प्रस्तुत संदर्भ का विश्लेषण संकलन करके उनका आलोचनात्मकविवेचन किया गया है। विषय: इन ग्रंथों में मात्रावत् एवं उचित आहार यहण हेतु विभिन्न विधि-विधान एवं नियम लिए हैं। आचार्य धर्मासन राज्यावल्ल आहार भी यदि आत्मविस्तार के अनुसार नहीं लिया जाए तो यह युक्त युद्ध नहीं है।
**ABSTRACT**

Theoretical knowledge and its practical application are considered to be the two wheels of the chariot of science. In samhita age learners of applied sciences were very careful in developing such a well-balanced professional personality. But in later days more importance was given to the practical application and the theoretical knowledge was meant only for intellectual elites and scholars. This inability to substantiate the principles of treatment experimentally and scientifically proved detrimental to the development and reliability of Ayurveda in this age.

So it is no wonder that the same apathy towards the theory, resulted in the stagnation of new Ayurvedic literature. Further the false notion that the disclosure of the formula of a medicine or the unique way of treatment will lead to the loss of its efficacy was also another retarding factor in the development of Ayurvedic literature. This dearth jeopardized the learning and teaching of Ayurveda and is a threat to the practitioners as well.

The Acharya while writing treatise, adopted a unique methodology in expressing their ideas and without being adept in this methodology, the learner finds it difficult to understand their saying perfectly. These techniques are called tantrayukt. These are scientifically and rationally used in each and every aspects of all classical compendium.

In the current article a practical review of the tantrayukt in the purview of bedside clinical examination and treatment is made for better understanding of principles in clinical conditions.

**Keywords**: Tantrayukt, yojana, Padarth

**Address of Correspondence:**

Dr. Asit K Panja  
Associate Professor, Dept. of Basic Principal  
National Institute of Ayurveda, Jaipur.  
Email ID: asitkpanja@gmail.com  
Contact No: 9982082832

**Introduction:**

Ayurveda is the most ancient medical science. Its history goes back to the era when the flow of knowledge was exclusively verbal. Later the tradition of documentation came into existence and the thoughts of stalwarts took the form of various classic treatise. The development of
Sharma N, Agrawal A, Panja AK, Understanding of tantrayukti, the classical ‘tools of description’ of compendium – A review from Bedside, JOA XIII-1, 2019; 115 - 120

a systemic, comprehensive and well-compiled scripture followed certain criteria, rules and regulation which enhanced the beauty and credibility of text. The science evolved the unique mode of expression and specific methodology to present the concept to the learner. Ancient text were written in concise form i.e. sutra where every seemingly small aphorism encompasses a vast meaning and in a particular style. To increase the range of assimilation of the classics certain tools are mentioned. Tantrayukti is one such prerequisite for the exposition and comprehension of the subject. These are the methodology of studying a science to interpret its correct abstruse meaning for its practical implementation.

Tantrayukti is made up of two words – “tantra” and “yukti”. Tantra means shashtra which here pertains to Ayurveda and yukti means yojana or planning. Yukti stands for the logical exercise, which arrange, relate, and coordinate the scattered components with each other with reference to the context. The yojana or planning is two folds i.e. vakyayojana and arthayojana. Vakyayojana is the literary aspect which includes arrangement of words or sentences to arrive on a particular meaning. Arthayojanahelps in exploration of occult, perplexing and less spoken parts of the text. Tantrayukti exhibits its utility as per the field of application as

1. **Literary field**: tantrayukti helps in studying (adhyapana) the samhita, commentaries, exploration of the text and ascertain the meaning of concealed, less expressed, mysterious portions, paper writing, thesis writing etc.

2. **Practical field**: The clinical advantage of tantrayuktis very well reflected in disease diagnosis and treatment.

Following case study further clarifies the application of tantrayukti in vyadhivinishchaya (diagnosis) and chikitsa (treatment) in accordance with Ayurveda and in the other contemporary science.

**Tantrayukti in Vyadhivinishchaya:**

Vyadhivinishchaya is the foremost and immensely important aspect in chikitsa. Following phases comprise the diagnostic part which have been explained with a case of asthimajjagatavata along with its modern view i.e. avascular necrosis.

**Presenting illness:**

It refers to the main complains of the patient in his own words. Here the patient is the adhikaran as for his wellness the karta (physician) has taken the initiative. The physician has to arrange the words and phrases of the patient which are usually haphazard and vague and correlate it with the theoretical matter (classical features) or previous experiences in the process to reach on a conclusion (padarth). Sometimes a brief description (uddesh) of disease is enough or available while on other occasions a detailed exploration (nirdesh) of the case is needed. E.g. the patient’s complain of severe on going right sided low back, hip and knee pain for the past six months can be inferred in classical terms as sandhisula, sandhibedah, parvabedah, sandhiruja, sandhivedana etc.

Certain related features are not mentioned by the patient which has to be inferred by the physician by logic and he can also ask leading questions for the confirmation. This is in accordance with the uhya tantrayukti where the unsaid part can be grasped by the means of logic and reasoning e.g in this case the patient did not report numbness or paraesthesia (padasuptata) in his lower extremities. There was no bowel and bladder dysfunction which indicates the sound nervous functioning of that area.

**Past history:**

The past history of patient aid in further clearing the picture (samshaya) and resolves the doubts about the diagnosis. The supporting tantrayukti is hetvarth, which is about the application of previous experiences in present context e.g. in this case patient, received a flu vaccine 14 months prior to injury. He subsequently developed an allergic reaction and was diagnosed with leukocycteelasticvasculitis skin eruptions.
Examination of the patient:

The patient examination is done to find the possible changes in the body in the course of disease. It plays a very important role in disease ascertainment. The examinations are disease specific. This is in support of sambhavatantrayuktī, which deals with the possible outcomes of an event. The examinations in this case were many e.g. straight leg raise produced right hip pain. Muscle palpation revealed tenderness in the lumbar para-spinal and right gluteal musculature, global muscle weakness was noted in the right lower limb when compared to the left etc.

Investigations:

From the chief complains and associated symptoms generally more than one diseases are suspected because of similarity in presentation. This is samshayatantrayuktī i.e. raising of doubts. Certain investigations are done to confirm the diagnosis, which provide confirmatory data and expert opinion. The expert opinion is known as nirvachan, as these are only be comprehended by the learned only. Within the circle of physicians it can also be taken as nidarshantantrayuktī as it somehow, simplifies the diagnosis, which is not clinically so easy to depict. The external source of knowledge refers to atideshatantrayuktī. E.g. in this case the application of the above tantrayuktī are explained below in this particular case the patient had a lumbar spine MRI done and was referred to a neurosurgeon for consult. The MRI showed a small disc bulge in the T12/ L1 region. The neurosurgeon’s report stated that he was unable to correlate the patient symptoms with the MRI findings and recommended EMG studies.

Probable diagnosis:

Generally the chief complains more than one disease is suspected which have similar kind of presentation because a single feature is found in various other diseases. So, first a provisional diagnosis is made on the basis of primary examinations which is later confirmed by using various tools like elaborated history, investigations, upashaya etc. The lakshanavyapakatva i.e presence of a symptoms in many diseases is in support of hetvarhtantrayuktī. eg. Sandhishula symptom of the disease can be found in multiple diseases like asthigatavatōkopa, majjagatavatōkopa, majjakshaya, mamsakshaya, sandhigatvata, vatarakta etc.

The other tantrayuktī used are padarthā (knowledge of the meaning of c/f), uhya (understanding from unsaid history), sambhava (analysis of system), vakyāshēśha (incomplete history), arthapatti (understanding from history), yoga (drawing relation between c/f obtained from history and examination).

Probable diagnoses in this case are avascular necrosis, osteo-arthritis, osteoporosis, osteomalacia in modern and asthigatavata, majjagatavata, majjakshaya, mamsakshaya, sandhigatvata, vataraktaī Ayurveda.

Differential diagnosis:

Tantrayuktī used in here are pratysā and uddhara. Pratyusāra refers to deduction of possible diagnosis one by one by finding loopholes on proper thinking and reasoning. Uddhara is the establishment of final diagnosis by giving logics in support of it. E.g in this case majjakshayaand mamsakshayain Ayurveda view and osteoporosis and osteomalacia are the differential diagnosis.

Final diagnosis:

Final Diagnosis is the established in accordance with nirnayai and ekanttantrayuktī. Nirnaya is the establishment of fact after the contemplation from all possible angels. Ekanta is establishment of diagnosis on the basis of already proven facts which have no scope of doubts. In this particular case the modern diagnosis is avascular necrosis and in Ayurveda it is asthimaajjagatavata.

Tantrayuktī in chikitsa:

After the vyadhivinischaya the treatment is considered. Before actually starting the treatment, a physician should assess the fate of the disease which is known as prognosis. Prognosis helps in decision making.
and determination of the treatment planning. The

Prognosis:

<table>
<thead>
<tr>
<th>Modern(^{[27]})</th>
<th>Ayurveda(^{[28]})</th>
<th>Applicable tantrayukti</th>
</tr>
</thead>
</table>
| Depends on what part of the bone is affected, how large an area is involved, and how effectively the bone rebuilds itself. | \(A n o n y a m s a k t a m k r i c c h a s a d h y a\)  
\(D h a t u k s h a y a a s a d h y a\)  
\(K s h i n a b a l a m a m s a a g n i y a p y a\)  
\(A t i k s h i n a b a l a m a m s a a g n i a s a d h y a\) | \(E k ā n t a\) (understanding of particular matter)  
\(A n a i k ā n t a\) (avoidance of the understanding of the counter-meaning of the subject)  
\(A p a v a r g a\) (sectional exception from a whole understanding of matter.)  
\(V i p a r y a y a\) (opposite exemption) |

- If left untreated, the disease progresses, the bone collapses, and the joint surface breaks down, leading to pain and arthritis.
- If AVN of the femoral head is untreated, progression to subchondral collapse occurs in approximately 67% of individuals with asymptomatic hips and in more than 85% of those who have symptomatic hips.

Aim of Management (Prayojana\(^{[32]}\)):  
Every management plan is made by keeping some goals in the mind like, the general treatment aim in Ayurveda is to bring back the balanced state of dosha and sustenance of that balanced condition. Here in this case it’s prevention of further bone loss.

Principles of Treatment:  
In medical science, every disease have a certain treatment principle with options multiple drug to be used according to condition. The principle specificity is in accordance with the ekantatantrayukti which ensures the effectiveness of the principle implementation. The chosen treatment plan is in harmony with the nirnayatantrayukti which refers to reach on a conclusion by extensive thinking. Here the treatment modules in modern are non-steroidal anti-inflammatory drugs, Osteoporosis correcting drugs, cholesterol-lowering drugs, blood thinners, core decompression, and osteochondral grafting etc.\(^{[33]}\) where as in Ayurveda it is internal and external oleation.

Detailed Advice:  
The detailed prescription to the patient have the application of svasamgya, upadeshandniyogatantrayukti. Svasamgya\(^{[34]}\) refers to the technical terms and methodologies of that particular science e.g. balya, abhyangaetc in Ayurveda and NSAIDs in contemporary science. Upadesh\(^{[35]}\) refers to mandatory directions by apta (learned) like here the line of treatment mentioned by the learned like lakshachurna for kshataabhyanga etc. Niyoga\(^{[36]}\) refers to the application of treatment which is critical for the diseases e.g physician prescription like shatavari+ ashvagandha+ vidari+gokshura in dose- 4-5 gm and kala-pratahand sayam.
Special Directives:

The directions regarding pathya and apathy, aharaandvihara are to be given to the patient along with the main stream treatment to avoid further worsening of disease and to increase the efficacy of the treatment. The tantrayuktii applicable in this context are apadesha\(^{(37)}\), apavarga and viparyaya etc. Apadeshain this context indicates awareness or counseling about do’s and don’ts like avoidance of alcohol, smoking, kapatshayan etc. Apavarga means exceptions eg. here food is not contraindicated but some food like ushnatikshnais prohibited.

<table>
<thead>
<tr>
<th>Modern(^{(38)})</th>
<th>Ayurveda(^{(39)})</th>
<th>Applicable tantrayuktii</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Avoid drinking too much alcohol</td>
<td>• Kapatshayan</td>
<td>1. Apadesa</td>
</tr>
<tr>
<td>• Don’t smoke</td>
<td>• Uttana asana</td>
<td>2. Apavarga</td>
</tr>
<tr>
<td>• If you need steroids like prednisone, talk to your doctor about taking the smallest amount possible</td>
<td>• Madya</td>
<td>3. Viparyaya</td>
</tr>
<tr>
<td></td>
<td>• Tikshna</td>
<td>4. Smuccaya</td>
</tr>
<tr>
<td></td>
<td>• Ushna</td>
<td>5. Vikalpa</td>
</tr>
<tr>
<td></td>
<td>• Visha</td>
<td>6. Pradesa</td>
</tr>
<tr>
<td>Take</td>
<td></td>
<td>7. Vidhana</td>
</tr>
<tr>
<td>• Snigdha</td>
<td></td>
<td>8. Vyakhyana</td>
</tr>
<tr>
<td>• Laghu</td>
<td></td>
<td></td>
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<tr>
<td>• Mamsa</td>
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</tr>
</tbody>
</table>

Follow up:

After prescribing the treatment the follow up of the patient is done with the certain goals. This is again the application of prayojanatantrayuktii. The aim of the follow ups here is to see the progress of treatment and to prevent the further attack of disease. Certain events which have been done before during the course of treatment are repeated again and again e.g. investigation and examination in this case. The repetition of events in accordance with the need of the context is prasangatantrayuktii\(^{(40)}\).

Conclusion:

The knowledge of tantrayuktii enables the scholar to become expertise in the theoretical aspect of the tantra (text) and the practical aspect like karma (treatment). So practical knowledge should always be learned in accordance with classical textual principles and adopting the methodology mentioned in the compendium.

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सारांश:
शुद्ध शास्त्र ज्ञान एवं उसका यथार्थिक प्रयोग किसी भी रचनात्मक विज्ञान के दो चक्रवत्त माना गया है। सहित्य ग्रन्थ में प्रायोगिक विज्ञान के अभ्येता एक उन्माय परम सत्मुखत व्यक्तित्व गठन करने में तत्पर रहते हैं। तथा मूलभूत शास्त्रज्ञान कएक कुछ विभिन्न आचार्य एवं शास्त्रज्ञानीय तत्त्वों के समय रहा। इस प्रकार चिकित्सा सिद्धांतों का शास्त्र ज्ञान पूर्वक परीक्षण नहीं कर पाने के समाधानों से इस ग्रन्थ में आयुर्वेद के क्रमिक विकासवादित्त सिद्ध हो रहा है। तथा नूतन आधार को नहीं आपने के कारण आधुनिक काल में ग्रन्थ आयुर्वेदवादित्त का मान्य है। वादत: शास्त्र में व्यक्तित्व सिद्धांतों, औषधि योग निर्माण में युक्ति तथा चिकित्सा विधि की पीछे प्रयोग कौशल एवं शास्त्र-वादकों का अभिप्राय के अस्तमक अवस्था भी आधुनिक काल में आयुर्वेद वादक का उत्तर का प्राप्ति अवरोध है। जो कालक्रम में व्यावसूचक का प्रायोगिक दृष्टिकोण को तत्पर एवं एक प्रकार स्वर्ण का रूप है। आचार्य ग्रन्थ किसी भी शास्त्र या तत्त्व रचना काल में एक विचार युक्ति विधि का अनुकूल रूप रखते हैं विश्वास के प्राप्ति विषयों का निहितार्थ अवस्था करना सम्भव नहीं होता है। इसे तत्त्व युक्ति कहते हैं। आयुर्वेद सहिता तन्त्रयुक्ति का वैज्ञानिक एवं युक्तिसूक्त प्रयोग सर्वेक्षण विद्यमान है। इस प्रयोग में शुद्ध शास्त्र ज्ञान का प्रायोगिक अवस्थ के लिए रोचक परीक्षण एवं निर्णय के परिशिष्ट में तन्त्रयुक्ति का यथार्थ माना गया है।
Critical Review Of Sootashekhara Rasa

*Vd. Karunanidhi Sharma, ** Dr. Sanjay Kumar, *** Vd. Shweta Paul, ****Dr. Kanchan Swami, 
*****Dr. Dhiraj Singh rajput

* Research officer, Multani Pharmaceutical Ltd., New Delhi, ** Asso. Prof., Department of RS & BK, N.I.A, Jaipur, 
***Consultant, Shree Vishwapranda Ayurvedic Chikitsalya & Panchakarma Center, Yermala, Kallam, Osmanabad, Maharashtra, , 
**** M.D. scholar, Department of RS & BK, N.I.A, Jaipur, ***** Asso. Prof., Department of RS & BK, Mahatama Gandhi Ayurveda College 
Hospital and Research Centre, Salod (H), Wardha, Maharashtra.

ABSTRACT

Sootashekhara Rasa is an important formulation in the practice of Ayurveda, Which is used in Amla Pitta(Hyperacidity), Agnimandya(Digestive impairment), Atisara(Diarrhoea), Gulma(Abdominal Lump), Kasa(Cough), Grahani(Malabsorption syndrome) and Rajayakshma(Tuberculosis). Four different formulations with the same name and one Laghu Sootashekhara Rasa are found in the literature. Among these all, the Sootashekhara Rasa, described in Yoga Ratnakara is famous and came into clinical & trade practice. This is also modified by different scholars with the time. Main formula have 19 ingredients including mineral, animal and plant origin drugs. Since it is having Gold as one of the ingredients that make it costly too. Today, in the market it is available with and without gold by the name of Swarna Sootashekhara Rasa and Sada Sootashekhara Rasa or Sootashekhara Rasa (Swarna Rahita). An Attempt has been made to critically review the formula. The changes was made by scholars to make it safer, cheaper with maintaining its efficacy. By reviewing the properties of ingredients it can be said that it may effective in all the indications mentioned.

Keywords : Sutashekhara Rasa, Sheetari Rasa, Swarnasootashekhara Rasa, Amlapitta, Sadasootashekhar Rasa.

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Introduction :

Sootashekhara Rasa is a herbomineral formulation, which contains various types of drugs i.e. mineral origin, animal origin and plant origin. It is a Rasakalpa which is categorized under the Kharaliya Rasakalpa. Kharaliya Rasa kalpas are the formulations which is completely prepared and obtained as end
products in *Khalvayantra* (Mortar and Pestle) by act of trituration\(^1\). *Sootashekhara Rasa* is very commonly prescribed medicine in day to day Ayurveda practice to cure *Amlapitta* (Hyperacidity), *Agnimandhya* (Digestive impairment), *Kasa* (Cough), *Gulma* (Abdominal Lump), *Pitta pradhana* diseases (Disease caused by vitiation of *Pitta Dosha* mainly) and other disease caused by *Mandagani* (Lower intensity of digestive fire). As it very famous and commonly prescribed medicines by Vaidyas, it is important to compile and present all the related information and scientific data should be presented on one place, so that related professionals (Vaidya, Ayurveda students, teachers & researchers etc.) can gain the detailed knowledge of it. The objectives of the present study is to compile and review all the data available in text of Ayurveda & Rasashastra, published research work, information available on internet, information related to availability in market; to review the formula, ingredients; to criticize the changes in main formula by scholars; and to understand the probable mode of action as per indications mentioned in text.

**Material And Methods:**

*Maulika grantha*, (Basic texts) *Chikitsa grantha*, *Samgraha Grantha* and textbooks of Ayurveda and Rasashastra are reviewed. Thesis database, research journals on internet and in print media were also search and reviewed to search any previous research work done on the *Sootashekhara*. Information related to trade was also collected from the medical store near National Institute of Ayurveda, Jaipur. All the information were collected and were reviewed on the ingredients, changes in formula and indications.

**In Ayurveda & Rasashastra text:**

There are five formulations described in the *Rasashastra* text with the name of *Sootashekhara Rasa* or similar to it (Table No.1). In *Rasa Chintamani*, a book of 15\(^{th}\) century\(^2\), the name *Sootashekhara Rasa* is mentioned for the first time\(^3\). Where the formulation is indicated for *Vata-Shleshma Jwara* *Chikitisa*, the same is also mentioned in the *Vrihata Nighantu Ratnakara* with the name of *Suryashekhara Rasa*\(^4\). The same formulation is mentioned in some other books i.e. *Rasendra Chintamani*\(^5\), *Bhaisajyag Ratnavali*\(^6\), *Rasarajya sundar*\(^7\), *Rasendra sara samgraha*\(^8\) and *Rasa Manjaris*\(^9\) with the name of *Sheetari Rasa*, Which is described in the context of *Jwara chikitsa* (*Vatakaphaja Jwara*). (Table No. 1)

Second formulation with the name of *Sootashekhara Rasa* is mentioned in *Yoga ratnakara* for *Amlapitta Chikitisa*\(^10\), which was primarily came in vogue as used same and with some modification in the present date also. Now a days it is famous as *Swarna Sootashekhara Rasa* or *Swarna Yukta Sootashekhara Rasa*. *Rasa Chandanshu*\(^11\), *Vrihat Nighantu Ratnakara*\(^12\), *Rasa Tantra Sara evam Siddha Prayoga Samgraha*\(^13\), *Ayurveda Sara Samgraha*\(^14\) and *Ayurvedic Formulary of India Part I* \(^15\) & II \(^16\) have also adapted the same formula with same name. *Acharya Yadava ji Trikam ji*, a great scholar of Ayurveda, did some changes in the formula, in his two books i.e. *Siddha Yoga Samgraha*\(^17\) and *Rasamritam*\(^18\). But formulas are not same in these two books also. In *Siddha Yoga Samgraha*, *Shuddha Vatsanabha* (Aconitum ferox) is removed and *Rajata Bhasma* (Incinerated Silver) is added additionally in to the formula. In later book *Rasamritam*, *Nirvisha* (*Delphinium denudatum*) is also added in place of *Vatsanabha*. In *Yoga Ratnakara* Levigation with Juice of *Eclipta alba* (*Bhringaraja*) is mentioned for one day but *Yadav Ji Trikam Ji* said 21 days for levigation in both the books. The dose is also reduced by *Yadav Ji Trikam Ji*, from 2 *Gunja* (250 mg) (Yoga Ratnakara) to 1 *Gunja* (125 mg). (Table No. 1)

One Formulation with the name of *Sootashekhara Rasa* (*Swarna Rahita*) has been described in *Ayurveda Sara Samgraha*\(^19\). Here the author has followed the formula of *Siddha Yoga Samgraha*, only difference is that *Swarna Bhasma* (Incinerated gold)&*Vatsanabha* has been removed.

*Sootashekhara Rasa* (*Swarnaaraupyarahita*) is mentioned in AFI- Part-III. Where formula is similar to *Yogaratnakara*, without having *Swarna Bhasma* by using the title *Sootashekhara Rasa*
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(Swarnaraupyarahita)[20]. The same is marketed as Sada or Swarna Rahita Sootashekhara Rasa now a days. (Table No. 1). Some people are using Swarna Makshika Bhasma in place of Swarna Bhasma, by following a note of Rasatantra Sara Siddha Prayoga Samgraha.[21]

Some practitioner are also modifying the formula and practicing in their clinical practice, although no clear justification is reported.[22].

There is one more Sootashekhara Rasa is mentioned in Rasa Chandanshu in the context of Kapha Roga Chikitsa[23]. The formula is named as Rakta Soota Shekhara Rasa also. Ingredients are completely different from above two. (Table No. 1)

In Rasayoga Sagara, another Sootashekhara Rasa(4th) has been mentioned, quoted from Rasayana Samgraha and indicated from Amla Pitta Chikitsa[24]. It has three ingredients i.e. Rasa (Mercury), Vishvam (Shunthi; Ginger;Zingiber officinale) and Gairika (Ochre; Fe₂O₃), which are leviagated in Tambuli Patra Swarasa (Leaf juice of Piper betel). One Ratti(125 mg) dose is indicated in Amlapitta(Hyperacidity), Bhrama(Vertigo) and Mootrakrichha(Dysuria);along with Sita (Sugar) or Madhu (Honey). (Table No. 1)

Laghu Sootashekhara Rasa is also described in Rasa Tantra Sara evam Siddha Prayoga Samgraha[25],Rasa Tarangini[26] and AFI (Part-II)[27]. It has Gairika and Shunthi are as ingredients and Nagarabela Swarasa (Piper betel) is Bhawana Dravya(Levigation). 1-3 Vati (2 Ratti/ 250mg each) dose is indicated along with Milk and Sita in Amlapitta Chikitsa. This formula is looks like inspired from above mentioned 4th Sootashekhara Rasa.

Table No. 1 Showing The Various Formulations With The Name Of Sootashekhara Rasa

<table>
<thead>
<tr>
<th>Formula</th>
<th>Ingredients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sootashekhara Rasa 1st/ Sooryashekhara</td>
<td>Mineral origin: Sootaka(Mercury), Tankana(Borax), Gandhaka(Sulphur), Saindhava Lavana (Rock Salt)</td>
</tr>
<tr>
<td></td>
<td>Plant origin: Jaipala(Myristica fragrans), Maricha (Piper nigrum), Chincha (Tamarindus indica Linn), Sharkara(Sugar), Jambiri Nimbu(Citrus lemon)</td>
</tr>
<tr>
<td>Sootashekhara Rasa 2nd</td>
<td>Mineral origin: Parada, Swarna Bhasma(Incinerated Gold), Tankana, Swarna Makshika Bhasma (Incinerated Copper pyrite), Rajata Bhasma(Incinerated silver), Gandhaka, Tamra Bhasma(Incinerated Copper)</td>
</tr>
<tr>
<td></td>
<td>Animal origin: Shankha Bhasma(Conch shell)</td>
</tr>
<tr>
<td></td>
<td>Plant Origin: Vatsanabha(Aconitum ferox Wall), Nirvisha(Delphinium denudatum), Dhatura(Datura metal), Pippali(Piper longum), Maricha(Piper nigrum), Shunthi(Zingiber officinale Rose), Twaka(Cinnamomum zeylanicum), Ela(Elettetria cardamomum), Tejapatra(Cinnamomum tamala), Nagakeshara(Mesua ferrea), Bilva(Aegle marmelos), Kachooro(Curcuma zedoaria), Bhringaraja(Eclipta alba)</td>
</tr>
</tbody>
</table>
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Sootashekhara Rasa 3rd/ Rakta

Mineral origin: Abhraka Bhasma (Incinerated Mica), Rasa Sindoora, Swarna Bhasma, Tamra Bhasma, Loha Bhasma (Incinerated Iron), Shuddha Tankana,

Animal origin: Kastoori (Musk), Shankha Bhasma

Plant origin: Vatsanabha, Dhatoora, Twaka, Ela, Patra, Nagakeshara, Shunthi, Pippali, Maricha, Shati (Hedychium spicatum Ham.), Kesara (Crocus sativus), Arka Dugdha (Calotropsis procera).

Sootashekhara Rasa 4th

Mineral: Rasa (Mercury), Gairik (Ochre)

Plant origin: Shunthi, Tambual Dala (Piper betel)

Laghu Sootashekhara Rasa

Mineral: Gairika

Plant origin: Shunthi, Tambula Dala

Among all of these 2nd Sootashekhara Rasa is most commonly used in clinical practice. Several research papers have been published on it. So here in the present study this formula has been selected and an attempt is made to review it.

Sootashekhara Rasa 2nd in Classics:

Table No. II Showing The Ingredients Of Sootashekhara Rasa In Various Books

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Latin Name</th>
<th>Used Part</th>
<th>YR, NR, R. Ch., RTS &amp; SPS, ASS, AFI-1st, AFI-2nd</th>
<th>SYS</th>
<th>Rasamritam, ASS (No.1)</th>
<th>ASS (Swarna Rahita)</th>
<th>AFI-3rd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Origin Drugs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shuddha Parada</td>
<td>Hydargyrum</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Swarna Bhasma</td>
<td>Aurum</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Shuddha Tankana</td>
<td>Borax</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Shuddha Gandhaka</td>
<td>Sulphur</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Tamra Bhasma</td>
<td>Cuprum</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Rajata Bhasma</td>
<td>Argentinum</td>
<td></td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>Animal Origin Drugs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shankha Bhasma</td>
<td>Turbinella pyrum</td>
<td>Conch shell</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Plant Origin Drugs (Powder form)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shuddha Vatsanabha</td>
<td>Aconitum ferox</td>
<td>Root</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Shuddha Datura</td>
<td>Datura metal</td>
<td>Seed</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Pippali</td>
<td>Piper longum</td>
<td>Fruit</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
<td>-------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Maricha</td>
<td>Piper nigrum</td>
<td>Fruit</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Shunthi</td>
<td>Zingiber officinale</td>
<td>Rhizome</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Twaka</td>
<td>Cinnamomum zeylanicum</td>
<td>Bark</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ela</td>
<td>Elettaria cardamomum</td>
<td>Seed</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Tejapatra</td>
<td>Cinnamomum tamala</td>
<td>Leaves</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Nagakeshara</td>
<td>Mesua ferrea</td>
<td>Androecium</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Bilva</td>
<td>Aegle marmelos</td>
<td>Fruit pulp</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Kachooara</td>
<td>Curcuma zedoaria</td>
<td>Rhizome</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Nirvisha</td>
<td>Delphinium denudatum</td>
<td>Root</td>
<td>×</td>
<td>✓</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
</tbody>
</table>

**Bhawana Dravya**

<table>
<thead>
<tr>
<th>Bhringaraja (Juice)</th>
<th>Eclipta alba</th>
<th>Whole plant</th>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
</table>

**Duration of Bhawana**

<table>
<thead>
<tr>
<th>1 day</th>
<th>21 days</th>
<th>21 says</th>
<th>21 days</th>
<th>-</th>
</tr>
</thead>
</table>

**Dose**

<table>
<thead>
<tr>
<th>2 Gunja (250 mg)</th>
<th>1 Gunja (125 mg)</th>
<th>1 Gunja (125 mg)</th>
<th>2 Ratti (250 mg)</th>
<th>125-250mg</th>
</tr>
</thead>
</table>

**Anupana**

<table>
<thead>
<tr>
<th>Madhu- Sarpi (Honey &amp; Ghee)</th>
<th>Yogya Anupana (Appropriate)</th>
<th>Yogya Anupana (Appropriate)</th>
<th>Shaarkara, Madhu, Dadima Rasa, Dadima avleha, Amla Murabba</th>
</tr>
</thead>
</table>

**Indications**

<table>
<thead>
<tr>
<th>Amlapitta, Vanti, Shoola, 5 types of Gulma &amp; Kasa, Grahani, Atisara (Tridoshotthha), Shuvasa, Mandagni, Ugra Hikka, Udavarta, Yapya Roga, Rajayakshma, Sarvaroga</th>
<th>Hriddaha, Bhrama, Moorchha, Vanti, Shoola, Amlapitta</th>
<th>Hriddaha, Bhrama, Moorchha, Vanti, Shoola, Amlapitta</th>
<th>Amlapitta, Bhrama, Moottakrichha, Suryavritta, Ratakapita, Mukhagro, Pita vikara, Unmada.</th>
</tr>
</thead>
</table>

**Published research work:**

Pradakar H et al. has reported that in their survey it was found in retrospective study, 250 cases who are already
under treatment and was taking Sootashekhara Rasa, no side effect was noted and in 30 new cases, who were prescribed for the same, the same findings were noticed. The authors concluded that it was found safe.\[28\]

In a review article Thakur J et al. has concluded that Sootashekhara Rasa corrects the vitiated state of Pitta and improves the whole digestion process and result in proper functioning of Agni. Its substances are having Ruksha, Laghu, Katu and Ushna properties that decrease the vitiated drava roopa of Pitta\[29\].

In an animal trial Chandra P et al. has reported that antiulcer activity of Kamdudha Rasa and Sootashekhara Rasa Sada were evaluated using different ulcer models- cold restraint induced ulcers (CRU), pylorus-ligation (PL), ethanol-induced ulcers (EtOH), and indomethacin (INDO) induced ulcers model. In CRU model the Kamadugha (KD) and SutshekharRasaSada (SRS) significantly inhibited the formation of gastric lesions induced by cold restraint-stress by 74.37% and 74.83% respectively. Animals in the PL group showed a significant increase in the ulcer index and acid secretory parameters like gastric volume, pH, free and total acidity when compared with those of vehicle treated group. KD and SRS at a dose of 40 mg/kg body weight each showed protection index of 47.59% and 50.69%, respectively in EtOH model. In INDO model, the inhibition of ulcers were 55.91%, 57.52% for groups treated with KD and SRS each of 40 mg/kg and 66.13% with positive control (Lansoprazole), respectively\[30\].

In a clinical trial Thankchan et al. has reported that Sootashekhara Rasa along with Pathyadi Kwatha (50 ml) was found more effective than only use of Sootashekhara Rasa or Pathyadi Kwatha, Where 67.03% relief were noticed in SootashekharaRasa and Pathyadi Kwatha treated group while 64.08% and 57.05% relief were noticed in Sootashekhara treated and Pathyadi Kwatha treated group respectively\[31\].

Chouhan G et al. has reported that in their clinical trial combination of Avipattikara Choorna (5 g BD) with Sootashekhara Rasa (125 mg BD) are found very effective in managing Urdhwaga Amlapitta, both the drugs were found free from side effects. After 4 weeks of treatment significant improvement in Hrita-Kantha Daha, Tikta-Amla Udgara, Utklesha, Avipaka, Guruta and Klama. No adverse event was noticed by the authors\[32\].

Patil MS et al. has reported that Ayurvedic treatment i.e. Swarna Sootashekhara Rasa, Avipattikara Choorna, Laghu Sootashekhara Rasa, Sutashekhara Rasa,Must Choorna and Himcold suspension along with Pathya sevana were found effective in chronic stage of Amlapitta\[33\].

In a comparative clinical study, Bhati LS has reported that Sootashekhara Rasa is found more effective than Shankha Bhasma to treat Garavishajanita Amlapitta\[34\].

In an another study Prakash B et al. has reported that Sootashekhara Rasa along with Narikela Lavana, Rasonadi vati, Sitopaladi Choorna and Godanti mishrana with regulated diet and lifestyle (Ayurvedic Treatment protocol) were given in Migraine diagnosed patient for 90 days. By analyzed the data of the cases, who have completed the treatment they found that complete disappearance of headache with associate symptoms in 35.2% cases, mild episode of headache and associated symptoms in 35.2% cases, low intensity of pain along with conventional medicines in 24.5% cases, no improvement in 3.4% cases. In 70.5% cases marked reductions were noticed in their study\[35\]. Point is also to be noticed in the study that the formula of the Sootashekhara rasa also been changed i.e. ingredients were Shuddha Parada, Shuddha Gandhaka, Dalchini, Ela, Tejapatra, Nagakeshara, Shankha Bhasma, Swarnamakshika Bhasma, Roupya Bhasma, Tamra Bhasma, Dhatura, Suhaga, Shunthi, Maricha, Pippali and Bhringaraja Swarasa, no satisfactory justification is provided regarding this point. Same author (Prakash B et al) has reported that daily dose of Sootashekhara Rasa (250 mg) with Sitopaladi Choorna (400 mg) has shown sustained improvement of nutritional anemia in adolescent students. Same composition of Sootashekhara Rasa is adopted\[36\].
In a review article Kumar A & Singhal H have concluded that The Sootashekhara Rasa is very beneficial in Amlapitta due to multiple actions such as anticholinergic and directly acting antacids\(^{[37]}\).

**Wikipedia:**

An online Wikipedia page of Sootashekhara Rasa is also available\(^{[38]}\), where therapeutic uses, method of preparation, metal-mineral ingredients, availability and dosage, safety, Ayurvedic Shodhana protocol and references headings are mentioned but no proper and exact information is there on the page. No references are given for any statement. It can be refereed for just some idea about the formulation it cannot be taken as a relevant or serious concern.

**Method of preparation:** Since Sootashekhara Rasa is a Kharaliya Rasayana, so its complete manufacturing process is done into Kharala. Shuddha Parada and Shuddha Gandhaka are taken in a mortar (Kharala) and triturated till Kajalli preparation, which is evaluated by Kajalli Pareeksha. Then Swarna Bhasma or Swarna makshika Bhasma, Rajata Bhasma (if present in reference followed), Tamra Bhasma and Shankha Bhasma added respectively one by one in low quantity and triturated continuously for proper mixing. After it Shuddha Vatsanabha Choorna following Shudhha Tankan is added and mixed properly. At last mixture of all other herbal ingredients are mixed and triturated till homogenous mixture. Then Bhringaraja Swarasara is added and levigated at per reference and then vati of gunja pramana (125 mg) from this mass are prepared, dried well and preserved in air tight container.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Rasa</th>
<th>Guna</th>
<th>Veerya</th>
<th>Vipaka</th>
<th>Karma</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mineral Origin Drugs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1.</strong></td>
<td>Shuddha Parada(^{[39]})</td>
<td>Shadarasa</td>
<td>Shuddha</td>
<td>Guru, Snigdha</td>
<td>Yogavahi, Tridoshaghna, Rasayana, Shodhana, Sarvarogavarjita</td>
</tr>
<tr>
<td><strong>2.</strong></td>
<td>Shuddha Gandhaka(^{[40]})</td>
<td>Katu</td>
<td>Sara, Snigdha</td>
<td>Ushna</td>
<td>Madhura, Pachana, Deepana, Yogavahi, Kaphavatashamaka</td>
</tr>
<tr>
<td>1+2</td>
<td>Kajjali(^{[41]})</td>
<td>Srvamayahara, Tridoshahara</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3.</strong></td>
<td>Swarna Bhasma(^{[42,43]})</td>
<td>Kashaya, Tikta, Madhura, Katu</td>
<td>Sheeta, Guru, Snigdha, Pichhila</td>
<td>Sheeta</td>
<td>Madhura, Garavishara, Sarvadoshamayaghna, Deharogapramathi, Ruchya, Pushthipradayi</td>
</tr>
<tr>
<td><strong>4.</strong></td>
<td>Shuddha Tankana(^{[44]})</td>
<td>Katu</td>
<td>Ruksha, Teekshna</td>
<td>Ushna</td>
<td>Katu, Saraka, Kaphsvishleshana, Hridya, Vatamyanishodana, Agnidiptikara, Admananashana, Vishanashaka</td>
</tr>
<tr>
<td><strong>5.</strong></td>
<td>Tamra Bhasma(^{[45]})</td>
<td>Tikta, Kashaya, Madhura</td>
<td>Laghu, Sara, Snigdha</td>
<td>Ushna</td>
<td>Katu, Vatakaphara, Pittakaphahara, Urdhwa-Adha Shodhana, Garavishahara, Kshutkaram</td>
</tr>
<tr>
<td><strong>6.</strong></td>
<td>Rajata Bhasma(^{[46]})</td>
<td>Kashaya, Amla, Madhura</td>
<td>Snigdha, Sheeta, Guru, Sara</td>
<td>Sheeta</td>
<td>Madhura, Vatapittajit, Pitta rogahara, Sarvarogahara, Ruchya, Jatharagnidipaka,</td>
</tr>
<tr>
<td><strong>7.</strong></td>
<td>Swarna Makshika Bhasma(^{[47]})</td>
<td>Tikta, Madhura</td>
<td>Sheeta, Laghu</td>
<td>Sheeta</td>
<td>Katu, Sakalayayagnya, Tridoshaghna, Yogavahi, Vishnya</td>
</tr>
</tbody>
</table>

---

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Animal Origin Drugs

1. Shankha Bhasma\(^{48,49}\)  
   Kashaya, Katu (Kshara)  
   Laghu, Hima  
   Sheeta (Anushna)  
   Tridoshanghna, Grahi, Agnideepana, Grahanirogahara

Plant Origin Drugs (Powder form)

1. Shuddha Vatsana\(^{50,51}\)  
   Madhura  
   Ruksha, Teekshna, Laghu, Vyavayi, Vikashi  
   Ushna  
   Madhura  
   Yogavahi, Pittasanshodhana, Vatashaleshma Vikaramutra, Agnimandhyanash

2. Shuddha Dhatu\(^{52,53}\)  
   Tikta, Katu  
   Laghu, Ruksha, Vyavayi, Vikasi  
   Ushna  
   Katu  
   Sarakam, Madaka

3. Pippali\(^{54}\)  
   Katu  
   Laghu, Snigdha, Teekshna  
   Anushna-sheeta  
   Madhura  
   Deepana, Pachana, Anahaprashamana, Vatashalesmahara,

4. Maricha\(^{55}\)  
   Katu  
   Laghu, Teekshna  
   Ushna  
   Katu  
   Deepana, Kaphavatahara,

5. Shunthi\(^{56}\)  
   Katu  
   Laghu, Snigdha  
   Ushna  
   Madhura  
   Deepana, Rochana, Kaphavatahara, Achnivardhana, Vibhandha-Anahanut

6. Twaka\(^{57}\)  
   Katu, Tikta, Madhura  
   Laghu, Ruksha, Teekshna  
   Ushna  
   Katu  
   Kaphavatahara, Ama-Aruninashaka, Agnimandvyahara, Samgrahi, Utkalehsaprashamana

7. Ela\(^{58}\)  
   Katu, Madhura  
   Laghu, Ruksha  
   Sheeta  
   Madhura  
   Sheetala, Hridya, Rochana, Deepana, Vatahara, Kaphahara

8. Tejapatra\(^{59}\)  
   Madhura, Tikta  
   Teekshana, Laghu, Pichhila  
   Ushna  
   Madhura  
   Kaphavatahara, Arunchinashaka

9. Nagakeshara\(^{60}\)  
   Kashaya, Tikta  
   Laghu, Ruksha  
   Ushna  
   Katu  
   Kaphahara, Chhardi-Hrillasa Nashana, Kaphapitahara

10. Bilva\(^{61}\)  
    Kashaya, Tikta  
    Laghu, Ruksha  
    Ushna  
    Katu  
    Samgrahi, Deepana, Vatakapha Prashamana

11. Kachoora\(^{62}\)  
   Katu, Tikta  
   Laghu, Teekshna  
   Ushna  
   Katu  
   Vatakapha Nashaka, Deepana, Rochana

12. Nirvisha\(^{63}\)  
   Katu, Tikta  
   Laghu, Teekshna  
   Ushna  
   Katu  
   Kaphavatasradoshanut,

Bhawana Dravya

1. Bhringaraja (Juice)\(^{64}\)  
   Katu, Tikta  
   Ruksha, Laghu  
   Ushna  
   Katu  
   Kaphavatunat,

Discussion:
The formulations has been selected in the present study for review is first described in Yoga Ratnakara. The same formula was adopted by Rasa Chandanshu, Virhata Nighnatu Ratnakara, Rasatantrasara evam Siddha Prayoga Samgraha and Ayurveda Sara Samgraha. In Rasamritam, Vaidya Yadav Ji Trikam ji has removed from the formula and added Rajat Bhasma in it. Nirvisha is also added by him in his another text Siddha Yoga Samgraha. Nirvisha is the Pratinidhi Dravya (Substitute) of Vatsanabha\(^{65}\) and it is nontoxic
drug so Shodhana (Refinement) is also not required like Vatsanabha. Reasons for addition of Rajata Bhasma may be explained by its properties i.e. Kashay Amla Rasa, Madhura Vipaka, Sheeta, Sara, Balaprada, Ruchya, Pavanahari, Kaphapranashi, Param Dahahara, Pitamaya Prashamana, Vahnimandyaprashanam, Vishghna, Vishesha Jatharamayanashanam" [66, 67]. It is indicated in Hridadaha, Moorchha, Vanti, Shoola and Amla Pitta (specially). The properties of Rajata Bhasma make it more efficacious for these disease conditions. He has also said to Bhwana for 21 days instead of one day. Bhawana facilitates in proper mixing and firm binding between all components of ingredients of mixture, which leads to interaction between them or with liquid may results in physical as well as chemical interactions between them, at the same time make it easier to make Vati (Pills). It also reduces the particle size, which increase the bioavailability of the drug [68] and make the drug more potent. Ayurveda Sara Samgraha has followed the formula of Siddha Yoga Samgraha, but Swarna Bhasma has been removed from the original to make it cheaper. It is mentioned by the author that the properties of Swarna Rahita (Without gold) Sootashekhara Rasa are much similar to Sootashekhara Rasa (Swarna Yukta), difference is that presence of Swarna Bhasma make it Somya (Soft), beneficial for brain and heart [69].

Some pharmacies are using Swarna Makshika bhasma in the place of Swarna Bhasma. Rasa Tantra Sara and Siddha Prayoga Samgraha has permitted for it [70]. Purpose of this may be to make the formulation cheaper, so that more patients can afford to use it. The justification of this replacement may be that the Swarnamakshika Bhasma is the Pratinidhi Dravya (Substitute) of Swarna Bhasma [71]. Properties of Swarna Makshika Bhasma i.e. Sakalaamayaghna, Tridosghna, Yogavahi, Vishaghna do not compromise with the efficacy of the drug [72].

The formulation is indicated in Amla Pitta, Vanti (Utkalesha/ Chhardi), Shoola, five types of Gulma, five types of Kasa, Grahani, Shotha, Atisara, Shwasas, Mandagni, Hikka, Udavata, Rajyakshma and almost all the disease conditions. Root cause of all of the above disease condition is same that is Mandagni [73, 74]. Which cause Amavastha and then Prakopa of Vatadi dosha. Due to Margavarodha the Dosha Gati got disturbed and Vimargagami Dosha cause the disease.

By reviewing the ingredients of formulation (Table No. 2) it is found that 13 are having Katu Rasa, 11 having Tikta Rasa, 8 having Madhura Rasa, 6 having Kashaya Rasa, 1 is having Amla Rasa and the Parada has all the Shadarasa. In Guna, 15 are of Laghu, 3 Guru, 7 Teekshna, 6 Snigdha, 8 Ruksa, 4 Sara. Dhatura and Vatsanabha are having Vyavyayi, Vikasi Guna also. 14 drugs are of Ushna Veerya, 4 of Sheeta and 2 of Anushna sheeta Veerya. Most of the mineral origin drugs are of Madhura, Tikta and Kashaya Rasa, Snigdha, Sara, Guru Guna, so they do neutralize the Kupita Pitta Dosha. Other drugs (Animal and Plant origin drugs) are mostly of Katu and Tikta Rasa, they do Shaman of Amadosha. Katu, Tikta Rasa, Ushna Veerya set the fire to Jatharagni by their Deepana, Pachana and Rohchana. Katu, Tikta, Kashaya Rasa, Ruksa, Laghu Guna, Ushna Veerya do the Shoshana of Drava Vidagdha Pita (Samapita). Tikta and Madhura Rasa mitigate the Daha, Trishna. Laghu, Teekshna, Vyavyayi and VikasiGuna (Dhatura and Vatsanabha) are Shighrapaki so they increase the rate of action. Kajalli is Yogavahi and Sarvarogahara so it enhance the potency of the drug. Vatasanabha, Swarna Bhasma and Rajat Bhasma are also having the same property. The disease may be caused by Garavisha and Ama is itself is a Visha (Amavisha), so for this Swarna Bhasma, Shankha Bhasma and Tankana are having Garavishahara property. Shankha Bhasma and Tankana are Kshareeya in nature so they neutralize the Amlta (Vidagdhatavastha) also. Tamra Bhasma, Vatsanabha, Tankana and Dhatura are saraka, so they do strotosodhana and remove the utklesita Dosha. Rajata Bhasma, Trikatu, Vatsanabha and most of the ingredients are agnideepaka in the formula. Trikatu also enhance the bioavailability of the drug, it is having shuthi also, which is best in Amapachhana and Vibhandhanashana. Chaturjataka(Twaka, Ela,
Tejapatra, Nagakeshara) increases the interest in the meal (Rochaka), correct the condition of Utklesha and Hrilasa (Nausea). Bilva and Shankha Bhasma remove the disease of Grahani. Bhringaraja is Ruksha and Laghu so it reduces the Dravatava of Pitta and also enhances the Jatharagni. That’s how the Sootashekhara Rasa corrects the disease condition.

Conclusion:

The Sootashekhara Rasa is an important, effective and very commonly prescribed formulation, which is modified by different scholars with the time. Now it is available in market with the name of Sada Sootashekhara Rasa/ Swarna Rahita Sootashekhara Rasa and Swarnayukta Sootashekhara Rasa. By reviewing the formula it can be said that the changes were done to make it cheaper with sustain its efficacy. It can be concluded after reviewing the properties of the ingredients that it should be effective medicine to treat Amlapitta, Kasa, Gulma and all such types of abnormalities, where pathogenesis starts from Mandagni.

References


Critical Review Of Sootashekhara Rasa

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सारांश:

सूतशेखर रस आयुर्वेद चिकित्सा अनुसार में काम में लिया जाने वाला एक महत्वपूर्ण योग है, जो की अमलित, अभिनामच, अतिसार, गुल्म, कास, ग्राहणी तथा राजमृत्तिका की चिकित्सा में काम में लिया जाता है। शास्त्रों में इसी नाम से चार भिन्न योग तथा एक अतिरिक्त सूतशेखर रस पाए जाते हैं। इन सभी सूतशेखर रसों में से योग रत्नाकर में वर्णित योग सबसे अधिक प्रसिद्ध है जो के व्यापसायिक तथा चिकित्सकीय अध्ययन में सबसे अधिक प्रसिद्ध हुआ। यह भी समय के साथ भिन्न भिन्न आचारियों द्वारा परिवर्तित किया गया। मुख्य योग में 96 घटक द्वारा है, जिनमें खनिज, जातिव और पादप उद्भव द्वारा है। चूंकि यह इसमें एक घटक के रूप में है, जो की इसे महत्व भी बना देता है। आज बाजार में यह समय सहित और सहित, स्वर्ण सूतशेखर रस तथा साधा सूतशेखर रस के नाम से उपलब्ध है। प्रस्तुत अध्ययन में योग का समालोचनात्मक अध्ययन करने का प्रयास किया गया है। आचारियों द्वारा किये गए परिवर्तन इसे और सुरक्षित तथा संतोष बनाने के लिए किए गए, प्रभावित को बनाए रखते हुए। इसके घटक द्वारा सभी क्षेत्र से यह कहा जा सकता है की यह निर्देशित रोगों में प्रभावित हो सकता है।
A cross sectional survey study to find out the role of operating computer as a risk factor of Cervical Spondylosis

*Dr. Shilpa Gupta, **Dr. B.K. Sevatkar, ***Dr. Reetu Sharma

*Ayurveda Medical Officer, Mandsaur (M.P.), **Associsate Professor, ***Assistant Professor, Deptt. of Roga Nidan Evam Vikriti Vigyana, NIA, Jaipur

ABSTRACT

Objectives: Today’s lifestyle which we lead is full of stress. Computer has become a household gadget in the present era, found in all walks of life and the convenience has brought disadvantages with it as any invention of human civilization. In present era cervical spondylosis is become more prone in prolonged computer operators. Present study was planned to assess the role of operating computer as a risk factor of Cervical Spondylosis. Materials & Methods: Survey was conducted at National Institute of Ayurveda, Jaipur, Chambal Fertilizer and Chemicals Ltd, Gadepan, Kota and other software companies. Total 500 subjects were surveyed on the basis of dully prepared survey proforma. Results and Discussion: Exposure to risk factors for Cervical Spondylosis such as daily duration of computer use, time spent at the computer without breaks, duration of mouse use and poor workstation ergonomics was significantly higher among prolonged computer operators. Long term use of computer with bad posture and without break increase liability for developing cervical spondylosis. Conclusion: The study concluded that neck and shoulder pain is more common among long term computer users. Common symptoms associated with neck and shoulder pain are neck stiffness, swelling in cervical region, restriction in neck movements and headache.

Keywords: Cervical Spondylosis, neck pain, computer operators, Griva Stambha

How to Site the Article: Gupta S, Sevatkar BK, Sharma R, A cross sectional survey study to find out the role of operating computer as a risk factor of Cervical Spondylosis, JOA XIII-1, 2019; 134 - 142

Introduction:

Changing of life style of modern human being has created several disharmonies in the biological system. Advancement of busy, professional and social life, improper sitting posture in offices, continuous work in one posture and overexertion, jerking movements
during travelling and sports — all these factors create undue pressure and stress injury to the spine and play an important role in producing disease like cervical spondylosis.

Cervical spondylosis refers to degenerative osteoarthritis of the joints between the centre of the spinal vertebrae and/or neural foramina in neck. It may cause pressure on nerve roots with subsequent sensory and/or motor disturbances. Patient may experience paresthesia in hands and legs because of nerve compression and lack of blood flow.[1]

Disc degeneration with associated osteophyte formation and osteoarthritis of the spinal apophyseal joints, collectively termed cervical spondylosis.

The cervical spine is particularly susceptible to degenerative problems because of:

- It’s large range of motion.
- It’s somewhat of complex anatomy.

Any degenerative type of pathological conditions in the body can be considered under the broad umbrella of ‘vata vyadhi’. Grivastambha is mentioned under vata vyadhi. Acharya Charaka has mentioned that Nidana Sevana aggravates Vata dosha and this Vata gets vitiated in Griva asthi and Sandhi it leads to Griva Stambha.

Traditionally, cervical spondylosis is considered a medical condition in which the degeneration of the intervertebral disks occurred due to old-age. However, this condition is commonly caused due to regularly ignoring the ergonomics of our bodies, e.g., working for long hours with computers, wrong postures while performing day-to-day life functions, sports/repetitive injuries such as long hours of playing video games, texting etc.. Good posture while standing, sitting and working on computer will help to prevent damage to the spine. This study focuses on the relation and incidence of cervical spondylosis in computer operators. It is essential to raise public awareness about the risk of cervical spondylosis to prevent next generation.

Material and Methods:
A study was conducted among group of professional and non professional computer users to analyze the relation between symptoms and signs originating from the cervical spine and duration of computer use. A survey proforma was prepared and distributed to 500 professionals and non professional computer users. The questions requested to respondents to provide information on age, sex, years of computer usage, hours spent on computer per day, associated musculoskeletal pain, pain severity and knowledge of preventive measures etc.

[a] Inclusion Criteria
1. Patients irrespective of gender, religion, occupation, chronicity were selected for the study.
2. Patients above 18 years and less than 65 years.
3. Patients complaining of neck pain, neck stiffness, neck movements restriction, headache and other symptoms of cervical spondylosis (Griva Stambha) were selected for the study.

[b] Exclusion Criteria
1. Pregnant and lactating mothers.
2. Recent cervical, spinal, or shoulder surgery or implanted instrumentation or previous surgery for cervical spondylotic myelopathy.
3. Stenosis of spinal canal.
4. Patients suffering from any infectious disease (like tuberculosis), metabolic disease (like diabetes mellitus and hypothyroidism), and chronic disease (like rheumatoid arthritis, SLE, ankylosing spondylitis).

Results and Discussion
Gupta S, Sevatkar BK, Sharma R, A cross sectional survey study to find out the role of operating computer as a risk factor of Cervical Spondylosis, JOA XIII-1, 2019; 134 - 142

Table No. I Percentage Prevalence Of Subjects Age Wise

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Age in Years</th>
<th>Total no. of Subject</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>18-20</td>
<td>9</td>
<td>1.80%</td>
</tr>
<tr>
<td>2.</td>
<td>21-30</td>
<td>185</td>
<td>37.00%</td>
</tr>
<tr>
<td>3.</td>
<td>31-40</td>
<td>200</td>
<td>40.00%</td>
</tr>
<tr>
<td>4.</td>
<td>41-50</td>
<td>86</td>
<td>17.20%</td>
</tr>
<tr>
<td>5.</td>
<td>51-65</td>
<td>20</td>
<td>4.00%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>

Out of 500 cases maximum number of cases (40%) was found in the age group of 31-40 years. The reason for higher prevalence in this age group (31-40 yrs) may be due to increased exposure of youngsters to visual display terminal and most software professionals of this age were working under pressure to show their efficacy in comparison to other age groups.

Table No. II Percentage Prevalence Of Subjects Gender Wise

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Gender</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Male</td>
<td>273</td>
<td>54.60%</td>
</tr>
<tr>
<td>2.</td>
<td>Female</td>
<td>227</td>
<td>45.40%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>

Distribution of sex in 500 subjects revealed that 54.6% of cases were male followed by 45.4% were female. This may be due to males are more prone to working for long hours with computers and postural stress increase the risk of Griva Stambha (Cervical Spondylosis).

Table No. III Percentage Prevalence Of Subjects Occupation Wise

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Occupation</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Student</td>
<td>143</td>
<td>28.60%</td>
</tr>
<tr>
<td>2.</td>
<td>Service</td>
<td>290</td>
<td>58.00%</td>
</tr>
<tr>
<td>3.</td>
<td>Business</td>
<td>39</td>
<td>7.80%</td>
</tr>
</tbody>
</table>
Gupta S, Sevatkar BK, Sharma R, A cross sectional survey study to find out the role of operating computer as a risk factor of Cervical Spondylosis, JOA XIII-1, 2019; 134 - 142

<table>
<thead>
<tr>
<th>S. No</th>
<th>Prakriti</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>VP</td>
<td>185</td>
<td>37.00%</td>
</tr>
<tr>
<td>2.</td>
<td>PK</td>
<td>96</td>
<td>19.20%</td>
</tr>
<tr>
<td>3.</td>
<td>VK</td>
<td>219</td>
<td>43.80%</td>
</tr>
<tr>
<td>4.</td>
<td>Total</td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>

This is due to professional workers (in service) and students use computer for a longer period in a wrong sitting posture by observing the monitor constantly.

**Table No. IV. Percentage Prevalence of Subjects Prakriti Wise**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Exercise, Yoga, Meditation</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
<td>157</td>
<td>31.40%</td>
</tr>
<tr>
<td>2.</td>
<td>No</td>
<td>343</td>
<td>68.60%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>

This study suggests that *Vata Dosha* plays a major role in the manifestation of the *Grivastambha.* (Cervical Spondylosis).

**Table No. V Percentage Prevalence Of Subjects According To Include Any Exercise, Yoga, Meditation In Daily Routine**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Duration of computer use</th>
<th>Total no of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>&lt; 2 hrs</td>
<td>46</td>
<td>9.20%</td>
</tr>
<tr>
<td>2.</td>
<td>2-4 hrs</td>
<td>101</td>
<td>20.20%</td>
</tr>
<tr>
<td>3.</td>
<td>4-6 hrs</td>
<td>85</td>
<td>17.00%</td>
</tr>
<tr>
<td>4.</td>
<td>6-8 hrs</td>
<td>107</td>
<td>21.40%</td>
</tr>
</tbody>
</table>
Gupta S, Sevhatkar BK, Sharma R, A cross sectional survey study to find out the role of operating computer as a risk factor of Cervical Spondylosis, JOA XIII-1, 2019;  134 - 142

Prolonged and intensive computer operators face a particularly high risk of developing neck pain because when they work their neck and shoulders are generally static. Poor posture with the consequent overload of neck and shoulder muscles can results in calcifying tendonitis and cervical spondylosis.

### Table No. VII Percentage Prevalence Of Subjects According To Take Break While Working On Computer

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Taking Break</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
<td>364</td>
<td>72.80%</td>
</tr>
<tr>
<td>2.</td>
<td>No</td>
<td>136</td>
<td>27.20%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Duration between two breaks**

| 1.     | Short frequent breaks | 140 | 38.46% |
| 2.     | Occasional longer breaks | 224 | 61.53% |

### Table No. VIII Percentage Prevalence Of Subjects According To Neck Pain During Neck Movements

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Neck pain</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
<td>325</td>
<td>65.00%</td>
</tr>
<tr>
<td></td>
<td>Few days</td>
<td>86</td>
<td>26.46%</td>
</tr>
<tr>
<td></td>
<td>Few months</td>
<td>117</td>
<td>36.00%</td>
</tr>
<tr>
<td></td>
<td>Few Years</td>
<td>122</td>
<td>37.53%</td>
</tr>
<tr>
<td>2.</td>
<td>No</td>
<td>175</td>
<td>35.00%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>
Gupta S, Sevatkar BK, Sharma R, A cross sectional survey study to find out the role of operating computer as a risk factor of Cervical Spondylosis, JOA XIII-1, 2019; 134 - 142

Table No. IX Percentage Prevalence Of Subjects According To Neck Stiffness During Neck Movements

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Neck stiffness</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
<td>267</td>
<td>53.40%</td>
</tr>
<tr>
<td>2.</td>
<td>No</td>
<td>215</td>
<td>43.00%</td>
</tr>
<tr>
<td>3.</td>
<td>Sometimes</td>
<td>18</td>
<td>3.60%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>

Neck pain associated with stiffness with radiation into the shoulders or occiput which may be chronic or episodic with prolonged periods of remission.[2]

Table No. X Percentage Prevalence Of Subjects According To Neck Movement Restriction Wise

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Neck Movements Restriction</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
<td>133</td>
<td>26.60%</td>
</tr>
<tr>
<td>2.</td>
<td>No</td>
<td>367</td>
<td>73.40%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>

Neck movement restriction was found in 133 (26.60%) subjects. Movements of the neck are decreased due to pain. Pain increases on hyperextension. There is localized tenderness over the spinous process[3]

Table No. XI Percentage Prevalence Of Subjects According To Swelling In Cervical Region Wise

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Swelling in cervical region</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
<td>124</td>
<td>24.80%</td>
</tr>
<tr>
<td>2.</td>
<td>No</td>
<td>376</td>
<td>75.20%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>

Out of 500 subjects 75.20% had not found swelling in cervical region while 24.80% had found swelling in cervical region. According to a recent study published in Interdisciplinary Journal of Contemporary Research in Business, strong association was found between prolonged sitters and cervical spondylosis and 50% patients complained tenderness & swelling in cervical region.
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Table No. XII Percentage Prevalence Of Subjects According To Headache Wise

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Headache</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
<td>267</td>
<td>53.40%</td>
</tr>
<tr>
<td>2.</td>
<td>NO</td>
<td>193</td>
<td>38.60%</td>
</tr>
<tr>
<td>3.</td>
<td>Sometimes</td>
<td>40</td>
<td>8.00%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>

In survey study, out of 500 subjects 53.40% had found headache. Generally start at the back of the head and then gradually move to the upper half of the front.

Table No. XIII Percentage Prevalence Of Subjects According To Feeling Of Dizziness Wise

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Feeling of Dizziness</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
<td>95</td>
<td>19.00%</td>
</tr>
<tr>
<td>2.</td>
<td>No</td>
<td>370</td>
<td>74.00%</td>
</tr>
<tr>
<td>3.</td>
<td>Sometimes</td>
<td>35</td>
<td>7.00%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>

If blood vessels are pressed, the blood supply to the brain may be affected slightly. This may result in dizziness.

Table No. XIV Percentage Prevalence Of Subjects According To Feeling Of Numbness In Arms Wise

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Numbness in Arm</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
<td>89</td>
<td>17.80%</td>
</tr>
<tr>
<td>2.</td>
<td>No</td>
<td>411</td>
<td>82.20%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>
Gupta S, Sevatkar BK, Sharma R, A cross sectional survey study to find out the role of operating computer as a risk factor of Cervical Spondylosis, JOA XIII-1, 2019; 135 - 143

### Table No. XV Percentage Prevalence Of Subjects According To Tingling Sensation In Arms Wise

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Tingling Sensation in Arms</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
<td>128</td>
<td>25.60%</td>
</tr>
<tr>
<td>2.</td>
<td>No</td>
<td>319</td>
<td>63.80%</td>
</tr>
<tr>
<td>3.</td>
<td>Sometimes</td>
<td>53</td>
<td>10.60%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>

Tingling and numbness develops if the nerve root is compressed, (Ebnezar, 2003).

### Table No. XVI Percentage Prevalence Of Subjects According To Weakness In Arm Wise

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Weakness in Arm</th>
<th>Total no. of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
<td>137</td>
<td>27.40%</td>
</tr>
<tr>
<td>2.</td>
<td>No</td>
<td>363</td>
<td>72.60%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>

In C8 root compression there will be pain in the medial aspect of the arm and forearm, weakness in the intrinsic muscles of the hand. Paraesthesia may arise in the ring and little fingers. The arm reflexes are preserved (Ray & Cowie, 2005).

**Conclusion:**

The study revealed that maximum computer operators were found in the age group of 31-40 years. Males are more prone to operate computer. High prevalence was found in service class and students. On considering the data of Sharira Prakriti, maximum subjects had Vata-Kapha Prakriti. Maximum number of cases was operated computer greater than 8 hrs at their work place. Maximum subjects were taken break and did not use any safety precaution while working on computer. Associated health problems such as neck pain, neck stiffness, neck movements restriction, headache, tingling sensation in arms, numbness in arms and weakness in arms were observed in maximum number of subjects who used computer frequently. The overall study concluded that with changes in life style in modern era, more number of people is inclined to desk work and computer usage. Thus cervical spondylosis is emerging as a wide spread problem in the society.

**References**

3. Ebnezar J; Essentials of Orthopedics for Physiotherapists. Jaypee
4. Ray A and Cowie R; What should be done for the patient with neck pain (x-rays Show cervical spondylosis). Arthritis Research Campaign (arc).

सारांश:

उदेश्य: वर्तमान जीवन शैली मुख्यतः तनाव से युक्त है। कंप्यूटर वर्तमान में लगभग प्रत्येक घर में पाया जाने वाला उप. करण है। कंप्यूटर लगभग जीवन के समस्त कार्यों में उपयोग में आता है। मानव के द्वारा किये गये अन्य आविष्कारों के समान ही कंप्यूटर के भी कई दुष्परिणाम मानव जीवन पर पड़े है। वर्तमान समय में सर्वाइकल स्पोन्डिलोसिस लंबे समय तक कंप्यूटर पर कार्य करने वाले व्यक्तियों में एक गंभीर बीमारी के रूप में सामने आई है। इस शोध कार्य में लंबे समय तक कंप्यूटर पर कार्य करने वालों में सर्वाइकल स्पोन्डिलोसिस होने की संभावना पर अध्ययन किया गया है।

सामग्री एवं विविधता: यह अध्ययन रुपटीय आयुर्वेद संस्थान, जयपुर, चंबल फिशिलाइजेंस इवं केमिकल लिमिटेड, गढ़वाल, कोटा और अन्य सॉफ्टवेयर संस्थानों में किया गया। यह अध्ययन पूर्व निर्धारित प्रस्तर के आधार पर कुल 500 व्यक्तियों पर किया गया।

परिणाम एवं विचार-विमर्श: सर्वाइकल स्पोन्डिलोसिस के जोखिम कारक जैसे प्रतिदिन कंप्यूटर पर कार्य करने का समय, कंप्यूटर पर बिना आराम किये लगातार कार्य करने का समय, मापस्थल को उपयोग करने का समय एवं अवयवस्थित कार्य क्षेत्र का अनावरण लम्बे समय तक कंप्यूटर पर कार्य करने वाले व्यक्तियों में अधिक पाया गया। कंप्यूटर पर अधिक समय तक खाराब आराम एवं बिना रुके कार्य करने से सर्वाइकल स्पोन्डिलोसिस होने की संभावना बढ़ जाती है।

निष्कर्ष: उत्तर शोध कार्य से यह ज्ञात हुआ कि लम्बे समय तक बिना बिद्रोह किए कंप्यूटर पर कार्य करने वालों में श्रीवाल और अंस का दर्द बहुत से मिलता है। साथ ही गर्दन में जकड़न, सूजन, गर्दन की गलियों में अवरोध भी देखने को मिला।
ORIGINAL RESEARCH ARTICLE - SURVEY STUDY

A Survey Study To Evaluate The Effect Of Ratri Jagarana On Health W.s.r. To Nidra Vega Dharana

*Dr. Mahesh Kumar, **Dr. Sarvesh Kumar Agarwal

*Assistant Professor, Dept. of Swasthvritta & Yoga, Dr. S.R. Rajasthan Ayurveda University, Jodhpur, **Assistant Professor, Dept. of Swasthvritta & Yoga, National Institute of Ayurveda, Jaipur.

ABSTRACT

Ayurveda is the priceless gift from our golden past, handed down from generation to generation from one great master to his illustrious successor. In this competitive and stressful era the sleep is proved as a divine gift to human beings which refreshes and recharges an individual for the further struggle for survival. Sound sleep in a peaceful state of mind is hardly possible in this modern world. Though the people are aware of the fact that good sleep is very essential for the physical and mental well being, due to many reasons most of the people can’t enjoy the sound sleep. Hence they are devoid of real benefits of sleep.

The aims & objective of this study is to record the problems due to Nidra Vega Dharana in night workers and to prepare a modified module of life style for them. 500 volunteers have been selected for this survey study from Jaipur.

A proforma having general details and symptoms of Nidra Vega Dharana were given to them. The observations from these filled proforma were evaluated and result was drawn. On the basis of these result of the prevalent symptoms, a module of diet & life style has been prepared for night workers.

Keywords : Nidra Vega Dharana, Ratri Jagarana, Module, Night workers, Sound sleep.

How to Site the Article : Kumar M, Agarwal SK, A Survey Study To Evaluate The Effect Of Ratri Jagarana On Health W.s.r. To Nidra Vega Dharana, JOA XIII-1, 2019; 143 - 149

Introduction:

In Ayurveda the edifice of body has been considered to be supported on certain metaphoric pillars and sub pillars. The pillars, the three body humors, underlie and govern all aspects of physiological functioning. The balanced state of these three vital humors account the healthy state of the body, whereas imbalance of Dosha,
eventually manifests as diseases. The three sub-pillars *Ahara, Nidra* and *Bramhacharya* are for the purpose to restore and replenish the energy depot of the body. These three sub-pillars when followed adequately maintain the balance of *Dosha* and in turn hold the integrity of life[^1].

*Nidra* is one of the three sub-pillars of the body[^2]. It is a physiological phenomenon which occurs in every individual by *Svabhava*. It is state of reduced or absent outer consciousness and relatively suspended sensory and motor activities. *Nidra* plays a vital role in maintaining the body in healthy state by keeping the balance of *Dosha* intact. Quality sleep enjoyed for proper duration and at proper time imparts physical strength, happiness, virility, increase the learning abilities and maintain the level of cognitive skills[^3]. The importance of sleep has also been vividly depicted in allopathic health science.

In recent decades, a drastic change in lifestyle has occurred because of industrialization and globalization. It has shifted from disciplined and balanced to extremely disorganized and fast. People are keeping their personal ambitions over and above health priorities. They are so much indulged in earning the artificial means of comfort that they are ignorantly overlooking the natural needs of restoration of body. Most of people experience their days as an emergency situation and try to overstretched their limits. This fast track kind of life style is interfering the normal sleeping habits of people as a result of which leads to many disease.

**Need Of The Study:**

In this present time of industrialization and globalization our life style has become too hectic, many of the people do their jobs at night viz., drivers, receptionist, hospital workers, security guard, call centre employees, factory workers, students and many more. It is highly impossible to completely stop their night work, so some modification of their life style can be done to make their jobs easy and prevent many health problems. Keeping this concept in mind this work has been chosen to collect the data regarding health problems of these due to night workers due to night awakening and propose a modified module of their life style for their healthy living.

**Materials And Methods:**

**Aims & Objective:**

1. To Compile and commemorate the classical references of *Nidra Vega dharana*.
2. To Conduct the Survey study to access the health problems of night workers and calculate the incidence and prevalence of *Nidra Vega Dharana* among the denizens in and around Jaipur city.
3. To prepare a module of modified life style for night workers.

**Selection of volunteers:**

Total 500 volunteers were registered from different group of night workers from district Jaipur. A proforma having general details and health problems of night workers were given to them to be filled up.

**Inclusion:**

1. Age between 18 to 60 years.
2. Irrespective of gender, religion and occupations.
3. Samples belonging to in and around Jaipur city.
4. Samples showing the classical signs and symptoms of *Nidra Vega Dharana*.
5. Volunteers from night workers group e.g. drivers, call centre workers, night office workers, security guard.

**Exclusion Criteria:**

1. Age below 18 years and more than 60 years.
2. Samples having any other systemic disorders.
3. Samples having the symptoms of insomnia even after the day working.

**Assessment Criteria:**

Following symptoms were assessed in 500 volunteers:

The symptoms have been taken from *Charaka Samhita Ratri jagarana*. Some symptoms of aggravated *Vatta* & *Pitta* and symptoms of stress have been added along with
Ratri Jagarana.

Headache, Sleepiness, Dizziness, Pain in eyes, Heaviness of eyes, Lactation, Loss of appetite, Difficulty in breathing, Cold, Inability to sleep, Difficulty in falling asleep, Heart Disorder.

Module For Night Workers

Acharya Sushruta says due to any reason if one have to awaken during night then he must sleep during day time half of the devoid of sleep of night, without having food.

Ayurveda mentioned this modification for a person who has to awaken during night occasionally due to any reason but at present time the shift working is the continuous process rather than an occasionally therefore some more modification are required those are given below.

A) Dietary Modifications

- Take a big meal at the start of your work schedule and a moderate meal around midnight. Before going to bed in the morning, take a regular breakfast meal in a small quantity. Relax during meals and allow time for digestion & Drink a lot of water during work. Increase fibre content in your diet. Take small, nutritional snacks throughout the shift helps to stay energized throughout the night. Maintain regular eating patterns with well balanced meals. Take the usual balance of vegetables, fruit, lean meat, poultry, fish, dairy products, grains. Minimize the intake of caffeine, alcohol, antacids, tranquilizers, sleeping pills, fast food and junk food and smoking.

B) Sleep Modification

- Make sure that family and friends are aware of and considerate of the worker's sleep hours and needs. Ensure you have a comfortable, quiet place to sleep during the day. Make time for quiet relaxation before bed to facilitate better sleep i.e. reading, breathing exercises, muscle relaxation techniques etc. Sleep on a set schedule to help establish a routine and to make sure to sleep during the day earlier. Avoid strenuous exercise before sleeping because your body’s metabolism will remain elevated for several hours and this makes sleeping difficult. If failing to fall asleep after one hour, read a book or listen to quiet music. If sleep still does not initiate, reschedule sleeping hours for later in the day.

C) Social Activities Modification

- Schedule at least one daily meal with the family; this helps to keep communication channels open and promotes a good eating habit. Socialize with other shift workers and their families; this helps to minimize the disruption that shift work can have on your social life. Keep in touch with spouse and children daily. Establish good communication skills. Set time aside for just you and your spouse. Carefully plan family activities; family ties are a precious commodity (plan days off in advance if possible). Pay close attention to physical fitness; a regular exercise program helps the body adjust to the negative effects of shift work and it can also help improve the quality and quantity of sleep. Practice stress reduction.

D) Work-Related Modifications

Decrease the number of night shifts worked in a row. If you work a 12-hour shift, you should limit work to four shifts in a row. After a string of night shifts, you should have more than 48 hours off, if possible. Avoid working prolonged shifts and putting in excessive overtime. Avoid long commutes, which can take time away from sleeping. Avoid frequently rotating shifts. It is more difficult to
deal with rotating shifts than it is to work the same shift for a longer period of time. It can be easier to adjust to a clockwise shift rotation (e.g. going from day to evening to night shift). Take breaks during work hours to rest or even nap. Exposure to bright light while at work can help people stay awake during their shift. Warm environments can contribute to sleepiness in some people.

In the present study majority of the symptoms are Vata Prakopa along with the Pitta Dosha (पितामहसिद्धिमालति पितामहस्नातपात श्वायाद्वि। - Su.S.Sh. 4/41) [6]. Therefore the module mentioned above is predominately Vata & Pitta Shamaka Ahara Vihara and sleep.

Result & Discussion:

The survey study carried out in the present series of volunteers revels the majority of these samples were of age between 18-25 years and 33-39 years respectively 30.2% and 21%. This incidence shows that the volunteers of Ratri Jagarana decreases as the age advances. The tendency of shift working has been seen in the young generation. Maximum percentage of volunteers 87.4% were males and 12.6% were females. It indicates that majority of working people are male. Maximum percentage 62.6% of volunteers were Hindu and 35% were of Muslim religion. It indicates the Hindu dominant area. Maximum percentage of volunteers 75.2% were residing in urban area and 24.8% belonged to rural area. It indicates the urban dominant area. Maximum percentages of volunteers 87.4% were married and 12.6% were unmarried. Maximum percentage of volunteers 43.8% were graduates, 18.6% post graduate, 17% up to primary or secondary class, 13.2% were high school and 7.4% were illiterate. Maximum percentage of volunteers 59% were middle class, 33% were lower class and 8% were higher class. NIA situated in middle class pre dominant area so maximum no. of volunteers belongs to middle class family. Maximum percentage of volunteers 32.6% were Hospital workers and 21.8% were Security Guard. Maximum percentages of the volunteers 56.8% were having vegetarian food and 43.2% were having mixed type of food. Maximum percentage of volunteers 31.2% were having no sleep and rest 22.6% were having 1hr/day sleep at night. Maximum percentage of volunteers 30.6% of the samples that were taking 5hrs/day sleep, 20.6% subjects were taking 3hr/day.

Table No. I The Distribution Of Symptoms In All Volunteers Has Been Found As Follows

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Symptoms</th>
<th>No. of Volunteers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Headache (शिरःशूल)</td>
<td>443</td>
<td>88.6%</td>
</tr>
<tr>
<td>2.</td>
<td>Sleepiness (तन्द्रा)</td>
<td>400</td>
<td>80%</td>
</tr>
<tr>
<td>3.</td>
<td>Dizziness (अन्न)</td>
<td>334</td>
<td>66.8%</td>
</tr>
<tr>
<td>4.</td>
<td>Pain in eyes (अक्षियूल)</td>
<td>344</td>
<td>68.8%</td>
</tr>
<tr>
<td>5.</td>
<td>Heaviness of eyes (अक्षिमोरस)</td>
<td>403</td>
<td>80.6%</td>
</tr>
<tr>
<td>6.</td>
<td>Redness of eyes (अक्षिलालिमा)</td>
<td>247</td>
<td>49.4%</td>
</tr>
</tbody>
</table>
Kumar M, Agarwal SK, A Survey Study To Evaluate The Effect Of *Ratri Jagarana* On Health W.s.r. To *Nidra Vega Dharana*, JOA XIII-1, 2019; 143 - 149

<table>
<thead>
<tr>
<th></th>
<th>Condition</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>Lacrimation (अभूषाव)</td>
<td>205</td>
<td>41%</td>
</tr>
<tr>
<td>8.</td>
<td>Foreign body sensation</td>
<td>310</td>
<td>62%</td>
</tr>
<tr>
<td></td>
<td>(विकालीयत्वसम्पथनता)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Nausea (उल्लेख)</td>
<td>27</td>
<td>5.4%</td>
</tr>
<tr>
<td>10.</td>
<td>Vomiting (भमन)</td>
<td>9</td>
<td>1.8%</td>
</tr>
<tr>
<td>11.</td>
<td>Indigestion (अजीर्ण/अपाक)</td>
<td>447</td>
<td>89.4%</td>
</tr>
<tr>
<td>12.</td>
<td>Flatulence (आह्मान)</td>
<td>440</td>
<td>88.0%</td>
</tr>
<tr>
<td>13.</td>
<td>Hyperacidity (अग्निपता)</td>
<td>349</td>
<td>69.8%</td>
</tr>
<tr>
<td>14.</td>
<td>Abdominal pain (उदरशूल)</td>
<td>68</td>
<td>13.6%</td>
</tr>
<tr>
<td>15.</td>
<td>Constipation (गाढ्वर्ग)</td>
<td>393</td>
<td>78.6%</td>
</tr>
<tr>
<td>16.</td>
<td>Loss of appetite (अरूचि)</td>
<td>445</td>
<td>89.0%</td>
</tr>
<tr>
<td>17.</td>
<td>Difficulty in breathing</td>
<td>86</td>
<td>17.2%</td>
</tr>
<tr>
<td></td>
<td>(क्रृत्र्यास)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Cough (कास)</td>
<td>48</td>
<td>9.6%</td>
</tr>
<tr>
<td>19.</td>
<td>Cold (प्रतिस्थाप)</td>
<td>64</td>
<td>12.8%</td>
</tr>
<tr>
<td>20.</td>
<td>Body ache (अंगमद/गाढ्वशूल)</td>
<td>454</td>
<td>90.8%</td>
</tr>
<tr>
<td>21.</td>
<td>Obesity (रसील्य)</td>
<td>112</td>
<td>22.4%</td>
</tr>
<tr>
<td>22.</td>
<td>Diabetes (मधुमेह)</td>
<td>138</td>
<td>27.6%</td>
</tr>
<tr>
<td>23.</td>
<td>Sexual problem (यौनरोग)</td>
<td>187</td>
<td>37.4%</td>
</tr>
<tr>
<td>24.</td>
<td>Seizures (कम्पन)</td>
<td>30</td>
<td>6%</td>
</tr>
<tr>
<td>25.</td>
<td>Urinary problems (मूत्रवहरोग)</td>
<td>264</td>
<td>52.8%</td>
</tr>
</tbody>
</table>
Kumar M, Agarwal SK, A Survey Study To Evaluate The Effect Of Ratri Jagarana On Health W.s.r. To Nidra Vega Dharana, JOA XIII-1, 2019; 143 - 149

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>26.</td>
<td><strong>Depression</strong> (अवसाद)</td>
<td>288</td>
</tr>
<tr>
<td>27.</td>
<td><strong>Anxiety</strong> (बैरम/चिंता)</td>
<td>298</td>
</tr>
<tr>
<td>28.</td>
<td><strong>Heart disorder</strong> (ह्रग्रृह)</td>
<td>181</td>
</tr>
</tbody>
</table>

### Table No. II: Symptoms Found In Total Volunteers

Table shows that maximum percentage of 90.8 % were found body ache, 89.4 % were found Indigestion, 89.0 % were found loss of appetite, 88.6% were found head ache present in total volunteers.

### Table No. III: In 500 Volunteers The Symptoms Were Present In Following Percentage.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Percentage Range</th>
<th>Symptoms/Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>75-100%</td>
<td>Headache, Sleepiness, Heaviness of eyes, Indigestion, Flatulence, Constipation, Loss of appetite, Body ache</td>
</tr>
<tr>
<td>2.</td>
<td>50-75%</td>
<td>Dizziness, Pain in eyes, Foreign body sensation, Hyperacidity, Urinary problems, Depression, Anxiety</td>
</tr>
<tr>
<td>3.</td>
<td>25-50%</td>
<td>Redness of eyes, Lacrimation, Diabetes, Sexual problems, Heart disorder</td>
</tr>
<tr>
<td>4.</td>
<td>0-25%</td>
<td>Nausea, Vomiting, Abdominal pain, Difficulty in breathing, Cough, Cold, Obesity, Seizures</td>
</tr>
</tbody>
</table>

The occurrence of these symptoms shows that Vata Dosha is aggravated predominately along with Pitta Dosha. Therefore the diet & life style pattern of night workers should be design with keeping in mind that Vata & Pitta Dosha aggravated.
**Conclusion:**

- *Nidra* is an essential phenomenon for maintenance and restoration of the life. According to contemporary science, sleep is said to nourish and repair the damages to the tissues caused by various catabolic activities of the body.

- On the basis of observations and results of the survey study a module of modified life style of night workers for their healthy living has been prepared.

- *Vata* along with *Pitta* plays a key role in the pathogenesis of *Ratri Jagarana*.

- The outcome of this study is proper dietary & life style modification module for the night worker/shift worker by using this module further clinical trial (interventional study) can be done to prove this study on clinical basis. If this is proved it will be beneficial for the person doing night work and they can be comfortable & healthy life.

**References**

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**सारांश:**

आयुर्वेद हमारे स्वर्णिम अतीत से अमूल्य उपहार है | इस प्रतिस्पर्धा और तनावपूर्ण युग में निद्रा, जो तरसताजा कर देती हैं और मानव अस्तित्व के लिए दिया उपहार साधित कर दिया है। गहरी निद्रा नन की शास्त्रीय प्रभुत्व हैं, जो इस दुनिया में शायद ही सমंब हो। कुछ लोग इस तथ्य से अवगत हैं कि अच्छी नींद, शारीरिक और मानसिक स्वास्थ्य के लिए बहुत आवश्यक हैं परन्तु बहुत से करणों के कारण गहरी नींद का लुप्त नहीं उठा पाते। अतः ये निद्रा के सार्वजनिक गहराई से विभिन्न हैं। इस संरचना अध्ययन के उद्देश्य राजीवकालीन कार्यकर्ताओं में निद्रा वेदांत के कारण उत्पन्न समस्याओं का आकलन कर, उनके जीवनशैली अनुसार संशोधित मापदंड तैयार करना है। 500 स्वयंसेवकों को जयपुर शहर से इस संरचना अध्ययन के लिए चयित किया गया। सामायिक परिवर्तन और निद्रा वेदांत के उत्तरार्ध लक्षणों वाला प्रय्यक उन्हें मनोधार किया गया और उनमें पाये गये लक्षणों के आधार पर परिस्थापन तैयार किए गये तथा राजीवकालीन अभिकक्षों के लिए आहर और जीवनशैली का एक मापदंड तैयार किया गया।
ORIGINAL RESEARCH ARTICLE - CASE STUDY

An Ayurvedic approach in the management of diabetic neuropathy - a case report

*Dr. Sarvesh Kumar Singh, **Dr. Kshipra Rajoria, ***Dr. Suman Dadhich

*Assistant Professor, **Lecturer, ***M.D. Scholar, Department of Panchakarma, National Institute of Ayurveda, Jaipur.

ABSTRACT

Introduction- Diabetic neuropathies are nerve damaging disorders associated with diabetes mellitus. Diabetic neuropathy affects all peripheral nerves including motor neurons, autonomic nervous system and pain fibers. Satisfactory treatment is not available in bio-medicine. Here we present a case which was successfully managed with Ayurvedic medications and Panchakarma interventions. Material and methods- A 63 years old female suffering from Diabetic neuropathy was treated with Panchakarma therapy and selected Ayurvedic oral medicines. Vatarakta was the Ayurvedic diagnosis for the case. Ayurvedic treatment was directed to ameliorate the neurological clinical conditions in this case. Panchakarma procedures such as Shalishastika Pinda Swedana for 28 days and Saghrīta Panchatikta Pancha Prasritic Basti for 16 days were given. Along with these Panchakarma interventions selected Ayurvedic oral medicine – Madhumehari Churna -5g, Ashwagandha Churna (powder of Withania somnifera Dunal) -500mg, Dashmool Kwatha -40ml, Kaishore Guggulu -500 mg and Shiva Gutica -500mg were administered twice a day. These oral medicines were continued for next one month. Result- Modified neuropathy disability score and grading for neuropathy based on 19 points were assessed for outcome which shows good improvement. Before treatment patient was suffered from moderate peripheral neuropathy which was changed to no neuropathy after two months of treatment. Conclusion- Study result indicates that Ayurvedic herbs along with Panchakarma therapy may play a major role in the management of Diabetic neuropathy.

Keywords: Diabetic neuropathy, Vatarakta, Panchakarma therapy, Ayurvedic medicines

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Introduction:

Diabetic neuropathies are nerve damaging disorders associated with diabetes mellitus. Globally diabetic neuropathy affects approximately 132 million people as of 2010 (1.9% of the population)\[1\]. Diabetic
neuropathy affects all peripheral nerves including motor neurons, autonomic nervous system and pain fibers. It is estimated that 50% of people with type 2 diabetes eventually developing some degree of peripheral neuropathy. About 90% of people with diabetic peripheral neuropathy have symmetric distal polyneuropathy. A patient can have sensorimotor and autonomic neuropathy or any other combination. Signs and symptoms vary depending on the nerve(s) affected. Orthostatic Hypotension or fainting when standing up and a loss of respiratory sinus arrhythmia - the usual change in heart rate seen with normal breathing are the two findings suggests autonomic neuropathy. Longer nerve fibers are affected to a greater degree than shorter ones in sensorimotor polyneuropathy. These are characterized by decreased sensation and loss of reflexes which occurs first in the toes on each foot and then extends upward. It is usually described as a glove-stocking distribution of numbness, sensory loss, dysesthesia and night time pain. The pain can feel like pricking sensation, burning sensation, achy or dull. A pins and needles sensation is more common. Loss of motor function resulted in dorsiflexion, contractures of the toes and loss of the interosseous muscle function leading to hammer toes. Cranial nerves are affected; neuropathies of the oculomotor nerve and abducens nerve are most common. Diabetics have a higher incidence of entrapment neuropathies, such as carpal tunnel syndrome. Mononeuropathies of the thoracic or lumbar spinal nerves can occur. In brief, common conditions which may be associated with diabetic neuropathy include mononeuropathy; mononeuropathy multiplex; third nerve palsy; autonomic neuropathy; diabetic amyotrophy or radiculopathy; a painful polyneuropathy and thoracoabdominal neuropathy.

Diabetic neuropathies are thought to result from diabetic micro vascular injury involving small blood vessels that supply nerves in addition to macro vascular conditions that can culminate in diabetic neuropathy. The first pathological change in the small blood vessels is narrowing of the blood vessels and the development of blood vessel abnormalities, such as capillary basement membrane thickening and endothelial hyperplasia, increased oxidative stress, a build-up of glycation end-products, increased activity of the polyol pathway, activation of pro-inflammatory mechanisms which lead to diminished oxygen tension and hypoxia and resulted in neuronal ischemia, a well-established characteristic of diabetic neuropathy.

Only limited conservative procedures are available in modern medicine but without satisfactory improvement. No study is published in Pub Med for Ayurvedic approach on diabetic neuropathy till date. Here we represent a case of diabetic neuropathy which was successfully treated with Ayurvedic management. Vatarakta was the Ayurvedic diagnosis for the case.

Case presentation - A 63-year-old Hindu women with a 29-year duration of type 2 diabetes mellitus, with diabetic neuropathy, presented to our outpatient clinic, after a nearly 1year period of severe neuropathic paresthetic pain in four extremities and her lumbosacral and buttocks region (saddle paresthesia). The pain estimate was 10/10 visual analog scale (VAS). Concomitantly, she felt anorectic, nervous and sad, had insomnia, tremors, a feeling of general coldness, and was suffering from chronic constipation. Patient was also taking medication for Hypertension, hypothyroidism and insomnia at the time of admission. Recent hemoglobin A1c (9.1%) was achieved on metformin 500mg twice daily. She was on Levo Thyroxin 100 mcg once a day, Telmisartan 12.5 mg once a day, Alprazolam 5 mg at night.

Two weeks prior to her visit, she completed MRI brain that revealed chronic small vessel ischemic changes in periventricular region, corona radiate and centrum semiovale. All other test results were within normal limits.

On examination, patient was anxious, appetite was apparently normal and tongue was uncoated. Micturation and bowel movement were normal. Patient had Vatapitta Prakriti with Madhyama Samhanana (medium body built), Madhyama Sara (medium purest body tissue),
Sama Pramana (symmetrical body proportion), Madhyama Satamya (medium homologation), Madhyama Satva (medium mental strength), Madhyama Vyayama Shakti (medium capability to carry on physical activities), Madhyama Aharashakti and Jaranashakti (medium food intake and digestive power).

On physical examination she was pale and distressed. Her blood pressure was 124/90mmHg; pulse, 107 beats per minute; body weight, 80.9kg; height, 165cm; and body mass index (BMI), 29.7kg/m². Diminished tendon reflexes were observed in four extremities especially in ankles. There was glove and sock hypesthesia, and distal weakness of the hands with normal strength of the lower extremities. Patient current illnesses were arterial hypertension; insomnia and lower backache. Normal findings were detected in her complete blood count, liver and kidney functions tests, Thyroid profile, B12, 25 OH Vitamin D, rheumatic diseases profile, C-reactive protein and lactate plasma.

The most likely diagnosis for someone with diabetes who has pain in a leg or foot is Diabetic peripheral neuropathy. Vitamin B12 deficiency, osteoarthritis, uremia, hypothyroidism, are the differential diagnosis. Various systemic condition, infections, autoimmune disorders, toxins, trauma, chronic inflammatory demyelinating polyneuropathy and inherited conditions can also be responsible for the neuropathy. Patient had normal biochemical and hematological parameters except for blood sugar with decreased ankle reflexes and decreased vibration perception to a 128-Hz tuning fork. Decreased ankle reflexes and an abnormally decreased vibration perception to a 128-Hz tuning fork are the characteristics of diabetic peripheral neuropathy.[4] Hence Diabetic peripheral neuropathy was considered as the primary diagnosis for the case. Patient also had sever aching or burning pain that affects the lower back, buttock and thighs, that was often worsen at night. These are the characteristic of diabetic amyotrophy, also known as lumbrosacral radiculoplexus neuropathy. In Ayurveda these sign and symptoms can be nearly correlated with Vatarakta.

Line of treatment for Diabetic neuropathies is similar to line of management of Vatarakta such as Mridu Virechana (mild purgation) and Basti procedures. Saghrita Basti (Basti with Ghrita) is considered as the best treatment for Vatarakta. Basti procedures is generally contraindicated in Prameha (~diabetes mellitus) but Panchatikta Prasritic Basti is indicated for Prameha. Hence Saghrita Pancha Prasritic Basti was used for Vatarakta in the case. Swedana is also contraindicated for Madhumeha but in Vatarakta, Parisheka with Shrita Dugdha (mild sudation with Luke warm milk) in the form of Shalishastic Pinda Swedana was adopted for the patient.

Various Panchakarma interventions were adopted to treat this patient. Mridu Virechana with castor oil in dose of 20ml with Luke warm milk was given at night prior to the beginning of medical intervention to the patient. From next day Shalishastika Pinda Swedana for 28 days along with Panchatikta Prasritic Basti for 16 days were adopted. Along with these Panchakarma interventions selected Ayurvedic oral medicine –Madhumehari Churna - 5g [a proprietary medicine of National Institute of Ayurveda, Jaipur, India, containing 10 herbs], Ashwgandha Churna ( powder of Withania somnifera Dunal) -500mg Dashmoola Kwatha - 40ml, Kaishore Guggulu-500 mg and Shiva Gutica -500mg were administered twice a day. These oral medicines were continued for next one month.

Patient was assessed on modified neuropathy disability score which comprises of four clinical tests that are vibration perception threshold, temperature perception, pin prick testing and Achilles tendon reflexes. The maximum score for modified NDS are 10. At the time of admission the modified NDS was 8 and it was changed to 3 after one month of treatment and 1 after two month of treatment.[3]

**Result** - Subjects were also graded according to neuropathy severity using 6 symptom scores (the presence or absence of foot pain, numbness, tingling, weakness, imbalance, and upper limb symptoms), 8 reflex scores (bilateral knee and ankle reflexes, each graded as absent, reduced, or normal), and 5 physical
examination scores (the presence or absence of pinprick, temperature, light touch, vibration, and position sense) for a total of 19 possible points. Grading was stratified such that <5 indicated no neuropathy, 6–8 indicated mild neuropathy, 9–11 indicated moderate neuropathy, and >12 indicated severe neuropathy. Before the treatment patient had moderate neuropathy. Patient was changed to mild neuropathy after one month of treatment and further changed to no neuropathy after two months of treatment.

Discussion—Symptoms and Samprapti (pathogenesis) of Vatarakta has nearly resemblance with Symptoms and pathogenesis of diabetic neuropathy. Complications of Vatarakta are also similar to manifestation of Diabetic neuropathy. Etiological factors, prodromal symptoms and complications of Prameha and Vatarakta are also nearly same. Excessive use of Katu (pungent) and Tikta (bitter) Rasa, excessive walking, excessive exercises to treat Madhumeha (DM-2) [a type of Prameha] may lead to pathogenesis of Vatarakta. Micro and macro vascular changes and neuronal ischemia are the main pathology in diabetic neuropathy which are similar the Raktadusti (vitiation of blood) and Vatadusti (vitiation of Vata) of Vatarakta. The patient was treated on the line of management of Vatarakta. Saghri Kshira Basti, Shilajat and Guggulu are indicated for Vatarakta.

Mridu Snehana and Swedana were provided for the case in the form of Shalishastika Pinda Swedana. Basti can break pathogenesis of Vata Vyadhi by removing Margavardha by purification of channels and Dhatukshaya by its Brihmana (~ nourishing) property. Basti, used in the case was mainly made of Tikta Rasa and Madhura Rasa. Mahapanchatikta Ghrita and Ashwagandha taila (oil) were used in the formation of Basti.[6,7] Tikta Rasa is used in the treatment of Rakta Doshha and Rakta Vardhaha Srotodusti (pathogenesis in blood vessels). Tikta Rasa has Sothaghana (anti-edematous and anti-inflammatory) and Pittahara properties (suppression and elimination of deranged Pitta Dosha). Ghrita and honey have Madhura Rasa (sweet taste) dominance. The combinations of these drugs may act as Vata pittahara (suppressors and eliminators of deranged Vata and Pitta doshas) that may reduce inflammation and treat the Diabetic neuropathy condition.

Hence Basti used in the case was effective for the treatment of diabetic neuropathy. Ashwagandha has Rasayan (immunomodulatory) and Balya (anabolic) properties[Dashamoolo Kwatha is having Tridosha whole property. [Dashmooladi Shritakshira is also indicated for pain relieving in Vatarakta condition. Shiva Gutica is a Rasayana and helpful in Vatarakta, Siroroga, Mukharoga, Swasa Roga (dyspnoea), Neteraroga etc. This case is important one as it throws new lights in the possible Ayurvedic Pathogenesis and treatments of diabetic neuropathy. Diabetic neuropathy may be successfully managed by these line of Ayurvedic treatment.

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Singh SK, Rajoria K, Dadhich S, An *Ayurvedic* approach in the management of diabetic neuropathy - a case report

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सारः:

परिचय - डायबिटीज न्यूरोपैथी तंत्रिका सूजन को आमतौर पर मेलेटस में जुड़े विकार हैं। डायबिटीज न्यूरोपैथी सभी परिशीती तंत्रिकाओं को प्रभावित करते हैं। जैव शिकित्सा है इसका कोई संबंध नहीं है। निर्देशक और पंक्रम शिकित्सा के द्वारा सफलतापूर्वक उपचार किया गया है।

उपकरण और विधि - एक 63 साल की महिला जिन्होंने डायबिटीज न्यूरोपैथी से पीड़ित थी, उसका उपचार पंक्रम प्रक्रिया एवं आयुर्विदिक औषधि द्वारा किया गया। डायबिटीज न्यूरोपैथी के लक्षणों की सामग्री के लिए खाद्यावलि में वातावरण के साथ कि गई है। आयुर्विदिक उपचार को इस अध्ययन में न्यूरोनिकुल नेदानिक रियर्स को दीवाली के लिए निर्देशित किया गया है। सेमी का 28 दिनों के लिए पंक्रम प्रक्रिया जैसे क्षारीशिक फिल्ड स्वयंदृष्टि एवं 16 दिनों के लिए सांस्कृतिक जीवाश्चर्यकारिता बस्ती के साथ-साथ आयुर्विदिक औषधि द्वारा उपचार किया गया था। आयुर्विदिक औषधि जो प्रयुक्त की गयी थी वह थी - मुकुन्दार मुनूल - ५ ग्राम, अयुर्माणु चूर्ण (विधानिया सोमनाथन चूर्ण) - 500 मिलीग्राम, दासमुल क्वाच - ४० मिली, कैंशोर गुप्त - 500 मिलीग्राम और शिवा गुटिका - ५०० मिलीग्राम, सभी औषधियों में दो बार प्रयुक्त की गई थी। इन आयुर्विदिक औषधियों को अगले एक महीने तक जारी रखा गया था।

परिणाम - संशोधित न्यूरोपैथी डिसेब्रियलिटी स्कोर और ५६ बिंदुओं के आधार पर न्यूरोपैथी के परिणाम के लिए प्रोटकल का अंकलन किया गया जो अच्छा उपचार दिखाता है। उपचार से पहले ही फ्यूज़ परीक्षण न्यूरोपैथी से पीड़ित था जिसे दो महीने उपचार के बाद न्यूरोपैथी रहित में बदला गया था।

निकाय - अध्ययन परिणाम बताता है कि पंक्रम के साथ - साथ आयुर्विदिक औषधियों डायबिटीज न्यूरोपैथी की शिकित्सा में एक प्रमुख भूमिका निभा सकती हैं।