

TO STUDY THE EFFICACY OF VIDANGADI CHURNA IN STHAULYA W.S.R TO OBESITY

Dr. Rashmi Gurao^{1*}, Dr. Nakul Khode², Dr. Subhash Chandra³ and Dr. Omprakash Dadhich⁴

¹Assistant Prof., Kriya Sharir Department, Jupiter Ayurved Medical College, Nagpur, Maharashtra.

²SRF, Regional Ayurved Research Institute, Nagpur, Maharashtra.

³M.D. Sharir Kriya, National Institute of Ayurveda, Jaipur (Raj.).

⁴Professor, Dean (Academic) and H.O.D., P.G. Deptt. of Sharir Kriya, National Institute of Ayurveda, Jaipur (Raj.).

ABSTRACT

Background: Obesity is the most prevalent form of malnutrition. It is the key risk factor in most of the metabolic as well as chronic disorders. The old wisdom of dietary and regimental habits finds no place in 24*7 on the go lifestyle, resulting in higher prevalence of *Santarpanajanya Vyadhi* like *Sthaulya*. *Aacharya Charaka* has mentioned *Sthaulya* as *Atinindita*, so a comprehensive approach is required for its alleviation. The *Guna Chikitsa Siddhanta* is one of the important principles of *Ayurveda*, etiopathogenesis (*Hetu*), symptoms (*Lakshana*) as well as management (*Chikitsa*) too are described in the form of *Guna*. It emphasizes on the use of relative contrary *Guna* (quality) for the alleviation of specific *Guna* in the body. The *Guru*

Guna is synonymous to *Sthulatva*. *Laghu Guna* is illustrated as absence of *Guru Guna*. The compound *Vidangadi Churna* is devoid of *Gurutva* i.e. *Laghu Gunatmaka* and hence show emaciation in *Sthaulya* due to *Prabhava*. The present trial was so designed to assess the effect of *Vidangadi Churna* on *Sthaulya* and relevance of *Chikitsa Siddhanta* aforesaid. **Method:** The *Vidangadi Churna* was given to 30 *Sthaulya* patients of either sex age - 16–40yrs in a dose of 3gm BD with *Anupana Madhu* before meal for 45 days. **Result:** The effect of therapy on various anthropometry parameters was highly significant. The decrease in various

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*Corresponding Author

Dr. Rashmi Gurao

Assistant Prof., Kriya
Sharir Department, Jupiter
Ayurved Medical College,
Nagpur, Maharashtra.

circumferences of the body was more as compared to weight loss. **Conclusion:** The *Vidangadi Churna* mainly acts on subcutaneous fat and thereby beneficial in *Sthaulya*.

KEYWORDS: *Santarpanajanya Vyadhi, Sthaulya, Guna Chikitsa Siddhanta, Vidangadi Churna.*

INTRODUCTION

The world is experiencing a rapid upsurge in non- communicable disease risk factors such as obesity and overweight particularly in urban settings. Most of the world's population live in countries where overweight and obesity kills more people than underweight. Worldwide obesity has more than doubled since 1980.^[1] In recent times, India has also seen surge in obesity. It had 0.4 million obese men or 1.3% of the global obese population in 1975, but in 2014, it zoomed into the fifth position with 9.8 million obese men and 3rd position with 20 million obese women (3.7% & 5.3% of global population respectively).^[2]

In *Ayurveda* obesity can be clinically correlated with *Sthaulya*, a disease recognised by heaviness and bulkiness of the body due to extensive growth, especially in abdominal region owing to excess deposition of adipose tissue (*Meda Dhatu*) along with muscle tissue (*Mamsa Dhatu*).^[3] The etio-pathogenesis of *Sthaulya* mainly consist of exogenous factors viz. dietetic, regimental and psychological (*Aaharaj, Viharaj* and *Manasik*). The endogenous causes can be incorporated in slow metabolic activities (*Dhatwagni-mandya*).

Sthaulya is a disease of *Kapha Dosha* dominancy. The *Panchbhautik Sanghatana* of *Kapha Dosha* is mainly *Prithvi* and *Jala Mahabhuta Pradhana*.^[4] Both the *Mahabhuta* possesses *Guru Guna* (heaviness). The vitiation of *Kapha Dosha* can be categorized into *Guru Guna* dominated *Kapha Vriddhi* (*Prithvi Mahabhuta* portion of *Kapha* increases) and *Snigdha Guna* (unctuous) dominated *Kapha Vriddhi* (*Jala Mahabhuta* portion of *Kapha* increases). *Sthaulya* simply is increased physical *Guruta* of body. It is *Nanatmyaja Vyadhi of Kapha Dosha*.^[5]

Obese human having an increase in number or size of adipose cells suggests hyperplasia or hypertrophy of adipocytes either due to functional demo in particular age or sex or due to increase in energy intake (*Gurvadi Aahara*, etc.) or decrease in energy expenditure (*Viharaj Hetu*). *Meda* or *Kapha Dosha* vitiating *Nidana Sevana*, *Meda Dhatu* increases. Increased *Meda Dhatu* leads to obstruction of various channels (*Srotasa*) which ultimately increases

Vayu in alimentary canal (*Kostha*) leading to *Agni Samdhukshana* (increased digestive fire in *Kostha*, due to which ingested food is being digested speedily). This leads to increased craving for food. Excessive eating produces more production of *Aahara Rasa* which leads to excess load on *Dhatwagni* especially *Medo – Dhatwagni* (interferes lipid metabolism → fat deposition) and thus results in *Sthaulya*.^[6]

The *Shodhana* and *Shamana* therapy are recommended in management of *Sthaulya*. However, the *Chikitsa Sutra* of *Sthaulya* revolves around *Shamana* specifically *Guru & Apatarpana Chikitsa*^[7] i.e. medicines/ diet that suppress the excess hunger with their prolong digestion time and bring about emaciation of body. The *Guru Guna* (Heaviness) is described as synonymous to *Sthulatva*. *Laghu Guna* is illustrated as absence of *Guru Guna*.^[8]

Vidangadi Churna consists of *Vidanga*, *Shunthi*, *Aamlaki*, *Yava*, *Yavakshara* and *Lauha Bhasma*. *Aacharya Chakrapani* and *Gangadhara* elaborated that the contents of *Vidangadi Churna* are devoid of *Gurutva* i.e. they possess *Laghu Guna* and hence shows emaciation in *Sthaulya* due to *Prabhava*.^[9] Thus *Vidangadi Churna* is chosen as drug of trial.

The *Guna Siddhanta* is one of the important principles of *Ayurveda*. *Hetu*, *Lakshana* as well as *Chikitsa* too are described in the form of *Guna*. Being such uniquely important concept it has remained just a non applied literary bulk. Therefore the present research work is so designed to assess the effect of *Laghu* drug in the management of patients with pathological state of *Laghu Guna* i.e. *Sthaulya*.

AIMS AND OBJECTIVES

- To examine the efficacy of *Vidangadi Churna* in the management of *Sthaulya*.
- To observe relevance of the *Guna Chikitsa Siddhanta* in the symptomology, pathophysiology and predominance of *Dosha Guna* according to *Ayurveda* and modern medical science.

MATERIAL AND METHODS

➤ Inclusion Criteria

1. Age – 16 – 40 yrs.
2. Sex – Either sex.
3. BMI – according to WHO Standards.

- Overweight – 25.0 - 29.9.
- Moderately Obese – 30.0 – 34.9.
- Severely Obese – 35.0 – 39.9.

4. Waist – Hip Ratio

Male > 0.9.

Female > 0.7.

➤ Exclusion Criteria

1. Age - less than 16 years and more than 40 years.
2. BMI \geq 40.
3. Patients suffering from obesity due to hereditary indisposition.
4. Patients suffering from drug induced obesity.
5. Dyslipidemia due to injudicious use of drugs such as diuretics, corticosteroids, etc.
6. Increased abdominal girth due to other diseases. E.g. Ascitis
7. Having hormonal disorders e.g. Hypothyroidism, IDDM, etc
8. Pregnant and Lactating Women.
9. Patients suffering from complications of obesity.

➤ Clinical Study

The study was approved by Institute Ethics Committee [F10 (5)/EC/2014/7223/Date 07.11.2014, National Institute of Ayurveda, Jaipur].

- 1) As per the inclusion criteria, 30 patients of *Sthaulya* of either sex were randomly selected from OPD of National Institute of Ayurveda, Jaipur.
- 2) Informed written consent was taken from all the subjects included in this study.
- 3) The patients were given *Vidangadi Churna* 3gm with *Anupana Madhu*, before meal (*Pragbhata Kala*) Twice Daily for 45 days.
- 4) Patients were instructed to follow *Pathyapathya* while taking medication.
- 5) Follow up of the patients was taken at every 15 days interval for 45 days.
- 6) The effect of trial drug was assessed in terms of subjective criteria (Symptoms of *Sthaulya*), Anthropometry parameters & Total Lipid Profile.

CRITERIA OF ASSESSMENT

Subjective Criteria

All the signs and symptoms of *Sthaulya* were given scores on the basis of severity before and after the treatment. For subjective parameters following symptoms were assessed- *Angachalatva*, *Aalasya*, *Kshudha Adhikya*, *Pipasa Adhikya*, *Javoprodha*, *Anga Daurgandhya*, *Swedadhikya*, *Daurbalya*, *Nidradhikya*, *Krichchavyavayta*, *Gaurava*, *Kshudra Shwasa*, *Angasada*, and *Krathana*.

Anthropometry Parameter

- Weight of the Patient (in Kg).
- B.M.I.
- Mid Arm Circumference.
- Mid Thigh Circumference.
- Hip Circumference.
- Waist Circumference.
- Waist - Hip Ratio.

Laboratory Investigations

- **Total Lipid Profile:** Sr. Cholesterol, Sr. Triglyceride, Sr. HDL, Sr. LDL, Sr. VLDL.

OBSERVATION

- Maximum number of patients was from age group 32 – 40 yrs (53.33%), Hindu (63.33%), middle class (73.33%) with ratio of male (30%) and female (70%). *Sthaulya* was predominantly seen in housewives (63.33%) followed by students (43.33%) with vegetarian diet (70%).
- Among *Aaharaj Nidana*, *Gurvadi/Snigdhadi Bhojana* was the most common causative factor (86.67%) followed by *Pishtanna Sevana* (83.33%). *Shita Aahara Sevana*, *Tea/Coffee with sugar*, *Kshira Sevana*, *Ati Bhojana Sevana*, *Madhuradi Sevana*, and *Navanna Sevana* was observed in more than 50% of *Sthaulya* patients.
- Majority of *Sthaulya* patients had *Aasya Sukha* (90%) as main *Viharaj Nidana* followed by *Avyayama* (86.70%). *Diwaswapna* was found in 56.67% patients while *Avyavaya* was least observed *Viharaj Hetu* (10%).

RESULT

- The therapy provided highly significant relief in *Gaurava* (64.74%), *Aalasya* (52.5%), and *Kshudra Shwasa* (36.66%) [$p < 0.0001$]. Very significant result was obtained in the symptoms like *Javoprodha* (29.94%) and *Angasada* (28.96%) while effect was statistically significant in *Pipasa Adhikya* (24.73%) *Kshudha Adhikya* (19.66%), *Anga Daurgandhya* (16.43%) and *Swedadadhikya* (15%). Effect was insignificant in *Chala Sphik Udara Stana* (7.17%), *Kriccha Vyavayata* (11.67%), *Daurbalya* (9.82%), *Krathana* (2.91%) and *Nidradhikya* (11.11%).
- The initial mean of total score of symptoms was 1.51. It decreased to 1.13 with $SD \pm 0.62$ giving a relief of 25.17 % which was statistically *highly significant*.
- The effect of the therapy on various physical characteristics is as follows: Highly significant result in Body Weight (3.15%), B.M.I. (2.99%), Waist Circumference (2.86%), Hip Circumference (2.61%), Mid Arm Circumference (5.07%) and Mid Thigh Circumference (3.47%) [$p < 0.0001$]. Effect was Insignificant in Waist- Hip Ratio (0.42%).
- The therapy provided significant change in Sr. Triglycerides (9.3%). Effect was Insignificant in S. Cholesterol (4.5%), H.D.L. (-0.3%), LDL (0.75%) and VLDL (-0.39 %). The negative sign in the mean difference indicate that the AT values are more than BT values.
- Total effect of therapy on the clinical features of *Sthaulya* reveals that 46.67% of patients showed mild improvement while 53.33% patients showed no improvement.

TABLES

Table. No.1: Contents of *Vidangadi Churna*.

Sr. No.	Drug	Latin Name	Ratio
1.	<i>Vidanga</i>	<i>Embelia ribes</i>	1 part
2.	<i>Shunthi</i>	<i>Zinziber officinale</i>	1 part
3.	<i>Aamlaki</i>	<i>Embilica officinalis</i>	1 part
4.	<i>Yava</i>	<i>Hordeum vulgare</i>	1 part
5.	<i>Yavakshara</i>	Potasssi carbonas	1 part
6.	<i>Loha Bhasma</i>	Incinerated Iron	1 part

Table No.2: Effect of therapy on clinical features in 30 patients of *Sthaulya*

Symptoms	N	Mean		Diff.	% of Relief	SD \pm	SE \pm	W	No. of Pairs	P	Result
		BT	AT								
<i>Chala Sphik-Udara-Stana</i> (Pendulous Buttocks, Abdomen & Breasts)	30	2.37	2.20	0.17	7.17	0.38	0.07	15	5	0.0625	NS
<i>Aalasya (Lethargy)</i>	30	1.20	0.57	0.63	52.5	0.56	0.10	171	18	<0.0001	HS
<i>Kriccha Vyavayata</i> (Difficulty during intercourse)	30	0.60	0.53	0.07	11.67	0.45	0.08	7	6	0.5625	NS
<i>Anga Daurgandhya</i> (Body Odour)	30	1.40	1.17	0.23	16.43	0.43	0.08	28	7	0.0156	S
<i>Sweda- Adhikya</i> (Excess Sweat)	30	2.0	1.70	0.30	15	0.54	0.10	54	11	0.0137	S
<i>Kshudha- Adhikya</i> (Excess Hunger)	30	1.17	0.93	0.23	19.66	0.43	0.08	28	7	0.0156	S
<i>Pipasa Adhikya</i> (Excess Thirst)	30	0.93	0.7	0.23	24.73	0.50	0.09	21	6	0.0920	S
<i>Kshudra Shwasa</i> (Dyspnoea on Exertion)	30	2.1	1.23	0.87	41.43	0.68	0.12	231	21	<0.0001	HS
<i>Gaurava</i> (Heaviness)	30	1.9	0.7	1.2	63.15	0.55	0.10	406	28	<0.0001	HS
<i>Daurbalya</i> (Weakness)	30	1.73	1.57	0.17	9.82	0.38	0.07	15	5	0.0625	NS
<i>Javoprodha</i> (Lack of Enthusiasm)	30	1.67	1.17	0.50	29.94	0.78	0.14	55	10	0.0020	VS
<i>Krathana</i> (Snoring)	30	1.03	1.0	0.03	2.91	0.18	0.03	1	1	>0.999	NS
<i>Nidradhikya</i> (Excess Sleep)	30	1.17	1.03	0.13	11.11	0.57	0.10	14	7	0.2969	NS
<i>Angasada</i> (Lethargy)	30	1.83	1.30	0.53	28.96	0.78	0.14	123	17	0.0021	VS

Table No. 3: Effect of therapy on total score of clinical features of *Sthaulya*

Symptoms	N	Mean		Diff.	% of Relief	SD \pm	SE \pm	W	No. of Pairs	P	Result
		BT	AT								
Total Score of symptoms	30	1.51	1.13	0.38	25.17	0.62	0.03	10293	149	<0.0001	HS

Table No.4: Effect of therapy on physical parameters in 30 patients of *Sthaulya*

Physical Parameter	N	Mean		Diff.	% of Change	SD \pm	SE \pm	t	P	Result
		BT	AT							
Body Weight	30	77.10	74.67	2.43	3.15	1.41	0.26	9.476	<0.0001	HS
B.M.I.	30	31.75	30.80	0.95	2.99	0.65	0.12	8.059	<0.0001	HS
Waist Circumference	30	102.47	99.53	2.93	2.86	2.74	0.50	5.862	<0.0001	HS
Hip Circumference	30	109.83	106.97	2.87	2.61	2.81	0.51	5.582	<0.0001	HS
Mid Arm Circumference	30	33.12	31.44	1.68	5.07	1.75	0.32	5.256	<0.0001	HS
Mid Thigh Circumference	30	59.15	57.10	2.05	3.47	2.27	0.41	4.951	<0.0001	HS
Waist- Hip Ratio	30	0.934	0.930	0.004	0.42	0.02	0.003	1.110	0.2762	NS

Table No.5: Effect of therapy on biochemical parameters in 30 patients of *Sthaulya*

Investigation	N	Mean		Diff.	% of Change	SD \pm	SE \pm	T	P	Result
		BT	AT							
Sr. Cholesterol	30	177.57	173.07	4.5	2.53	12.59	2.30	1.958	0.06	NS
Sr. Triglycerides	30	130.23	120.93	9.3	7.14	21.07	3.85	2.418	0.0221	S
Sr. H.D.L.	30	47.73	48.03	-0.3	0.63	2.32	0.42	0.7078	0.4847	NS
Sr. L.D.L.	30	106.3	105.55	0.75	0.71	6.58	1.20	0.6268	0.5357	NS
Sr. VLDL	30	25.41	25.51	-0.1	-0.39%	10.74	1.96	0.051	0.9597	NS

Table No.6: Overall effect of therapy on clinical features of *Sthaulya*

Sr. No.	Criteria	No. of Patients	%
1.	Complete Remission (100%)	—	—
2.	Marked Improvement (75 – 100%)	—	—
3.	Moderate Improvement (50 – 75%)	—	—
4.	Mild Improvement (25 – 50%)	14	46.67
5.	No Improvement (< 25%)	16	53.33

DISCUSSION

The *Guna Chikita Siddhanta* is the descendant of simple yet very important *Samanya Vishesha Siddhanta* that like begets like while diminution in any property can be brought about by the use of antagonistic property. *Aacharya Sushruta* articulated that the *Guna* present in the drug and the body are one and the same, hence the drug is responsible for the state of equilibrium, increase and decrease of the body constituents based on the principle of *Panchamahabhuta*.^[10] Any drug performs its action due to *Rasa* (Taste), *Guna* (quality), *Virya* (Potency), *Vipaka* (Metabolites) and *Prabhava* (inexplicable action); each predominating preceding.

The *Vidangadi Churna* has dominance of *Katu – Kashaya Rasa*; *Ruksha & Laghu Guna*; *Madhura Vipaka*; *Kapha – Vata Shamaka* and *Kapha Pitta Shamaka* properties. The pharmacodynamics of this preparation is though contradictory, *Aacharya Chakrapani* has simply stated that it is useful in the disease by the virtue of its *Gaurava Nirapeksha Prabhava*. *Gangadhara* further elaborated that the preparation *Vidangadi Churna* is devoid of *Guruta* i.e. it possesses *Laghu Guna* due to *Prabhava* and thus have *Sthaulyakarshana Karma*. *Prabhava* concedes all the other factors like *Rasa*, *Virya*, etc. of the contents of *Vidangadi Churna*.

A) Effect of therapy on symptoms of *Sthaulya*

Highly significant result was observed in symptoms like *Aalasya*, *Kshudra Shwasa* and *Gaurava* while very significant result was obtained in the *Javoprodha* and *Angasada*.

Aalasya is described as lack of enthusiasm. *Javoprodha* means difficulty in initiation of any activity while “*Sada*” is elucidated as “*Anga Glani*” by *Aacharya Dalhana*. “*Sada*” means idleness, slothfulness, or lethargy. These symptoms are directly proportional to *Guru Guna* augmentation or in other words *Laghu Guna* diminution. *Vidangadi Churna* being *Laghu Gunatmaka* preparation has direct effect on these symptoms.

Insignificant result in symptoms like *Chala Sphik-Udara-Stana*, *Daurbalya* and *Nidradhikya* can be credited to the fact that these symptoms occur due to extreme vitiation of *Meda Dhatu*, so longer duration of therapy is required to achieve significant result.

Krichha Vyavayata and *Krathana* symptoms were least reported with lot of apprehension by the *Sthaulya* patients due to hesitancy of public disclosure of private matters, hence non significant result.

B) Effect of therapy on Anthropometry Parameters

The effect of therapy on physical characteristics like Body weight, BMI, Waist Circumference, Hip Circumference, Mid Arm Circumference and Mid Thigh Circumference were highly significant. It was observed that the improvement in various circumferences of the body was more than that of the weight loss. The reason for this is the *Lekhana Karma* of the contents like *Yava*, *Yavakshara* and *Lauha Bhasma* of the *Vidangadi Churna*. The role of *Anupana Madhu* is universally accepted in the weight loss therapy.

However insignificant result was obtained in Waist–Hip Ratio. This may due to fact that the change in the Waist and the Hip Circumference were not proportional. Some *Sthaulya* patients showed more improvement in Waist Circumference than the Hip Circumference.

C) Effect of therapy on Biochemical Parameters

The effect of the therapy on biochemical parameters provided significant change in Sr. Triglycerides. Triglycerides (Tg) are form of stored fat in the body. They are used as fuel for energy. A recent meal will cause elevated Tg since inadequate patient fasting is the commonest cause of elevated Tg levels. The lowered Sr. Triglycerides may indicate that the frequency of consumption of food is decreased in the patients.

CONCLUSION

- The *Gurvadi Guna* exhibits themselves in a range of physical characteristics that are subjective and/or objective in nature. The *Guru Guna* brings about nourishment of the

body as a whole while the *Laghu Guna* brings about emaciation. The *Laghu Guna* of *Vidangadi Churna* primarily acts on typical characteristic of *Guru Guna* like *Gaurava*, *Aalasya*, etc. along with reduction in various anthropometry parameters thus exhibiting its effect mainly on subcutaneous fat.

- The overall effect of the therapy on the clinical features of *Sthaulya* was not substantial due to chronic nature of disease and thus emphasizes the importance of exercise and rigorous diet planning in the treatment of obesity along with medication for long term. This emphasizes that *Guna Chikitsa Siddhanta* further need to be explored with special reference to each sign and symptom of the disease.

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