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Research Article

A CLINICAL STUDY ON THE MANAGEMENT OF *STHAULYA* WITH SPECIAL REFERENCE TO OBESITY BY *DASHANG GUGGULU*

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ABSTRACT

Introduction: Charaka has quoted a *Sthaulya* under the eight varieties of impediments which designated as *Astau-Nindita Purusha*, *Ati-Sthaulya* comprises one of them. He listed eight defects underlying- *Sthaulya Purusha*, *Ayuhrasa*, *Javoparodha*, *Alpa-vyavayita*, *Daurbalya*, *Daurgandhya*, *Swedabadha*, *Ati-trisha*, *Ati-kshudha*.

Aims and Objective: To study the effect and assess the clinical efficacy of *Dashang Guggulu* on the management along with different parameters of *Sthaulya* (obesity).

Conclusion: *Dashang Guggulu*, *Triphala churna* and *Musta* are easily available, after this study it is was observed that this remedy is useful for the prevention of obesity. No side effects of the therapy were found. It was observed that the statistically significant results were obtained in the parameters like *Sharir bhar* (Weight), BMI, Waist Circumference, Hip circumference; Waist /Hip ratio.

Keywords: *Sthaulya*, *Dashang Guggulu*, *Triphala churna*, *Purusha*, *Ayuhrasa*, *Javoparodha*.

INTRODUCTION

Sthaulya (obesity) is discouraged by the society for social as well as medical reason. Obesity is the most common nutritional disorder in affluent societies. The incidence of Diabetes mellitus, hypertension, angina pectoris, and myocardial infarction are higher among obese individuals. Commonly obesity is due to excessive eating and lack of adequate exercise. Charaka has quoted a *Sthaulya* under the eight varieties of impediments which designated as *Astau-Nindita Purusha*, *Ati-Sthaulya* comprises one of them¹. Charaka also listed this problem under *Santarpanajanita Vyadhi*.² He listed eight defects underlying- *Sthaulya Purusha*, *Ayuhrasa*, *Javoparodha*, *Alpa-vyavayita*, *Daurbalya*, *Daurgandhya*, *Swedabadha*, *Ati-trisha*, *Ati-kshudha*³. *Dalhana* seems to be more explicit while commenting on a *Medoroga* specified that *Agni* which is involved in pathogenesis of the disease viz. *Dhatvagnimandya*.

According to Charaka in the case of fatty person, other *Dhatus* doesn't grow to the extent.⁴ In today's fast life incongruous food habit and relatively less exercise can be taken as major cause of obesity.

Vagbhata opines that derangement of *Agni* or digestive power leads to production of *Ama*, which disturbs tissue fire of fatty tissues and blocks the proper formation of further tissues. Improperly formed fatty tissue accumulates in the body causing obesity. Accumulated fats causes disturbance to movement of *Vata* which turned increases appetite, due to *Chala Guna* of *Vata*. Patients therefore its more an entire food is then converted into improper fatty tissue⁵.

Obesity is an epidemic of the 21st century. As per Preventive Social Medicine textbook of Park (edition 24), the prevalence rate of obesity in India for male is 12.8% and for female 16%. WHO identifies main global leading risks factors causing today's diseases, disability and deaths. In the analysis carried out for World Health Report 2002, approximately 58% of diabetes, 21% of heart disorders and 8-42% of certain cancers globally were attributable to excess weight. The prevalence of developing type 2 diabetes and cardiovascular diseases rises steeply with increasing body weight⁶.

Aims and Objective:

Aims:

To study the effect of *Dashang Guggulu* on the management of *Sthaulya* (obesity).

Objectives:

- To assess the clinical efficacy of *Dashang Guggulu* on different parameters of *Sthaulya* (Obesity).
- To compare the clinical efficacy of *Dashang Guggulu* with that of *Triphala* and *Musta Churna*.

Study Design: Open randomized controlled study.

Ethical Clearance:

Ethical Clearance was obtained before initiation of the study. A well inform consent was taken from the subject in the language they understood well before recruiting into study.

Place of work: *Kayachikitsa* O.P.D of Govt. Ayurveda College and Hospital, Nagpur.

MATERIALS AND METHODS

A. Diagnostic Criteria

A special proforma was made to collect information about clinical signs and symptoms of the disease.

1. Standard height–weight chart were included.
2. The value of BMI were used.(>25)
3. Waist and Hip circumference
4. Waist / Hip ratio

B. Investigations

- 1) Routine blood and urine investigations were done before treatment.
- 2) Blood sugar (Fasting and Post Prandial) before treatment was done.

Management of groups:

Particulars	TRIAL GROUP	CONTROL GROUP
Drug	<i>Dashang Guggulu</i>	<i>Triphala and MustaChurna</i>
Dose	500 mg	3 gm
Anupan	<i>KoshnaJal</i>	<i>KoshnaJal(warm water)</i>
Frequency	Twice a day <i>Abhaktakal</i>	Twice a day <i>Abhaktakal (before meal)</i>
Duration	3 months	3 months

Inclusion Criteria:

- 1) Patients fulfilling diagnostic criteria and signs and symptoms of *Sthaulya*.
- 2) Age between 20 to 60 yrs age group.

Exclusion Criteria:

- 1) Patients not willing for trial.
- 2) Patients having BMI less than 25.
- 3) Patients having complications such as diabetes, cardiovascular diseases etc.
- 4) Patients having other systemic complications like malignancies or having hepatic/renal problems.
- 5) Patients having poorly controlled blood pressure $>160/100$ mmHg.
- 6) If any complication arises during treatment or if any patient discontinues the treatment, these cases were liable for rejection.
- 7) Patients on prolonged medication (>6 weeks) with corticosteroids, or any other drugs that may have an influence on the outcome of the study.
- 8) Patients who are currently participating in any other clinical trials (since last 6 months).

All of the above patients will not be included in the study.

Criteria of Assessment:

Assessments were done subjectively as well as objectively.

Objective: It were assessed as per given in diagnostic criteria.

Subjective:

- 1) Symptoms of *Sthaulya Vyadhi* mentioned in the text or practically observed were assessed at each follow- up and presence or absences of them were registered.
- 2) All symptoms were graded into grade scale from 0 onwards up to 5 on the basis of severity to assess the changes and this study in gradation were done at each follow up.

Gradation of symptoms:

Following scoring patterns were adopted for the assessment of sign and symptoms.

1. Angachalatva (movement of body)

- Absence of Chalatra 0
- Little visible movement after fast movement 1
- Little visible movement after moderate movement 2
- Movement after mild movement 3
- Movement even after changing posture 4

2. Atikshudha(excessive hunger)

Atikshudha was decided on the basis of *Abhyavaharana Shakti* and *Jarana Shakti*.

a. Abhyavaharana Shakti(Capacity of food intake)

- Person not at all taking food 0
- Person taking food in less quantity once a day 1
- Person taking food in less quantity twice in a day 2
- Person taking food in moderate quantity twice in a day 3
- Person taking food in normal quantity twice in a day 4
- Person taking food in excessive quantity twice or thrice 5

b. Jarana Shakti(Digestive power)

- According to presents of *Jirna Ahara Lakshana (MN. 6/24) Utsaha,*

Laghuta, UdgarSuddhi, Kshudha-Trisha Pravritti, Yathochita, Malotsarga.

- Presence of one symptom after 6 hours 0
- Presence of two symptoms after 6 hours 1
- Presence of three symptoms after 5 hours 2
- Presence of four symptoms after 5 hours 3
- Presence of all symptoms after 4 hours 4
- Presence of all symptoms within 4 hours 5

3. Kshudraswasa :(Dyspnoea)

- Dyspnoea after heavy work but relieved soon and upto tolerance 0
- Dyspnoea after moderate work but relieved later and upto tolerance 1

- Dyspnoea after little work but relieved later and upto tolerance 2
- Dyspnoea after little work but relieved later and beyond tolerance 3
- Dyspnoea in resting condition 4

4. Gatrasada (fatigue)

- No fatigue 0
- Little fatigue in doing hard work 1
- Moderate fatigue in doing routine work 2
- Excessive fatigue in doing routine work 3
- Excessive fatigue even in doing little work 4

5. Daurgandhya (Odour of body)

- Absence of bad smell 0
- Occasional bad smell in the body removed after bathing 1
- Persistent bad smell limited to close areas difficult to suppress with deodorants 2
- Persistent bad smell felt from long distance is not suppressed by deodorants 3
- Persistent bad smell felt from long distance even intolerable to the patient himself 4

6. Swedadhikya :Sweating in excess(at normal temperature in normal condition) :

- Sweating after heavy work and fast movement or in hot season 0
- Profuse sweating after moderate work and movement 1
- Sweating after little work and movement 2
- Profuse sweating after little work and movement 3
- Sweating even at rest or in cold season 4

7. Atipipasa :(Excessive thirst)

- Normal thirst 0
- Upto 1 litre excess intake of water 1
- 1 to 2 litre excess intake of water 2
- 2 to 3 litre excess intake of water 3
- More than 3 litre of water 4

8. Snigdhangata :(greasiness of body)

- Normal snigdghata 0
- Oily luster of body in summer season 1
- Oily luster of body in dry season 2

- Excessive oily luster of body in dry season which can be removed with difficulty 3
- Persistence and profuse stickiness all over body 4

9. Daurbalya(General debility)

- Can do routine exercise 0
- Can do moderate exercise without difficulty 1
- Can do only mild exercise 2
- Can do mild exercise with very difficult 3
- Cannot do even mild exercise 4

10. Alasya(feeling lethargic)

- No alasya (doing work satisfactory with proper vigour in time) 0
- Doing work satisfactory with initiation late in time 1
- Doing work unsatisfactory with lot of mental pressure and late in time 2
- No starting any work in his own responsibility doing little work very slowly 3
- Does not have any initiation and not wants to work even after pressure 4

11. Nidradhikya (excessive sleep)

- Normal sleep 6-7 hrs. per day 0
- Sleep upto 8 hrs./day with Angagaurava 1
- Sleep upto 8 hrs./day with Angagaurava and Jrimbh 2
- Sleep upto 10 hrs./day with Tandra 3
- Sleep more than 10 hrs./day with Tandra and Klama 4

OBSERVATION AND RESULTS

In this study 60 patients of *Sthaulya* were selected randomly as per criteria of selection irrespective of religion, socio-economic status. All these patients were diagnosed with the help of criteria of diagnosis. Specially designed Case Report Form (CRF) was used to fill the all information of subjects. Patients attending *Kayachikitsa* O.P.D of the hospital were examined prior to the start of treatment with respect to Performa. All these values were termed as before treatment values. (B.T)

Table No.1 Gender Wise Distribution of Patient of Sthaulya

Group	Experimental	Control	Total	Percentage
Male	08	16	24	40%
Female	22	14	36	60%

In this study, totally 24 [40%] were male and 36 [60%] were female while more female were recruited in experimental group it may be due random selection of patients.

Table No.2 Agni and Koshtha wise distribution of 60 Patients of Sthaulya

Sr. No.	Agni and Koshta Parikshan	Experimental Group		Control Group		Total	
		No. of Patients	Percentage %	No. of Patients	Percentage %	No. of Patients	Percentage %
Agni							
1	Manda	13	43.33	14	46.67	27	45.00
2	Madhyam	14	46.67	13	43.33	27	45.00
3	Visham	03	10.00	03	10.00	06	10.00
Koshtha							
1	Manda	25	83.33	07	23.33	32	53.33
2	Krur	05	16.67	23	76.67	28	46.67

Clinical Observations:

Table No.3 Showing Percentage of Relief (Subjective Criteria) in Each Symptom of 60 Patients of *Sthaulya*:

Sr. No.	Symptoms	Experimental Group				Control Group			
		BT	AT	Diff	% of Relief	BT	AT	Diff	% of Relief
A	<i>Subjective Criteria</i>								
1	<i>Angachalatva</i>	61	17	44	72.13	64	36	28	43.75
2	<i>Atikshudha</i>								
	a) <i>Abhyavaharana Shakti</i>	104	77	27	25.96	103	94	9	08.73
	b) <i>Jarana Shakti</i>	75	49	26	34.66	73	64	9	12.33
3	<i>Kshudraswasa</i>	33	6	27	81.81	36	22	14	38.89
4	<i>Gatrasada</i>	53	13	40	75.47	58	31	27	46.55
5	<i>Daurgandhya</i>	32	6	26	81.25	42	22	20	47.62
6	<i>Swedadhikya</i>	52	13	39	75	58	29	29	50.00
7	<i>Atipipasa</i>	45	10	35	77.77	47	27	20	42.55
8	<i>Snighdhangata</i>	33	7	26	78.78	38	24	14	36.84
9	<i>Daurbalya</i>	44	12	32	72.72	42	27	15	35.71
10	<i>Alasya</i>	33	10	23	69.70	36	25	11	30.56
11	<i>Nidradhikya</i>	42	13	29	69.04	43	24	19	44.19

Table No.4 Showing Percentage of Relief (Objective Criteria) in Each Parameter of 60 Patients of *Sthaulya*:

Sr. No.	Parameters	Experimental Group				Control Group			
		BT Mean	AT Mean	Diff Mean	% of Relief	BT Mean	AT Mean	Diff Mean	% of Relief
A	<i>Objective Criteria</i>								
1	Sharir Bhara	71.00	63.13	07.86	11.76	71.88	68.17	03.73	05.19
2	BMI	28.88	25.67	03.20	11.10	28.52	27.04	01.47	05.17
3	Waist Circumference	99.43	98.76	0.67	0.67	95.77	95.50	0.26	0.27
4	Hip circumference	108.3	107.8	0.43	0.40	102.7	102.5	0.16	0.16
5	Waist /Hip ratio	0.91	0.91	0.002	0.23	0.933	0.932	0.001	0.10

Effect of Therapy on Symptoms of *Sthaulya* in Experimental Group Statistically:-

In Experimental Group, regarding symptom *Angachalatva* the Mean \pm SD value obtained Before Treatment (BT) was 2.03 ± 0.92 and After Treatment(AT) it was changed as 0.56 ± 0.62 which was statistically considerably extremely significant ($p < 0.001$).

Likewise the effects of therapy seen statistically considerably extremely significant in symptom *Abhyavaran shakti*, *Jaran shakti*, *Kshudraswasa*, *Gatrasada*, *Daurgandhya*, *Swedadhikya*, *Atipipasa*, *Snighdhangata*, *Daurbalya*, *Alasya* and *Nidradhikya* as p value < 0.001 .

a. Effect of Therapy on Symptoms of *Sthaulya* in Control Group Statistically:-

In Control Group, regarding symptom *Angachalatva* the Mean \pm SD value obtained Before Treatment (BT) was 2.13 ± 0.73 and After Treatment(AT) it was changed as 1.20 ± 0.67 which was statistically considerably extremely significant ($p < 0.001$). Likewise the effects of therapy seen statistically considerably very significant in symptom *Abhyavaran shakti*, *Jaran shakti* p value is < 0.05 and considerably extremely significant in

symptoms like *Kshudraswasa*, *Gatrasada*, *Daurgandhya*, *Swedadhikya*, *Atipipasa*, *Snighdhangata*, *Daurbalya*, *Alasya* and *Nidradhikya* as p value < 0.001 .

b. Comparison between Two Group w.r.t Symptoms Score of 60 Patients of *Sthaulya*:

The Difference between before and after treatment score of both group was found that the sum of rank of experimental group for the symptom *Angachalatva* was 662, Test statistic (U) was 238, and SED was 0.92 where the test statistic U was between Population Mean ± 1.96 SD which was extremely significant at 5% level of significance. ($P < 0.05$) Therefore the difference between Symptom Score of *Angachalatva* of Experimental group is statistically significant, so therefore we can conclude that in the symptom *Angachalatva*, trial drug has effective statistically along with while in *Abhyavaran shakti*, *Jaran shakti*, *Kshudraswasa*, *Gatrasad*, *Swedadhikya*, *Atipipasa*, *Snighdhangata*, *Daurbalya* and *Alasya* $p < 0.001$ which was extremely significant.

However in the symptoms *Daurgandhya*, *Nidradhikya* p value > 0.05 which was insignificant at 5% level of significance.

Objective parameters:

Table No. 5 Showing Effect of Comparison Between Group w.r.t Objective parameters of 60 Patients of Sthaulya

Sr.No	Parameters	Mean \pm SD		\pm S Ed		t Value	p Value
		Gr.A	Gr.B	Gr.A	Gr.B		
1.	Sharir Bhara	7.86 \pm 0.86	3.73 \pm 0.52	0.15	0.09	22.51	<0.001
2.	BMI	3.20 \pm 0.58	1.47 \pm 0.28	0.10	0.05	14.59	<0.001
3.	Waist Circumference	0.66 \pm 0.80	0.26 \pm 0.44	0.14	0.08	2.382	<0.05
4.	Hip circumference	0.41 \pm 0.62	0.16 \pm 0.37	0.11	0.06	1.838	> 0.05
5.	Waist /Hip ratio	0.002 \pm 0.555	0.0009 \pm 0.002	0.0009	0.0004	1.083	>0.05

After comparison of both groups statistically *Sharir bhar*, BMI and Waist Circumference has decreased as desired in experimental group by the treatment and in parameters like Hip circumference and Waist /Hip ratio there was no statistical difference so both group were equally effective.

Probable Mode of Action of Dashang Guggulu:

The disease *Sthaulya* originates due to consumption of *Kapha Vriddhikara Ahara*, *Vihara* and *Manasa Nidana*. These factors derange *Jatharagni* causing *Ama*, *Annarasa*, which results in *Medodhatvagni-mandya*.

Dashang Guggulu encounters *Vata* and *Kapha Dosha* by virtue of its *Katu-Rasa* dominance and *Ushna-Virya*. *Katu-Rasa* performs *Medo-Kledopa-Shoshana* action. *Sthairya Guna* of *Madhura Rasa* combats *Sharira Shaithilya*. *Ushna-Virya* also helps in *Kleda* and *Meda Vilayana* action. All these

Guna also helps in *Dhatwagnimandya*, *Amapachana* thereby alleviates *Aparipakwa* and *Ama dhatu*.

Due to *Katu-Rasa*, all the involved channels are dilated i.e. "*Srotansi Vivrunoti*" action. *Katu-Rasa* and *Ushna-Virya* check over *Medovaha* and *Mamsavaha Srotodushti*.

In nut cell in *Dashang Guggulu* maximum ingredient have *Katu Ras*, *Laghu*, *Ruksha* and *Ushna Virya*, *Katu Vipak*, *Vata-Kaphashamak*, *Karshana*, *Lekhaniya*, *Medorogahara*, *Amapachana*, *Dhatu shoshana* properties which helps in normalize the state of *Agni*. Thus, regulated *Jatharagni*, checked the excessive growth and accumulation of *Medodhatu* and thereby causing *Lakshana Upshamana* of disease *Sthaulya*.

Total Effect of Therapy:-

Sr. No	Effect of Therapy	No. of Patients			Percentage %		
		E.G.	C.G.	Total	E.G.	C.G.	Total
1.	Markedly Improved >75%	04	00	04	13.33	00.00	06.67
2.	Moderate improved (50-74%)	18	01	19	60.00	03.33	31.67
3.	Mild improved 25-49 %	08	26	34	26.67	86.67	56.66
4.	No improvements <25%	00	03	03	00	10.00	05.00

DISCUSSION

Sthaulya is a typical obesity involving the *Medovridhi* with which this study deals with typical obesity, not with the reasonable adiposity, which is a reflection of endocrine imbalance. The term *Medasvi* is suggestive of nutritional status of the individuals indicating a well nourished disposition rather than disease.

Lack of physical activity, frequent intake of food, industrialization, stress during the work, various types of junk food e.g. fast food, bakery items, increased amount of the soft drink result is *Sthaulya*. An individual whose increased *Meda* and *Mamsa Dhatu* makes his hips, abdomen and breasts pendulous and whose vitality is much less than his body size is *Sthaulya* (obese). *Sthaulya* has been classified under "*Ashta Nindita Purusha*". (Ch.Su.21).

A number of herbal, mineral and herb mineral medicines are described in various ancient texts of Ayurveda for treating *Sthaulya*. Amongst these, we have chosen *Vangasenokta 'DashangGuggulu'* which is having ingredients like *Triphala*, *Trikatu*, *Trimadand Guggulu* because of their *Medohara* and *Kaphaghna* properties mentioned in literature. (vangsenmedovikar 29)

CONCLUSION

Dashang Guggulu, *Triphala churna* and *Musta* are easily available as well as is cost effective. It was observed that result obtained in the parameters like *Sharir bhar* (Weight), BMI, Waist Circumference, Hip circumference; Waist /Hip ratio are extremely significant statistically.

In the parameters like Hip circumference and Waist /Hip ratio both group have equal effect statistically. Overall it was observed that, percentage of relief in each patient of *Sthaulya* in experimental group was observed as 59.86% while 33.82 % in control group. On an average, in both group 46.84 % reliefs got in each patients of *Sthaulya* from the symptoms they suffered. No side effects of the therapy were found.

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