A CLINICAL STUDY OF TRYUSHNADHYA LAUHA VATI IN THE MANAGEMENT OF STHAULYA W.S.R. TO OBESITY

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ABSTRACT

Sthaulya (Obesity) has become a pandemic throughout the globe. Prevalence of obesity in society is increasing day by day due to decreased awareness regarding exercise & faulty dietary habits. Obesity has become the major cause of some very serious diseases in modern times e.g. Hypertension, Diabetes Mellitus, Coronary Heart Diseases, Arthritis, Atherosclerosis etc. Therefore it is important to control the increasing weight. The modern science, there is no specific medicaments for sure cure of obesity. Therefore, the whole world is looking towards *Ayurveda* for this problem to provide safe and effective remedy for obesity. Considering all the above facts and figures in mind, the present study has been planned to assess the efficacy of *Tryushnadhya Lauha Vati* in the management of *Sthaulya* (Obesity). For clinical trial, total 20 patients were randomly selected from O.P.D. and I.P.D. of S.M.B.T. Ayurved College & Hospital, Dhamangaon and divided into two groups i.e. Group-A *Tryushnadhya Lauha Vati* was given as internal medicine and Group-B *Navaka Guggulu* was given as internal medicine. All the patients were diagnosed and assessed thoroughly on the basis of *Ayurvedic* as well as modern parameters. After 8 weeks of treatment, results of the *Tryushnadhya Lauha Vati* were found to be more significant as compared to *Navaka* Guggulu in the management of *Sthaulya*.

Key words: *Sthaulya*, Obesity, *Trushnadhya Lauha Vati, Navaka Guggglu.*

INTRODUCTION:

Human civilization has reached to an ultra advanced era where it can solve all its problems by modern means. Nevertheless, during this development it also developed some disorders of human being that were not so significant in the past. Obesity is just the kind of disorder that aggravated because of the life-style we chose during our social development which is comes under the nutritional disorder in the rich communities of the world[1]. Obesity has become a pandemic and the middle & upper class peoples are the most affected[2]. This is a condition of excessive accumulation of fat in fat depots. The fat of the body makes a person static lazy, reduces his will power, immunity and also become the major cause of some very serious diseases in modern times e.g. Hypertension, Dia-

betes Mellitus, Coronary Heart Diseases, Arthritis, Atherosclerosis, Sexual debility[3]. Obesity may lead to profound psychological consequence for individual society also suffer from effect of obesity related disability and early retirement[4].

Ayurveda has identified obesity as a disorder very early. *Acharya Charaka* has listed eight types of censurable persons of which *Atikrisha* (very emaciated) and *Atisthula* (very corpulent) are more significant[5]. *Atisthula* person need more attention because it is considered as *Krichchhrasadhya* and has more complications than very emaciated person[6]. *Atisthaulya* as, a person who on account of the inordinate of *Meda & Mamsa*, having Pendulous Buttocks, Abdomen and Breasts; whose increase bulk is not matched by a corresponding increase in energy so the person has less enthusiasm in his physical activity[7]. Besides these cardinal symptoms & disabilities of *Sthaulya* are *Ayushohrasa* (Diminution of life span), *Javoparodha* (Lack of enthusiasm), *Kriccha Vyavaya* (Difficulty in sexual act), *Daurbalya* (General debility), *Daurgandhya* (Foul smelling of body), *Swedabadha* (Distressful sweating), *Kshudhatimatra* (Excessive hunger), *Pipasatiyoya* (Excessive thirst)[8]. Associate symptoms are *Kshudraswasa* (Shortness of breath), *Trushnaadhikya* (Excessive thirst), *Kshudhadhikya* (voracious appetite), *Atinidra* (Excessive sleepiness), *Swedadhikya* (Excessive perspiration), *Daurgndhata* (Foul smell in the body), *Krathana* (Wheezing sound in the throat during sleep) etc[9]. In disease *Sthaulya*, *Kapha* is the dominant *Dosha*; *Medadhatu* is mainly involved *Dushya*, *Sanga* type *Srotodushti* and *Agnimandhya* takes place at the level of *Medodhatvagni* and later on *Jatharahnimandhya*. *Meda Dhatvagni Mandhya* leads to excessive formation of improper *Meda Dhatu* and ultimately *Sthaulya*. Due to obstruction by *Meda, Vyana Vayu* could not transport nutrients to further *Dhatu* so only *Meda Dhatu* increase vigorously[10]. Hence, this research work under the title A clinical study of *Tryushnadhya Lauha Vati* in the management of *Sthaulya* W.S.R. to Obesity, is an effort to find a medicinal support for the obese people, For this purpose, *Tryushnadhya Lauha Vati* was prepared from ingredients of *Tryushnadhya Lauha Churna* from *Yogaratnakara*[11] was selected as trial drug and *Navaka Guggulu* as standard drug from *Yogaratnakara*[12]. Contents of *Tryushnadhya lauha Vati* mainly has *Katu Rasa*, *Laghu*, *Ruksha Guna pradhana*, *Ushna Virya* due these properties this drug acts as *Dipana*, *Pachana*, *Kaphaghna*, *Yakriduttejaka*, *Meda-Sneha-Kleda Shoshaka* and perform *Srotorodhanivaraka Karma* which all have opposite action on properties of *Kapha Dosha* and *Meda Dhatu* so *Tryushnadhya Lauha Vati* was effective in the management of *Sthaulya*.

Aims and Objectives:
1. To study the etiopathogenesis of *Sthaulya* according to *Ayurveda* and modern medical science.
2. To evaluate the efficacy of *Tryushnadhya Lauha Vati*.
3. To compare efficacy of *Tryushnadhya Lauha Vati* and *Navaka Guggulu* in the management of *Sthaulya*.

Materials and methods:
For the present study, the materials utilised are as follows:
1. Literary study authentic references which are available in the classical texts of *Ayurveda* as well as recent critics on *Ayurveda*, texts with reference to this problem available in modern science were contribute to literary materials.
2. For Clinical study 20 patients were randomly selected from the O.P.D. & I.P.D. of S.M.B.T. Ayurved College and Hospital, Dhamangaon and equally divided into following groups, i.e. Group – A (*Tryushnadhya Lauha Vati*) and Group – B (*Navaka Guggulu*). Each group consist of 10 patients.
a. Group A: *Tryushnadhya Lauha Vati* as internal medicine which was prepared from ingredients of *Tryushnadhya Lauha Churna*.

Dose: 4 tabs two time a day (each of 500 mg)

Anupana: *Madhoodaka* (Honey water)

b. Group B: *Navaka Guggulu* as internal medicine. Dose: 4 tabs two time a day (each of 500 mg) Anupana: *Madhoodaka* (Honey water)

Duration: 8 weeks

Follow-Up: 4 weeks

Diagnostic Criteria:

1. Patients were diagnosed on the basis of proforma prepared with sign and symptoms of *Sthaulya*.
2. Uncomplicated Patients with BMI >25 were selected.
   For diagnosis of obesity, standard height-weight chart were considered as per LIC/WHO standard.
3. Measurement of hip-waist ratio, skin fold thickness of specific muscular re-

gion with Vernier calliper was carried out.

Exclusion criteria:

1. Patient whose age between 16-45 yrs.
2. Patient with Diabetes mellitus, Hyperlipidaemia, Hypothyroidism, Pulmonary disease, Cardiac problem, Hypertension and sever complication of obesity.

Investigation:

1. Routine haematological, urine, stool examination were done to know the present status of patients as well as to exclude other pathological conditions.
2. Relevant biochemical test like lipid profile was carried out before and after treatment.
3. Thyroid profile was carried out to exclude Hypothyroidism.
4. FBS & PPBS were carried out to exclude Diabetes Mellitus.

Assessment Criteria:

a. **Subjective Criteria:**

1. *Chalatva*

Chalatva	*Sphika Chalatva*	*Udar Chalatva*	*Stana Chalatva*
Achalatva	0	0	0
Chalatva after fast movement / walking	+1	+1	+1
Chalatva after moderate movement / walking	+2	+2	+2
Chalatva after mild movement / normal walking	+3	+3	+3

2. **Other Symptoms:**

Grade	*Kshudhadhikya*	*Trishadhikya*
0	Hunger induced 4 hourly	Average 2 litre water for drinking/day
+1	Hunger within 4 hrs of meal	2-3 litre water for drinking/day
+2	Hunger within 3 hrs of meal	3-4 litre water for drinking/day
+3	Hunger within 2 hrs of meal	More than 4 litre water for drinking/day

3. **Other Symptoms:**

Grade	*Nidradhikya*	*Svedadhikya*
0	Sleep for 6 to 8 hrs/day	No sweating
+1	Sleep for 8-10 hrs/day	Sweating after fast walking/ heavy work
+2	Sleep for 10-12 hrs/day	Sweating after normal walk/ little work
+3	Sleep more than 12 hrs/day	Sweating even in resting condition/in A.C. chamber

4. **Other Symptoms:**

rade	Daurgandhya	Kshudra Shwasa
0	No smell of perspiration	Breathlessness during heavy works and relieved soon
+1	Slight smell of perspiration in the body	Breathlessness during heavy work and relieved by rest
+2	Bad smell of perspiration limited to close area	Breathlessness ongoing upstairs
+3	Excess bad smell of perspiration intolerable for companion/patient himself	Breathlessness on walking at Ground Level

5. **Other Symptoms:**

Grade	Krathana	Angasada	Ayase Akshamta
0	No snoring	No Fatigue	Able to do any type of work
+1	Occasional snoring	Fatigue after heavy work	Unable to do heavy work
+2	Interrupted snoring	Fatigue after moderate work	Unable to do moderate work
+3	Continuous snoring disturbed other	Fatigue after little work	Unable to do mild work

b) Objective Criteria:

1. Body Mass Index: BMI>25 kg/m^2.

2. Measurement of circumference:

1. Chest: At the level of nipple
2. Abdomen: At the level of umbilicus.
3. Hip: At the level of highest point of distension of buttock.
4. Mid thigh: Mid of thigh between pelvic and knee joint.
5. Mid calf: At the highest level of calf region
6. Mid arm: Mid of arm from shoulder joint to elbow joint.

3. Skin fold thickness: The effective of therapy was assessed by measuring the skin fold thickness by vernier calliper before and after treatment in some particular areas as the body like:

1. Skin fold of the middle portion of the biceps muscle
2. Skin fold of the middle portion of the triceps muscle
3. Skin fold of the middle portion of the sub-scapuler muscle

4. Laboratory findings: Haematological test, FBS, PPBS and lipid profile were done before and after treatment.

Overall assessment of the therapy:

Cured - 100% improvement in sign and symptoms
Marked improvement - 75-99% improvement in sign and symptoms
Moderate improvement - 50-75% improvement in sign and symptoms
Mild improvement - 25-50% improvement in sign and symptoms
Negligible improvement - <25% improvement in sign and symptoms
Unchanged - No improvement in sign and symptoms

Stastical Analysis:

Clinical data gathered from patients was subjected for statistical analysis. Data was analyzed statistically in terms of Mean score, Percentage of relief, Standard Deviation (S.D.), Standard Error (S.E.) and 't' test. Paired 't' test was carried out at the level of 0.05, 0.01, 0.001 of 'P' value. Results were interpreted as follow.

Insignificant : p>0.1, Significant : P<0.05, Highly significant : P<0.01& P<0.001

Observation:

Out of 20 patients of *Sthaulya*, 25% were belong to 26-30 years of age , 95% were female, among them 80% were unmarried, 70% were housewife and 65% were having regular menses. Maximum 55% were Hindus, 50% had secondary education, 40% were from lower middle class, 80% were married and 90% were from urban area. The 20% patients were having past history of hypertension, 65% were having family history of obesity. The 45% were having sound sleep, 70% were doing *Divasvapa* and *Avyayama*, 45% were of *Kapha Prakriti* (Chart 1). In this study, as chief complains, *Udara Chalatva* was noticed in 95% of patients, followed by 90% with *Trishadhikya*, *Kshudrasvasa* and *Angasada*, 85% with *Sphika Chalatva*, *Stana Chalatva* and *Svedadhikya*, while 80% with *Snigdhangata* followed by *Utsahahani* in 70% and *Daurbalya* noticed in 65% of patients as associated complaints(Chart 2). The 60% patients were having weight in the range of 71-80 kgs and 40% were having BMI in the range of 25-25.9 (pre obese) and 30-34.9 (mild obese) kg/m^2. As biochemical investigation, 40% patients were having Hb% in the range of 11-12 and >12 gm/dl, 40% patients were having Sr. Cholesterol in the range of 180-200 mg/dl, 55% were having HDL between range of 40-50 mg/dl and 40% were having Sr. Triglyceride < 100 mg/dl.

Results: In group A, statistically highly significant (p<0.001) result were observed in *Udara Chalatva* with 59.09%, *Kshudraswasa* with 80.95% and *Krathana* with 80.95%. While significant results (p<0.05) were obtained in *Sphika Chalatva, Kshudhadhikya, Nidradhikya, Daurgandhya* and *Ayaseakshamata.* Symptoms like *Stana Chalatva, Trishadhikya, Svedadhikya* and *Angasad* were shows statically highly significant results (p<0.01). *Tryushnadhya Lauha Vati* did not give satisfactory results in weight (5.81%) and BMI (4.05%) as well as no improvement was seen in Hb % (5.14%). In Sr. Cholesterol and Sr. Triglyceride statistically highly significant and significant results were seen at p<0.01 and at p< 0.05 respectively but there were no statistically highly significant results seen in other biochemical parameters (Table 1, 2 & 3). In group B, statistically highly significant (p<0.001) result were observed in *Udara Chalatva* with 50% and *Kshudraswas* with 54.17% improvement. *Navaka Guggulu* didn't reduce the weight (3.90%), BMI (4.95%), Sr. Cholesterol (9.99%) and Sr. Triglyceride (23.68%) as well as not so effective in improvement of Hb% considerably in term of percentage (Table 4, 5 & 6). Comparative effect of both groups on symptoms shows that *Tryushnadhya Lauha Vati* was give better percentage of relief in most of the symptoms as compare to *Navaka Guggule* (Chart 3). Overall effect of therapy shows that there was no complete cure patient listed in both group. In group A, marked and moderate improvement were observed in 40% and 60% patients respectively while group B shows 30 % marked improvement, 40% moderate improvement and 30% mild improvement in patients (Table 7 & Chart 4).

Table-1 Group A: Effect on Subjective criteria (Symptomatology)

Symptoms	No of pt.	Mean		%	Mean	S.D.	S.E.	T	P
		B.T.	A.T.						
Sphika Chalatva	7	1.6	0.7	56.25	0.9	0.99	0.31	2.86	<0.05
Udara Chalatva	9	2.2	0.9	59.09	0.9	0.95	0.3	4.33	<0.001
Stana Chalatva	8	1.9	0.7	63.16	1.2	1.14	0.36	3.34	<0.01
Kshudhadhikya	6	1.8	0.4	41.67	1.4	1.35	0.43	3.28	<0.05
Trishadhikya	9	1.7	0.4	76.47	1.3	0.82	0.26	4.99	<0.01

Nidradhikya	6	1.2	0.2	83.33	1	1.05	0.33	3	<0.05
Svedadhikya	8	1.5	0.3	80	1.2	0.92	0.29	4.13	<0.01
Daurgandhya	5	1.3	0.2	84.62	1.1	1.20	0.38	2.91	<0.05
Kshudrasvasa	10	2.1	0.4	80.95	1.7	0.82	0.26	6.53	<0.001
Krathana	10	2.1	0.4	80.95	1.7	0.68	0.21	7.97	<0.001
Angasada	8	1.9	0.4	78.95	1.5	1.08	0.34	4.39	<0.01
Ayaseakshamata	5	1.4	0.2	80	1.2	1.32	0.42	2.88	<0.05

Table- 2 Group A: Effect on Weight, Body mass index and Waist-hip ratio

Sign	Mean score		%	Mean	S.D	S.E.	T	P
	B.T.	A.T.						
Weight (in kg)	74	69.7	5.81	4.3	3.27	1.03	4.16	<0.01
BMI(Kg/m2)	33.79	32.42	4.05	1.37	0.48	0.15	9.03	<0.001
Waist-Hip ratio	0.87	0.86	16.07	0.14	0.28	0.08	1.58	>0.05

Table 3 Group A: Effect on Biochemical parameters

Biochemical parameter	Mean score		%	Mean	S.D.	S.E.	T	P
	B.T.	A.T.						
Hb%	11.68	12.28	-5.14	-0.6	0.38	0.12	5.03	<0.001
Sr. Cholesterol	176.5	157.9	10.42	18.4	15.30	4.84	3.80	<0.01
HDL	46.4	45.5	1.94	0.9	9.23	3.00	0.31	>0.05
Sr. Triglyceride	97.1	83.8	12.67	12.3	13.06	4.13	2.98	<0.05

Table 4 Group B: Effect on Subjective criteria (Symptomatology)

Symptoms	No of pt.	Mean score		%	Mean	S.D	S.E.	T	P
		B.T	A.T						
Sphika Chalatva	10	1.8	0.8	50	0.9	0.99	0.31	2.86	<0.05
Udara Chalatva	10	2.6	1.1	57.69	1.5	0.53	0.53	9	<0.001
Stana Chalatva	9	1.8	0.7	61.11	1.1	0.88	0.28	3.97	<0.01
Kshudhadhikya	6	1.3	0.2	84.62	1.1	1.20	0.38	2.90	<0.05
Trishadhikya	8	1.9	0.5	73.68	1.4	1.35	0.43	3.28	<0.05
Nidradhikya	4	0.5	0.1	80	0.4	0.52	0.16	2.45	>0.05
Svedadhikya	10	2.7	1.7	37.04	1	0.94	0.30	3.35	<0.01
Daurgandhya	6	1.7	0.7	58.82	1	1.15	0.37	2.74	<0.05
Kshudrasvasa	10	2.4	1.1	54.17	1.3	0.67	0.21	6.09	<0.001
Krathana	5	0.8	0.2	75	0.6	0.70	0.22	2.71	>0.05
Angasada	10	1.8	0.8	55.56	1	0.94	0.30	3.35	<0.01
Ayaseakshamata	4	0.6	0.2	66.67	0.4	0.52	0.16	2.45	>0.05

Table 5 Group B: Effect on Weight, Body mass index and Waist-hip ratio

Symptoms	Mean score		%	Mean	S.D	S.E.	T	P
	B.T.	A.T.						
Weight (in kg)	74.2	70.8	3.90	2.89	0.78	0.26	11.09	<0.001
BMI(Kg/m2)	30.65	29.13	4.95	1.52	0.61	0.19	7.84	<0.001
Waist-Hip ratio	0.88	0.88	1.36	0.01	0.02	0.01	2.34	<0.05

Table 6 Group B: Effect on Biochemical parameters

Biochemical Parameter	Mean score		%	Mean	S.D.	S.E.	T	P
	B.T.	A.T.						
Hb%	12.07	12.49	-3.48	-0.42	0.39	0.12	3.42	<0.01
Sr. Cholesterol	183.2	164.9	9.99	18.3	8.90	2.81	6.51	<0.001

HDL	45.4	46.7	-2.86	-1.3	4.60	1.45	0.90	>0.05
Sr. Triglyceride	144.4	110.2	23.68	34.2	28.67	9.06	3.77	<0.001

Table 7 Overall effect of Group A & Group B

Assessment	Group A (*Tryushnadhya Lauha Vati*)		Group B (*Navaka Guggulu*)	
	No. of patients	Percentage (%)	No. of patients	Percentage (%)
Cured	0	00	0	0
Marked improvement	4	40	3	30
Moderate improvement	6	60	4	40
Mild improvement	0	00	3	30
Negligible	0	00	0	0
Unchanged	0	00	0	0

DISCUSSION:

Any research work without being discussed about its nature, utility and importance is said to be incomplete, any hypothesis becomes principle only after discussed from all the angles. Age- young age, sex-female, religion-Hindu, lower economic status, marriage, habitat-urban area, all these factors are important in determining the life style, dietary habits and behaviour as well as health consciousness of the patients. 50% patients were found habituated with improper dietary habits like *Adhyashana*,75% *Madhura Rasa* dominant, 80% *Guru* and 50% *Snigdha Guna Pradhana Ahara*. *Agni* plays the most important role in digestion and metabolism of all types of food products. Improper digestion leads to accumulation of toxins in the body, ultimately resulting in to obesity. Maximum patient (70%) was not doing any type of exercise. Lack of physical work is one of the major causes of obesity, because more energy intake compared to energy expenditure leads towards obesity. All these can be considered as the subjective complaints of obesity. These are the manifestation of underlying faulty digestion and metabolism as well as pathogenic state, which if neglected may be result into dreadful complication.

Probable mode of action:

Mode of action of *Tryushnadhya Lauha Vati*: In disease *Sthaulya*, *Kapha* is the dominant *Dosha*; *Medadhatu* is mainly involved *Dushya*, *Sanga* type *Srotodushti* and *Agnimandhya* takes place at the level of *Medodhatvagni* and later on *Jatharahnimandhya*. *Tryushnadhya* lauha Vati has *Katu Rasa*-71.43%, *Laghu* (85.71%) and *Ruksha* (57.14%) *Guna*, *Ushna Virya*-78.57% and *Kaphaghna Karma*- 57.14%, 92.86% *Dipana*, 78.57% *Pachana* and 57.14% *Yakriduttejaka* properties, *Meda-Sneha-Kleda Shoshana Srotorodhanivaraka Karma* which all have opposite action on properties of *Kapha* Dosha and *Meda Dhatu* and so *Tryushnadhya Lauha Vati* was effective in the management of *Sthaulya*.

Mode of action of *Navaka Guggulu*: *Navaka Guggulu* has *Katu-Kashaya Rasa*, *Laghu-Ruksha-Tikshna Guna*, *Ushna Virya* and *Kapha Vata Shamaka*, *Dipana Karma*, among them 70% have *Pachana* and 50% have *Yakriduttejaka*, *Karshana*, *Meda-Sneha-Kleda Shoshana* and *Srotovishodhana Karma* which all have opposite action on *Kapha Dosha* as well as *Meda Dhatu*.

CONCLUSION

Obesity is a metabolic disorder and difficult to cure. Increasing stress, sedentary life style, dependability on machine, faulty dietary habits along with genetic predisposition play a major role in etiopathogenesis of obesity. Majority of patients were suffering from *Stana-Sphika-Udara Chalatva, Trushanadhikya, Sve-*

dadhikya, Kshudhadhikya, Swedadhikya, Daurgandhya, Kshudraswasa and *Sarva-kriya Asamarthata.* From above observation we would like to conclude that these classical symptoms generally affect all the obese persons. *Sthaulya* is a *Dushya* dominant disease in which the vitiated *Meda* obstruct the path of *Vata* and causes its *Avarana.* Due to obstruction by *Meda, Vyana Vayu* could not transport nutrients to further *Dhatu* so only *Meda Dhatu* increase vigorously. *Meda Dhatvagni Mandhya* leads to excessive formation of improper *Meda Dhatu* and ultimately results is *Sthaulya Vyadhi.* In these study both group shows statically significant relief in all subjective and objective criteria. By applying unpaired 't' test both groups show merely similar improvement in all signs and symptoms of obesity but by comparing overall effect of therapy *Tryushnadhya Lauha Vati* has shown better results than *Navaka Guggulu. Sthaulya* is difficult to cure so it was advisable to continue treatment for long time in addition of *Panchakarma* therapy to provide much better results to patients.

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