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A Clinical Study to Evaluate the Effect Of Dasanga Gugglu In The Management Of Sthoulya (Obesity)

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Abstract:

In these days, majority of individuals are accustomed to sophisticated and comfortable life style, which is the leading cause of Obesity. In Ayurveda the term "Sthoulya" is mentioned in "Astaunindhita Adhyaya" of Charaka Samhita, refers to Obesity and is manifested mainly due to Santarpaniya ahara[1]. The increasing prevalence of medically significant Obesity raises great concern. Hence in this study the Obesity had been treated by Ayurvedic means. For this 30 patients of Sthoulya were selected based on classical symptoms, and administered a course of Dasanga Guggulu, along with suggestion of specific diet and physical exercise. All the patients responded well to the treatment given and shown best results.

Key words: *Sthoulya*, Obesity, Santarpana janya roga, Life style Disorders, Metabolic Diseases, *Dasanga Guggulu.*

Introduction:

In this current era of modernization, development of science and technology lead into sedentary life style. Drastic changes have taken place in dietary habits and mode of life style. This results in precipitation of various metabolic diseases which are popularly referred as "life style disorders".[1] Obesity is characterized by excessive accumulation of subcutaneous fat as a result of disturbed metabolism. An individual with body mass index (BMI) equal to or more than 25 is considered as overweight and equal to or more than 30 is considered as obese. Obesity greatly increases the risk of chronic diseases like Diabetes, Hypertension, Cardio vascular and Cancer.[2]

Recent studies have reported that globally, more than 1.9 billion adults are Overweight and 650 million are Obese. Approximately 2.8 million deaths are reported as a result of being Overweight or Obese. In India, more than 135 million individuals were affected by Obesity. The odds of being obese across all zones in India are higher among urban men and woman who are educated and sedentary. The prevalence in children is also rising at a worrisome rate. Strongest determinants of Obesity are physical activity and aging.

Therefore, it is clear that India is undergoing a rapid epidemiological transition from underweight to overweight, over weight to obese population. Obesity is the major risk factor for most of the non-communicable diseases, and it is the most neglected public health problems. Hence there is a need to review the problem or trends of Obesity in terms of its morbidity, mortality and economic burden.

In Ayurveda Obesity has been described by the term "Sthoulya Roga". Ayurveda explains Obesity as the effect of increase of fat tissue (Medo dhatu), due to Santarpaniyaahara. Acharya Charaka has mentioned eight undesirable persons, Athi sthula is one among them[3]. Ayurveda being the holistic life science aims at physical, social and

spiritual wellbeing of an individual. The modalities of preventive and curative health care have been well expounded in this science and may offer comprehensive solutions for the multi factorial disease of the humanity. So by estimating the pan India prevalence of Obesity and after going through all available references from authentic classical text books, an attempt is made to treat Sthoulya with Dasanga Guggulu[4].

Aims & Objectives: To study and evaluate the efficacy of Dasanga Guggulu in the management of Sthoulya (Obesity).

Materials & Methods:

Design: Open labeled randomized single group clinical trial on Sthoulya with pretest and posttest design.

Source of Data:

30 patients of clinically proven Sthoulya of either sex were enrolled for study from OPD/IPD of Dr. A.L. GOVT. Ayurvedic Hospital, Vijayawada. A protocol based on Ayurvedic parameters of diagnosis as well as modern parameters was prepared.

Plan of Therapy:

Drug: Tab. Dasanga Guggulu.

Dose: 250mg, (2 tablets, twice daily, after meal).

Anupana: Luke warm water.

Duration: 60 days.

Follow up: Regular review for every 20 days.

Diet Advised: Formulated such as to take healthy and balanced diet, with low carbohydrates, low fats, rich in fibers, plenty of fruits and vegetables.

Physical Exercise: Regularly at least for 30 minutes.

Inclusion Criteria:

Patients diagnosed as Sthoulya irrespective gender of having classical signs and symptoms will be randomly selected.

- Patients of age group 18 to 50 irrespective of gender.
- Patients with BMI > 25 kg/m^2
- Patients with waist circumference > 80 cm in females, > 90 cm in males; waist – hip ratio ≤ 0.8 in females, ≤ 1 in males.
- Willing to sign the consent for present study participation.

Exclusion Criteria:

- Patients with BMI > 30 kg/m^2
- Obesity due to Endocrinal abnormalities.

- Patients with systemic disorders Hepatic, Renal, Cardiovascular, and Cerebro vascular diseases.
- Psychiatric illness
- Pregnancy and Lactation

Diagnostic & Assessment Criteria:

Subjective Parameters: 1. Mamsa lambana, 2. Ayata upasya utsaha, 3. Dourbalyam , 4. Ati sweda, 5. Ati kshuda, 6.Ati pipasa, 7. Ati nidra, 8. Swasa kricchata, 9. Gatra gourava, 10. Shrama, 11. Dourgandhya.

Objective Parameters : 1. Weight, 2. BMI, 3. Waist Circumference, 4. Hip circumference, 5. Waist Hip ratio, 6. Skin fold thickness (Triceps, Biceps, Sub scapular, Supra iliac).

Laboratory Investigations:

Blood examination- Hb%, TC, DC, ESR.

Bio chemistry- S. Cholesterol, LDL, HDL, Triglycerides,

Urine examination- Albumin, Sugar and Microscopy.

Results:

Effect of Treatment on Symptomatology

Parameter	Mean (x)		% of relief	SD		SE		Diff in x	t value	P value	Sig.
	BT	AT		BT	AT	BT	AT				
ML	2.66	0.96	65.00	0.47	0.80	0.87	0.14	1.70	14.29	0.00	Sig.
AU	2.56	0.56	80.00	0.50	0.67	0.09	0.12	2.00	18.65	0.00	Sig.
DB	2.16	0.40	80.95	0.59	0.62	0.10	0.11	1.76	19.19	0.00	Sig.
AS	2.16	0.90	57.1	0.69	0.60	0.12	0.11	1.26	11.89	0.00	Sig.
AK	1.63	0.36	75.00	1.03	0.61	0.18	0.11	1.26	8.38	0.00	Sig.
AP	1.63	0.26	81.25	1.06	0.44	0.19	0.82	1.36	8.80	0.00	Sig.
AN	1.90	0.46	73.6	0.92	0.73	0.16	0.13	1.43	10.14	0.00	Sig.
SK	2.06	0.46	80.00	0.78	0.68	0.14	0.12	1.60	12.99	0.00	Sig.
GG	2.16	0.46	80.95	0.83	0.62	0.15	0.11	1.70	12.42	0.00	Sig.
SH	2.23	0.53	77.2	0.81	0.62	0.14	0.11	1.70	13.26	0.00	Sig.
DG	2.30	0.93	56.5	0.79	0.69	0.14	0.12	1.36	10.42	0.00	Sig.

Above table shows that highest percentage mean improvement 81.25% seen in Ati Pipasa, followed by Dourbalya and Gatra Gourava by 80.95%, Swasa Krucchrata and Ayata Upasaya Utsaha by 80%,Shrama by 77.25, Ati Kshuda by 75%, Ati Nidra by 73.6%, Mamsa Lambana by 65%, Ati Sweda by 57.1%and Dourgandhya by 56.5% which all are statistically significant ' P' < 0.01.

Parameter	Mean BT	Mean AT	Mean Diff	% of improvement	SD	SE	t-value	P -Value Significance
Wt.	87.26	83.85	3.40	3.90%	2.24	0.40	8.34	.000 HS

BMI	31.96	30.55	1.410	4.411%	0.97	0.17	7.91	.000 HS
WC	101.24	95.51	5.73	5.65%	3.26	0.59	9.60	.000 HS
HC	107.46	102.53	4.93	4.59%	4.43	0.80	6.09	.000 HS
WHR	0.95	0.92	0.03	3.14%	0.04	0.00	3.98	.000 HS

Effect of treatment on Weight, BMI, and Anthropometric

Above table shows that decreased mean value of weight from 87.263 kg to 83.85 kg with mean improvement of 3.90%, BMI reduced from 31.9633 to 30.5533 with mean improvement of 4.411%, waist circumference from 101.2467cm to 95.5167cm with mean improvement of 5.65%, hip circumference from 107.4667cm to 102.5333cm with mean improvement of 4.59% and waist to hip ratio from 0.9533 to 0.9233 with improvement of 3.14%. The results of all the parameters of the table are statistically highly significant at 0.05%. Significance level indicates a significant effect of treatment at 'P' value ≤ 0.01.

Skinfold Thickness	**Mean BT**	**Mean AT**	**Mean Differe-nce**	**% of Improve ment**	**SD**	**SE**	**t value**	**P Value Sig.**
TC	24.50	19.50	5.00	34.4%	4.47	0.81	6.11	0.000 HS
BC	17.80	13.33	4.46	25%	4.18	0.76	5.84	0.000 HS
SS	26.46	22.33	4.13	15.6%	1.96	0.35	11.54	0.000 HS
SI	34.40	27.63	6.76	19.67%	4.23	0.77	8.75	0.000 HS

The results from the above table shows that the improvement observed in mean of triceps skin fold thickness by 34.4%, biceps skin fold thickness by 25%, sub scapular skin fold thickness by 15.6%, supra iliac skin fold thickness by 19.67%. All the results are statistically highly significant with 'P' value ≤ 0.01.

Effect of Treatment on Lipid Profile

Lipid Profile	**Mean (x) BT**	**Mean (x) AT**	**Diff. in (x)**	**% of relief**	**SD**	**SE**	**t- value**	**P-value**	**Sig.**
Total Cholesterol	184.50	174.63	9.86	5.34	28.30	5.16	1.90	0.06	NS.
TGL	155.46	122.26	33.20	21.35	63.53	11.60	2.86	0.00	Sig.
LDL	80.51	83.27	- 2.75	-3.42	19.70	3.59	-0.76	0.45	NS.

HDL	66.27	66.76	-0.49	-0.74	18.14	3.31	-0.14	0.88	NS.
VLDL	32.49	25.51	6.97	21.47	14.34	2.61	2.66	0.01	Sig.
Total Cholesterol/ HDL Ratio	4.86	4.54	0.31	6.41	2.31	0.42	0.73	0.46	NS.

Above table illustrates that highest reduction in the mean value is seen in VLDL by 21.4732% with 'P' = 0.012, Triglycerides by 21.3550, 'P' = 0.008, which are statistically significant. Total Cholesterol reduced by 5.3477%, 'P' = 0.066, LDL increased by -3.4238% 'P' = 0.450, HDL increased by - 0.49333% 'P' = 0.883, Total Cholesterol: HDL ratio decreased by 6.4180% 'P' = 0.467 which are Non- significant which means there is No effect of treatment on these parameters.

Result Assessment:

The overall assessment of the result in each patient was calculated by taking the average of the percentage of relief in subjective parameters and percentage of difference in the scores of objective parameters. Subjective parameters were recorded at 20^{th}, 40^{th}, 60^{th} day and objective parameters were recorded before and after the treatment.

Overall Result of the Treatment:

S.NO	Overall Result	No. of Patients	Percentage
1.	**Good (>75%)**	16	53.3%
2.	**Moderate (>50 - 75%)**	14	46.6%
3.	**Mild (>25 - 50%)**	0	0
4.	**No Response (<25%)**	0	0
	Total	30	100%

Discussion:

The major ingredients of Dasanga Guggulu contains Triphala, Trikatu, Chitraka, Musta, Vidanga and Guggulu. Overall they have properties like Katu, Tikta, Kashaya Rasas, Laghu, Ruksha gunas, Ushna virya, Katu vipaka, Deepana, Paachana gunas, Lekhana, Rasayana gunas, Vata anulomana, and Kapha Medohara properties which help to reduce the excess kapha in the body along with kleda and vikrita Meda[5]. In this way the ingredients of Dasanga Guggulu digests the Ama, corrects the Medhodhatvagni mandhya, remove obstruction in Medovaha srotas and nourishes uttara dhatus. Thus it becomes helps in disease Obesity.

Conclusion:

Sthoulya is a very prevalent disease in today's world which is causing physical, mental and social impact on the suffering individual. The conclusion of the present study was Dasanga

Guggulu proved to be efficacious in the disease Sthoulya, by eliminating the Doshas, and performing the action of Samprapthi Vighatana ata cellular level.

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