ASSESSMENT OF GURU GUNA OF KAPHA DOSHA W.S.R. TO EFFICACY OF TRYUSHANAADI LAUHA IN STHAULYA

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ABSTRACT
Tridosha are the substances having specific Guna (quality) & Karma (functions). Guna are potential energy of Dravya and Karma are execution of this energy (Guna). Here, among all Guna, Guru Guna of Kapha Dosha is chosen for research work as Guru Guna is first & foremost Guna of Kapha described by Acharya Charaka. Sthaulya simply is the increased physical Guruta of body. It is Kaphaj Nanatmaj Vyadhi. Sthaulya can be described as “Medo roga, Medovriddhi, Medasvi and Ati- Sthaulya. Sthaulya can be described as having heaviness and bulkiness of body due to extensive growth or abnormal increase of Medodhatu resulting in to pendulous appearance of buttocks, belly, and breast with decrease in energy level. Yogratnakar had described the use of Tryushanaadi Lauha in the management of Sthaulya. A clinical trial was done with Tryushanaadi Lauha on randomly selected 30 clinically diagnosed patients of Sthaulya. Out of which, 15 patients were treated with Tryushanaadi Lauha & rest 15 with Placebo. Tryushanaadi Lauha has highly significant result in Sthaulya. It also reduces the Guru Guna of Kapha Dosha.

Keywords: Kapha Dosha, Guna, Guru Guna, Sthaulya, Tryushanaadi Lauha

INTRODUCTION
Today is the era of modernization and fast life. Everybody is busy and living stressful life. Consumption of fast foods having high calories is also increasing. We have every comfort of living and we are not doing any kind of physical activity and so body fats are increasing in our body, which invites the disorders like hypertension, heart diseases and diabetes. industrialization, stress during the work, dietary habits, lack of exercise and various varieties among the daily diet e.g. fast food, freeze fruits, increased amount of soft drinks and beverages, canned foods results into the disturbance of Agni or metabolism and ultimately leads to clinical entity known as Obesity or Sthaulya.

Obesity is perhaps most prevalent form of malnutrition. Obesity is a clinical term and is referred for overweight. Obesity is defined as excess of adipose tissue or fat that imparts health risk. Body weight of 20% excess over ideal weight for age, sex, and height is considered as health risk. Obesity has reached epidemic proportions in India in 21st century, with morbid obesity affecting 5 % of country’s population. In northern India, Obesity was most prevalent in urban populations, (Male-5.5%, Female-12.6 %) followed by urban slums (Male-1.9 % female 7.2%). Obesity rates were the lowest in rural population (Male 1.6 %, Female 3.8%).

Overweight or Obesity may not be considered as a specific disease, but it is...
certainly the Mother of degenerative diseases in adult life. Prevention and control of this problem must therefore claim priority attention. Many theories have been put forward with new hypothesis describing this disorder in Ayurveda as well as in other systems of medical sciences; still there is enough scope to work out on management aspect of the Sthaulya.

AIMS AND OBJECTIVE

- To evaluate the assessment criteria for Guru Guna of Kapha Dosha.
- Clinical assessment of Guru Guna of Kapha Dosha w.s.r. to Sthaulya.
- Conceptual evaluation of etiopathogenesis of Medodhatu Vriddhi w.s.r. to Obesity.
- To evaluate the clinical efficacy of Tryushanaadi Lauha in Sthaulya.

MATERIALS REQUIRED

Here we have mentioned critical review of relevant literature of Medodhatu Vriddhi from Ayurvedic text books, previous research paper, different medical text books & journals.

CONCEPTUAL STUDY

Principally, Tridosha are the substances having specific Guna (quality) & Karma (functions). Attributes being dependent to substance (Dravya) are called Guna. Guna are potential energy of Dravya and Karma are execution of this energy (Guna).

The identification & understanding of a substance and its separate experience or knowledge is collected on the basis of its attributes (properties) and actions. Ayurveda deals with substances for the evolution, development and maintenance of body and diets as well as medicines are essentially required for this purpose.

Gurvadi Guna are called Sharir Guna as these attribute are commonly present in body tissues and Dosha. On the basis of these Guna present in drugs & diets Dosha, Dhatu & Mala Samyavastha is maintained. Importance of Guna lies in the fact that these Guna are essential to understand functions of Dosha & these make principle basis of treatment.

Kapha, known as Shleshma is, perhaps a concrete and stable substance as compared to other two members of Dosha triad. Acharya Charaka considers that Kapha, in its normal states of functioning represents a potential source of strength & resistance to disease and decay i.e. Bala & Ojas.

Here, among all Guna, Guru Guna of Kapha Dosha is chosen for research work as Guru Guna is first & foremost Guna of Kapha described by Charaka. Aso all important and most significant functions of Kapha like Brimhanan, Purnam and Shairya (stability and durability to body & strength to limbs) are due to Guru Guna of Kapha Dosha.

Sthaulya simply is the increased physical Guruta of body. It is Kaphaj Nanatmaj Vyadhi. Acharya Charaka described Sthaulya one among eight undesirable physical condition (Asta Nindita Purusha).

Sthaulya can be described as “Medo roga, Medovriddhi, Medasvi and Ati-Sthaulya. Sthaulya can be described as having heaviness and bulkiness of body due to extensive growth or abnormal increase of Medodhatu resulting in to pendulous appearance of buttocks, belly, and breast with decrease in energy level. Over indulgence in Kapha & Meda Sadharmi Amarasa containing etiological factors leads to Kapha Bhuishtha Dosha Vruddhi in the body, which due to its very nature, produces Agni Vikruti causing the production of Ama. This Ama goes directly to Meda Dhatu & leads to accumulation of Meda by creating Medodhatwagni-Mandya. Vitiated Kapha & Meda causes

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Medovaha Sroto Sanga, leading to Margavrodha of Vata. This vitiated Vata circulates in whole body especially in the Koshta, later on causing Jathragni Sandhukshana which results in Kshudha-Adhikya & Shighra Jarana of Ahara. Medodhatwagni Mandya takes place due to which the capacity to digest Medamsa by the Medodhatwagni is hampered, leading to the formation of Apakwa Meda which is incapable of nourishing the Uttar Dhatu. The Ama Meda gets accumulated in Sarvanga especially in the Sphik-Udara-Stana regions resulting in Sthauyla. Sthauyla may be correlated with Obesity on the basis of clinical signs and complications of disease.

**DRUG REVIEW**

In this study, Tryushanaadi Lauha has been selected on the basis of recommendation of Yogaratnakar as indicated in Sthauyla. Table: 1: Contents of Tryushanaadi Lauha

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Drug</th>
<th>Parts used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Shunthi</td>
<td>Rhizome</td>
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<tr>
<td>2.</td>
<td>Maricha</td>
<td>Fruit</td>
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<tr>
<td>3.</td>
<td>Pippali</td>
<td>Fruit</td>
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<td>4.</td>
<td>Haritaki</td>
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<td>5.</td>
<td>Vibhitak</td>
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<tr>
<td>6.</td>
<td>Amalaki</td>
<td>Fruit</td>
</tr>
<tr>
<td>7.</td>
<td>Chavya</td>
<td>Fruit</td>
</tr>
<tr>
<td>8.</td>
<td>Chitraka Moola</td>
<td>Root</td>
</tr>
<tr>
<td>9.</td>
<td>Vida lavana</td>
<td>-</td>
</tr>
<tr>
<td>10.</td>
<td>Audbhida Lavana</td>
<td>-</td>
</tr>
<tr>
<td>11.</td>
<td>Bakuchi</td>
<td>Seed</td>
</tr>
<tr>
<td>12.</td>
<td>Saindhava Lavana</td>
<td>-</td>
</tr>
<tr>
<td>13.</td>
<td>Sauvarchala Lavana</td>
<td>-</td>
</tr>
<tr>
<td>14.</td>
<td>Ayoraja (Lauha Bhasma )</td>
<td>-</td>
</tr>
</tbody>
</table>

**Method of Preparation**

All the raw drugs were taken in equal proportion. They were then powdered with help of grinder and sieved for fine powder. Finer the powder the better its therapeutic value. It should be free from moisture.

- **Dose:** One Masha (Approx.750 mg)
- **Twice a day**
- **Anupana:** Madhu & Ghrita (Unequal)
- **Duration of Trial:** 3 months

**CLINICAL STUDY**

The study was conducted on 30 clinically and pathologically diagnosed patients of Sthauyla on the basis of sign & symptoms mentioned in Ayurvedic text & history of illness from patient.

**Selection of Patients**

Patients were selected randomly irrespective of age, sex, religion, education, socio economic condition & occupation from the OPD/IPD of Arogyashala and Bombaywala Hospitals of National Institute of Ayurveda, Jaipur (Rajasthan). These 30 patients were divided into two equal groups with the help of an arbitrary prepared random table and different drugs were given.

**Inclusive Criteria:**
- Age between 16- 70 yr.
- Sex either
- Patients having clinical sign & symptoms of Sthauyla as per classical Ayurvedic literature.
- Patients who are ready to sign the consent form.

**Exclusive Criteria:**
- Obesity due to hereditary predisposition.
- Obesity due to Hypothyroidism
- Patient having drug induced Obesity.
- Patient of Obesity with severe hypertension & Diabetes mellitus.
- Obesity in lactating women.
- Patient with evidence of Renal, Hepatic & Cardiac involvement.
Withdrawal Criteria:
1. Patients developing any threatening complication during this trial. If any adverse effects would be found then it will be withdrawn from the study and informed to nearby Pharmacovigilance cell.
2. Patient not willing to continue treatment.
3. Any other acute illness.

PARAMETERS OF EVALUATION:
The effect of trial drug was assessed in terms of Subjective, Anthropometry & Biochemical parameters.

Subjective parameters: All the patients were registered for clinical trial and were looked for any changes, in their clinical manifestations.

(a) Assessment of Sthaulya: For Sthaulya following symptoms were assessed Angachalatva, Atiksudha, Atipipasa, Javoprodh, Daurgandhya, Swedadhikya, Daurbalya, Niradhirohika, Krichchhayavayta, Gaurava, Kshudra Shwas, Angasada, Krathana, and Snigdhangata. Grading was done for all symptoms & clinical trial was conducted by making a special research Performa. The symptoms score obtained before and after treatment, statistical analysis and percentage relief was taken to known the efficacy of therapy.

(b) Assessment of Guru Guna of Kapha Dosha: For assessment of Guru Guna of Prakrit Kapha Dosha a questionnaire was developed on the basis of classical references in Ayurvedic texts, which is being asked in 30 healthy individuals & 30 Sthaulya patients. Questionnaire was developed in order to assess deviation of Guru Guna of Prakrit Kapha from normalcy to diseased (Vaikrit) state. Symptoms like Gauravta, Utsah Hani, Kha Mal, Glani & Nature of walk were looked to assess the Guru Guna of Kapha Dosha.

Anthropometry Measurements: Following measurements were done; Height, Weight, BMI, Hip circumference, Waist circumference, Mid thigh circumference, Mid arm circumference.

Biochemical investigations: Following investigations were done to assess the efficacy of different regimes:
- Hb gm%.
- Lipid profile:- S. Cholesterol, VDRL, HDL, LDL, S. Triglyceride
- Liver Function Test- S. Total Bilirubin, SGOT, SGPT

Statistical-Methods: Various observations made and results obtained were computed statistically to find out the significance of the values obtained and various conclusions were drawn accordingly. In Stat Graph Pad software was used & for nonparametric data Wilcoxon matched-pairs signed ranked test was used, while for Parametric data, Paired‘t’ Test was used and results were calculated.

OBSERVATION:
All the patients were studied by noting down their demographic profile including their age, sex, address, occupation, socio-economic status, marital status, dietary habits etc.

In the clinical trial it was observed that Maximum numbers of patients i.e. 70% were Female, Maximum patients were Hindu (87%), Maximum number of patients i.e. 50% belonged to age group of 17-30 years, Maximum i.e. 44% patients were house wife, Maximum patients i.e. 67% were married, Maximum i.e. 56.67% patients were belonging to middle class, Maximum i.e. 53.33% patients were Graduate / P.G, Maximum i.e. 63.33% patients were addicted to Tea / coffee, Maximum i.e. 80% patients were having vegetarian diet, Maximum i.e. 60% patients were Madhya Rasa Satmya, 30% were Pravar Satmya and 10% were Avara.
Satmya to Rasa, Maximum i.e. 53.33% patients were having Tikshnagni, Maximum patients i.e. 76.67% were having Madhyama Kostha, Maximum patients i.e. 43.33% were having Kapha- Pittaj Prakriti, Maximum i.e. 53.33% patients were having Madhyama Ahara Shakti, Maximum i.e. 43.33% patients were having Madhyama Vyayama Shakti, Maximum i.e. 56.67% patients were having Heena (Avara Samhanan) in body constitution, Maximum i.e. 50% patients were having Madhyama Satva, Maximum i.e. 56.67% patients were having Madhyama Sara, Maximum i.e. 73.33% patients were having Ati Nidra.

RESULTS

Effect of Tryushanaadi Lauha on 15 Patients of Sthaulya in Group A: After completion of the therapy, Tryushanaadi Lauha provided highly significant relief in Aalasya (76.6%), Kshudra Shwasa (60%) Gaurava (82.2%) and Angasada (56.9%) [p<0.0001]. Effect was statically significant in Chala Sphik Udara Stana (16.8%), Swedadhikya (18.18%) and Nidradhikya (30.07%). Effect was Insignificant in Chala Sphik Udara Stana (16.8%), Madhyama Adhikya (48.7%) and Javoprodh (20.62%).

Effect of Tryushanaadi Lauha on Laboratory Investigations in Group A

It provided highly significant change in Hb% (4.17%), H.D.L. (4.8%) L.D.L. (7.13%) and S. Cholesterol (9.13%) [p<0.0001]. Effect was statically significant in S. Triglyceride (9.22%). Effect was Insignificant in VLDL (16.3%), Total Bilirubin (9.94%), Direct Bilirubin (10%), Indirect Bilirubin (6.25%), SGOT (4.88%) and SGPT (1.01%).

Effect of Tryushanaadi Lauha on Physical parameters in Group A: It provided highly significant change in Body weight (6.15%), B.M.I. (6.67%), Hip circumference (5.62%), Waist circumference (6.32%) and Mid thigh circumference (6.81%) [p<0.0001]. Effect was statically significant in Mid arm circumference (12.2%). Effect was Insignificant in Waist-Hip ratio (4.10%).

Effect of Placebo on Clinical features in Group B: It provided significant relief in Gaurava (31.08%). Effect was insignificant in Kshudra Shwasa (12.6%) and Angasada (3.3%), Chala Sphik Udara Stana (6.73%), Swedadhikya (0%) and Nidradhikya (5%), Kriccha Vyavayata (0%), Anga Gandha (3.9%), Aalasya (8.9%), Kshudra Adhikya (4.76%), Pipasa Adhikya (50%), Daurbalya (11.11%), Krathana (0%) and Javoprodh (20.62%).

Effect of Placebo on Laboratory Investigations in Group B: It provided insignificant change in all parameters like Hb% (1.76%), H.D.L. (0.83%), L.D.L. (0.43%), S.Cholesterol (0%), S. Triglyceride (1.10%), VLDL (0.14%), Total Bilirubin (6%), Direct Bilirubin (11.56%), Indirect Bilirubin (18.75%), SGOT (3.25%) and SGPT (4.6%).

Effect of Placebo on Physical Parameters in Group B: It provided significant change in Waist circumference (0.9%). Effect was Insignificant in B.M.I. (1.40%), Hip circumference (0.35%), Body weight (0.42%), Mid thigh circumference (0.40%), Mid arm circumference (0.52%) and Waist- Hip ratio (0.46%).

Effect of Placebo on Guru Guna Parameters in Group B: It provided insignificant result in Gauravata (7.51%), Utsah
Assessment of Guru Guna

Guru is Guna of Kapha Dosha. As Sthaulya is a Kaphaja Vikara, Guruta is supposed to be increased, which is being checked by administration of drug Tryushanaadi Lauha.

On the basis of questionnaire as described early we set a standard protocol on the basis of grading of healthy individuals. There we assess Guru Guna in diseased person and fix the deviation from normalcy to diseased state. After administration of drug again we estimated the Guru Guna at what extent its deviation from diseased state to normalcy.

1. Gauravata- Guru means heavy. Its Panchbhautika Sangathana is Prithvi & Jala. Questionnaire is developed on Gauravta & grading is done as mentioned in method & materials.

2. Uthsah Hani- Utsah Hani signifies Alasya. Guru is Sada in action (Su.Su 46/518). Sada means idleness, slothfulness or lethargy. On the basis of this action of Guru Guna, question on Utsah Hani is made.

3. Kha Mala- Guru is “Uplepa” in action as mentioned in Su.Su 46/518. Uplepa is defined as Mala Vriddhi by Acharya Dalhana. Also Ch.Su 17/72, A.H.Su.11/14, states that increased state of Mala is perceived by heaviness of their respective Malayana.

On the basis of these references questionnaire on Kha Mala is made. From all Mala Kha Mala is being chosen, as Kitta Mala, Mutra Mala is influenced by many other factors like Agni, Aahar.


For this, time taken for resuming to daily work after normal overnight sleep is being taken and grading is done as mentioned in method and material. Glani is assessed after overnight sleep as then it will not be influenced by nature of work (physical, mental work) done by individual.

5. Nature of walk – As mentioned in Ch.Vi.8/, due to Guru Guna of Kapha, Kaphaj Prakriti Purusha has “Sthira Gati”. On the basis of this, question on nature of walk is made. Nature of walk is strongly influenced by Prakriti of that particular individual.

Comparative study of Guru Guna in healthy and Sthaulya patients: Questionnaire for Guru Guna have been asked in randomly selected 30 healthy subjects and 30 Sthaulya patients. Out of all 5 questions, mean score in healthy is 8.07(less than 50% of total score) and mean score in Sthaulya patients is 10.37(more than 50% of total score). These observations clearly indicate that in healthy individual’s status of Guru Guna is towards normalcy and in Sthaulya status of Guru Guna is towards Vikriti.

Statistically, difference of status of Guru Guna between healthy and Sthaulya patients is extremely significant with (p<0.0001)

Effect of Tryushanaadi Lauha on Guru Guna in Group A: The percentage relief on Gauravata symptom was 48.7% which is statistically highly significant (p<0.0001). In Obesity main vitiated Dhatu is Meda which is Prathivi and Aap Mahabhuta Pradhana. Increase in Medo Dhatus will increase the Guru, Snigdha and Sheeta Guna leading to the Gauravta. Moreover Medodhatu produced in Sthaulya condition is in Amavastha which causes Angagaurava. The trail drug is Laghu, Ruksha Guna and Ushna Virya Pradhana.
along with Ama Pachaka & Strotoshodhak property which might help in minimizing this symptom.

The percent relief in Utsah Hani symptom was 42.27% which is statistically highly significant (p<0.0001).

The percentage relief on Glani symptom was 27.2% which is statistically significant (p- 0.0039). Trial drug had insignificant results in Kha Mala (26.19%) and Nature of walk (2.81%).

Discussion of Observations & Result
1. **Age:-** 50% patients (15) belongs to the age group of 17-30 yrs.
2. **Gender:-** Maximum i.e. 70% patients (21) were Females.
   
   This indicates that the incidence of obesity is more among female, which confirms the findings of National family health survey, 2007. The reason behind this observation might be the feminine factor like puberty, menstrual disturbances, menopause, post operative complications and oral contraceptives.
3. **Religion:** - Maximum numbers of patients i.e. 87% (26) were Hindu. From this observation it can’t be concluded that Hindus are more prone to this disease because maximum patients came to hospital were Hindu & this region has got the Hindu community dominance.
4. **Occupation:**- Maximum number of patients i.e. 44% (13) were housewives.
   
   This is showing highest prevalence of obesity in housewives. The reason behind this might be that housewives are related with light nature of work with advancement of new techniques, tools (mixtures, washing machines etc.), and causative factors for reduced activity. So, their energy expenditure is less than energy intake, which may lead to Sthaulya. Divaswapa is also a major cause in housewives. Also due to responsibility of family and household jobs they have lesser time for themselves, to do exercise and workout. Whereas in students there might be lack of exercise with increased use of junk food, soft drink & liquors.
5. **Marital Status-** Maximum numbers of patients i.e. 67% (20) were married.
   
   In present study maximum patients were married. The reason behind this might be that married due to household, family, job responsibilities have lesser concern about their physique. They usually have sedentary life style.
6. **Socioeconomic Status:** Maximum 56.67% (17) patients belong to middle class family.
   
   One reason behind this is that N.I.A. is a Government Institute and is preferred by Middle class individuals. It is believed that obesity is a disease of only upper socioeconomic class. Above observation clear that the prevalence of obesity is not related with quantum of money, but today it depends upon mode of life style & eating habits. So obesity is widespread in all classes.
7. **Desh:** 100 % of patients (30) were belongs to Sadhara Desh. It may be due to the research work was done in Sadhara Desha.
8. **Education Status:** Maximum number of patients i.e. 53.33% (16) patients were Graduate.
9. **Diet:** Majority of 80% (24) patients were vegetarian. The reason behind is that maximum numbers of subjects were belonging to Hindu religion which prefers vegetarian food over non-vegetarian food.
10. **Koshta-** Maximum i.e. 76.67% (23) patients were of Madhyam Kostha, The reason behind these observations might be that Madhyama Kostha is found in Kapha predominance Prakriti, which increases prevalence of Sthaulya.
11. **Agni**: Majority of patients i.e. 16 patients (53.33%) were having Tikshana Agni. The reason behind these observations might be Agnisandukshana due to Samana Vayu Prakopa in Sthaulya as mentioned in Samprapti of Sthaulya by Ayurvedic classics.

12. **Addiction**: Maximum i.e. 19 patients (63.33%) were registered with addiction of Tea/Coffee.

13. **Sharirika Prakriti**: Maximum patients i.e. 13 patients (43.33%) were having Kapha-Pitta Prakriti. It indicates that Kapha is the predominant factor for Sthaulya and it is also included by Charaka in Nanatmaja Vyadhi of Kapha Dosha. The study point out that involvement of Kapha Dosha is playing very important role in Sthaulya. Kapha and Meda are similar in their composition. Meda is Kapha predominant Dhatu and properties attributed to both are similar.

14. **Sara**: Maximum number of patients i.e. 17 patients (56.67%) were of Madhyama Sara. Sarata is achieved by indulging in healthy diet and regimen, which is not seen in Sthaulya patients hence excellence of Dhatu can’t be found.

15. **Samhanana**: Maximum patients i.e. 17 patients (56.67%) were having Heena Samhanana. They were having complaint of Fatigue; this may be due to Mamsa-Saithilya & Abaddha depot fat leading to lethargy to an individual.

16. **Satva**: Maximum i.e. 15 patients (50%) were having Madhyama Satva, which indicates moderate mental strength of the subjects.

17. **Satmya**: Maximum i.e. 18 patients (60%) were having Madhyama Satmya. This indicates moderate tolerance of patients towards change in food, habits, place and season.

18. **Abhyavarana Shakti**: Maximum patient i.e. 16 patients (53.33%) were having Madhyama Abhyavarana Shakti. In the patients of Medorojga due to Avarana by Meda & Kapha, there is Samana Vayu Prakopa leading to Agnisandukshana, so there is increased tendency for food intake.

19. **Vyayamashakti**: Maximum i.e. 13 patients (43.33%) were having Madhyam Vyayamashakti. It explains the role of etiological factors i.e. Avyayam in the prevalence of Sthaulya. Lack of physical exercise is the major cause of obesity. This statement is supported by ancient classic as well as modern medical science.

20. **Clinical Features**: Maximum 100% patients had Sweda Adhikya, Kshudra Shwasa, Daurbalya, Anga Sada, Javoprodha, Gaurava. 96.67% patients had Chala Sphika Udara Stana, Alasya, Nidra Adhikya. 90% patients had Kshudha Adhikya, Anga Gandha. 80% patients had Pipasa Adhikya, 40% patients had Krichha Vyayavaya and Krathana. Least present symptom in registered Sthaulya patients is Krichcha Vyayavaya. This is because of hesitance of patients in replying question regarding this, because many of the patients were student.

**PROBABLE MODE OF ACTION OF DRUG**

Above Pharmacodynamic Study of Tryushanaadi Lauha reveals that it has dominance of Katu-Tikta Rasa; Ruksha & Laghu Guna; Ushna Virya; Katu Tikta & Kapha-Vata shamaka & Tridosha Shamaka properties are present in Maximum Dravya.

All the contents of Tryushanaadi Lauha are Katu Rasa predominantly followed by Tikta Rasa. According to Acharya Sushruta, Katu Rasa has Sthaulya, Alasya, Kapha and Medonashak effect. Katu, Tikta Rasa has Deepana, Pachana, Ruchikara, Shodhana, Srotans Vivrunoti(Prasaryati Srotansi–Arundatta),
Kaphaghna etc, properties. Due to their Deepana Karma it helped in Jatharagni Deepana and also Dhatvagni Deepana. With Pachana Karma it helped in Ama Pachana which is main cause in the Samprapti hence with Deepana and Pachana Karma it helped in Samprapti Vighatana. It reduces excessive Medo Dhatu from body by having Medo Kshaya and Sneha Kshaya properties.

All involved Rasa have Kaphaghna properties, Kapha is one of the main Dosha in the Samprapti of Sthaulya, so with Kaphaghna property it again helped in Samprapti Vighatana of Sthaulya.

Maximum contents of Tryushanaadi Lauha contain Laghu & Ruksha Guna. Ruksha Guna is known for its Dhatu Shoshaka and Kapha Shamaka Properties by its Rukshana & Lekhana Karma where as Laghu Guna is Kaphashamaka & Dhatuhrasakaraka, Krishtakaraka and Srotoshodhaka by its Laghana Karma. Due to their Rukshana Lekhana and Langhana properties they results in reduction of excessive Medo Dhatu from body by having Medokshaya and Sneha Kshaya properties which again helped in Samprapti Vighatana of Sthaulya.

Maximum contents of Tryushanaadi Lauha have Katu Vipaka which is responsible for Ama Pachana and Srotoshodhana by enhancing Jatharagni and Dhatwagni.

Ushna Virya of ingredients digests Ama by enhancing Medo Dhatwagni. Digestion of Ama clears the obstruction of Rasavaha Srotas and Medovaha Srotas which results in Vata Shamana too. It helps in Samprapti Vighatana of Sthaulya.

The known pharmacological action of majority of the drug contents is Kapha Vata Shamaka followed by Tridosha Shamaka Karma. Drugs are having Deepana, Pachana, Amapachan, Lekhana, Srotoshodhan etc. properties. The effect of the study drugs can be attributed to the above mentioned properties of its ingredients.

Discussion on Results
A) Effect of Tryushanaadi Lauha on Clinical features of Sthaulya

Chala Sphik - Udara –Stana:
The percentage relief on Chala Sphik-Udara–Stana symptom was 16.8% which is statistically significant (p<0.0156).

It is due to Medohara and Srotoshodhaka properties of Tryushanaadi Lauha which lead to reduction of excess Medo Dhatu from these sites. All the contents of Tryushanaadi Lauha are Katu Rasa predominantly followed by Tikta Rasa. Katu Rasa has Sthaulya, Alasya, Kapha and Medonashak effect.

Alasya: The percentage relief on Alasya symptom was 76.6% which is statistically highly significant (p<0.0001). This might be due to fact that Tryushanaadi Lauha predominantly has Katu Rasa, which has Alasya Nashaka effect. Tryushanaadi Lauha by virtue of its Ushna Virya, Katu-Tikta Rasa, Laghu-Ruksha Guna, have Kaphahara effect & hence Alasya.

Kriccha Vyavayata: The percentage relief on Kriccha Vyavayata symptom was 18.18% which is statistically Insignificant (p=0.99).

This is because of hesitance of patients in replying question regarding this, because, many of the patients are students. Also this symptom is influenced by many other factors.

Angagandha: The percentage relief on Angagandha symptom was 18.57% which is statistically Insignificant (p=0.125).

Although the effect of trial drug has significant role in Swedottapatti symptom
but due to excess of production of Ama & Srotorodha Dushti results were not as significant as it should. There might be quite possibility of significance in this criteria when the time of treatment may increase.

**Swedadhikya:** The percentage relief on Swedadhikya symptom was 18.18% which is statistically **significant**. As Tryushanaadi Lauha has Medohara effect. So it also reduces Sweda Utpatti.

**Kshudhadhikya:** The percentage relief on Kshudhadhikya symptom was 26% which is statistically **Insignificant** (p-0.125).

Although results were statistically insignificant but clinically relieve was reported in this symptom. Reason behind is same as for Kshudhadhikya.

**Pipasadhikya:**

The percentage relief on Pipasadhiyka symptom was 13.97% which is statistically **Insignificant** (p-0.5).

Although results were statistically insignificant but clinically relieve was reported in this symptom. Reason behind is same as for Kshudhadhikya.

**Kshudrashwasa:** The percentage relief on Kshudrashwasa symptom was 60% which is statistically **highly significant** (p<0.0001).

Increased Medodhatu in the body increases the weight of the person; along with lean body mass are reduced and sedentary habits remaining muscles are also not trained to bear the load of physical activities. All these are the prime cause for Kshudra Shwasa. The Medohara, Srotoshodhak & Ama Pachaka property of trial drugs may have helped in minimizing this symptom.

**Gaurava:** The percentage relief on Gaurava symptom was 82.2% which is statistically **highly significant** (p-0.0001).

Increase in Medo Dhatu will increase the Guru, Snigdha and Sheeta Guna leading to the Gauravta. The trail drug is Laghu, Ruksha Guna and Ushna Virya Pradhana along with Ama Pachaka & Srotoshodhak property which might help in minimizing this symptom.

**Daurbalya:** The percentage relief on Daurbalya symptom was 11.11% which is statistically **insignificant** (p-0.31)

**Javoprodha:** The percentage relief on Javoprodha symptom was 16.9% which is statistically **insignificant** (p-0.15).

**Krathan:** The percentage relief on Krathana symptom was 0% which is statistically **insignificant** (p >0.99)

**Nidradhikya:** The percentage relief on Nidradhikya symptom was 30.07% which is statistically **significant** (p-0.03).

In aetiology of Obesity Kapha, Meda & Ama Dosha plays important role, these all leads to Nidradhikya. Kapha Shamak, Medohara & Ama Pachana property of trial drug might help in minimizing this symptom.

**Angasada:** Trial drug has **highly significant** result in Angasada (56.9%). In other way incomplete digestion of Ahara Rasa leads to Ama Rasa Utpatti which causes Angasada. Ushnavirya, Srotoshodhan- Pachana etc. properties of trial drug leads to completion of metabolic process i.e. complete digestion of Ahara Rasa, which might helped in minimizing this symptom.

**B) Effect of Tryushanaadi Lauha on Physical parameters:** Trial drug had **highly significant** results on Body Weight (6.15%), B.M.I. (6.67%), Mid Thigh Circumference (6.81%), Hip Circumference (5.62%) & Waist Circumference (6.32%).

The percentage relief on Mid arm Circumference (cm) was 12.2% which is
statistically significant (p<0.0035). The percentage relief on Waist Hip Ratio was 4.10% which is statistically insignificant (p=0.1807).

C) Effect of Tryushanaadi Lauha in Biochemical Investigations: Trial drug had highly significant result on Serum Cholesterol (9.13%), HDL (4.8%) and LDL (7.13%). The percentage relief on Serum Triglyceride was 9.22% which is statistically significant (p<0.0035). The percentage relief on VLDL was 16.3% which is statistically insignificant (p<0.0035).

Meda, Majja, Vasa which are Sneha Dravya can be correlated with lipids since they have properties and function similar to that of lipids. The trial drugs have Ruksha Guna & Laghu Guna like properties which are known for its Dhatu Shoshaka, Rukshana & Lekhana Karma. Due to their Rukshana Lekhana properties they results in reduction of lipids from body which might help in minimizing this symptom.

D) Effect of Placebo on Clinical features: The percentage relief on Gaurava symptom was 31.08% which is statistically significant.

In Obesity main vitiated Dhatu is Meda which is Prithivi and Aap Mahabhu-ta Pradhana. Increase in Medo Dhatus will increase the Guru, Snigdha and Sheeta Guna leading to the Gauravta. Moreover Medodhatu produced in Sthaulya condition is in Amavastha which causes Angagaurava. Effect in this symptom may be due to Pathya Sevan and Nidan Parivarjan prescribed along with placebo.

Placebo had Insignificant result on Chala Sphik-Udara–Stana (6.73 %), Alasya (8.9%), Kriecha Vyavayata (0%), Angagandha (3.9%), Swedadhiyka (0%), Kshudhaddhiyka (4.76%), Pipasadhiyka (50%), Kshudrashwasa (12.6%), Daurbalya (11.11%), Javoprodha (20.62%), Krathana (0%), Nirdadhikya (5%) and Angasada (3.3%).

E) Effect of placebo on Guru Guna in Group B: Placebo had Insignificant results in most parameters of Guru Guna of Kapha Dosha i.e. Gauravta (7.51%), Utsah Hani (42.27%), Kha Mala (26.19%) and Nature of walk symptom was 2.81%. Relief on Glani symptom was very significant (27.2%).

F) Effect of Placebo on Physical parameters: Placebo had significant relief on Waist Circumference (0.9%). This might be due to Pathya Sevan and Nidana Parivarjan.

Placebo had Insignificant result in Body Weight (0.42%), B.M.I. (1.40%), Mid arm Circumference (0.52%), Mid Thigh Circumference (0.40%), Hip Circumference (0.35%) and Waist Hip Ratio (0.46%).

G) Effect of Placebo in Biochemical Investigations: Placebo had insignificant results in Serum Cholesterol (0%), Serum Triglyceride (1.10%), HDL (0.83%), LDL (0.43%) and VLDL (0.14%)

CONCLUSION

- Out of various principles, Guna is most important primary theory for prevention, diagnosis and management of diseases.
- Guna from important basis of physiology, body functions and types of Dosha can be better understood if physiology of Gunas (Sharir Guna) is learnt in details.
- Guna are adjectives used for Dravya identification and understanding of a substance and its separate experience or knowledge is collected on the basis of its attribute (properties).
- Dravya having capacity of initiating anabolism is Guru. Guru Guna is adjective of kapha Dosha. Guru Guna used in relation to ability to perform anabolism
Kapha dosha, all seven Dhatus, Mala have Guru Guna. This shows importance as well as need of Guru Guna for human body.

- By evaluating questionnaire on healthy subjects and Sthaulya patients, we found that Guru Guna Vriddhi is found in Sthaulya patients as compared to healthy.

- Administration of Tryushanaadi Lauha relieves symptoms due to its properties like Katu Rasa, Virya, Vipaka, Prabhava etc. on Guru Guna in Sthaulya.

- Trial drug (Tryushanaadi Lauha) has highly significant result in Alasya, Kshudra Shwas, Gaurava, Angasada. Significant result in Sweda-adhikya, Nidra-adhikya, Chala-Sphik-Udara-Stana. It has insignificant result in Kriccha Vyavayata, Angagandha, Kshudha Adhikya, Pipasa Adhikya, Daurbalya, Javoprodha & Krathana. But clinically it relieves Kshudha & Pipasa Adhikya.

- Trial drug (Tryushanaadi Lauha) has highly significant result in reduction of body weight, B.M.I., mid-thigh circumference, waist circumference, Hip circumference. It has significant result in mid arm circumference, and also has Insignificant result in Waist- Hip ratio.

Thus, it can be concluded that orally Tryushanaadi Lauha in dose of 1gm twice a day before meals with Anupana of Madhu & Ghrita (in unequal proportion) can be used as a safe therapeutic agent in Sthaulya.

REFERENCES