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FROM IMBALANCE TO EQUILIBRIUM: AN AYURVEDIC CLINICAL RESEARCH IN THE MANAGEMENT OF OBESITY THROUGH SHAMANOUSHADI

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ABSTRACT

Sthoulya is explained as *santharpanottha vyadhi,*[1] in Ayurveda the person suffering from *Sthoulya* is considered as one among the *Asta ninditha purushas.*[2] *In Sthoulya ayathopachaya* of *shareera* associated with excess increase in *Medodhatu* will be present, this increased *medodhatu* causes *Utsahahani* in the individual and ultimately causes *Sthoolata* in the body. The other symptoms noticed in *sthoola* purusha are *kshudrashwasa, pipasadhikya, swedadikya, kshudadikya, kratana, nidradhikya* etc. The main line of treatment explained in Ayurveda for *Sthoulya* is *Guru cha Atarpana chikitsa*[3] which includes both *shodhana* and *shamana*. Considering the present scenario and busy schedule of *shamana chikitsa* seems to be the suggested choice of treatment. In this regard, approach of the study is to come out with safer, comprehensive and cost-effective medicine. Hence in the present study which was conducted during the year 2019 – 2022, *Varunadi Kashaya*[4] internally 24ml with *jala* morning and evening before food and *Amruthadhyo guggulu*[5] internally 500mg 2 tablets with *madhu* morning, afternoon and night after food were administered for 30 days.

KEYWORDS: *Sthoulya,* Obesity, *Shamana, Guggulu, Kashaya.*

OBJECTIVES OF THE STUDY

To study the effect of *Varunadi Kashaya* with *Amruthadhyo Guggulu* in *Sthoulya* vis-à-vis Obesity.

METHODOLOGY

1. Study design: An Open label, single arm study.
2. sampling technique: The subjects who fulfilled the inclusion criteria and complying with the Informed Consent were selected.
3. sample size: 30 patients diagnosed with *Sthoulya*, irrespective of gender were selected for the study.

Diagnostic criteria

Diagnosis was made based on
- *Lakshanas* of *Sthoulya*[6]
- Clinical features of Obesity
- BMI $\geq$ 25kg/m^2 to 39.9kg/m^2

Inclusion criteria

- Patients presenting with the *Lakshanas* of *Sthoulya* were selected.
- Patients diagnosed as Obesity with BMI $\geq$ 25 kg/m^2 to 39.9kg/m^2 were selected.
- Patients from 20 – 60 years of age group, irrespective of gender were selected.

Exclusion criteria

- Any systemic illness that interferes with the course of intervention were excluded.
- Pregnant women and lactating mothers were excluded.

Investigations

- Hb%
- Total Count.
- Differential Count.
- Erythrocyte Sedimentation Rate.
- Thyroid profile.
- Fasting blood sugar.
- Lipid profile.
- USG Abdomen and Pelvis.

Intervention

30 patients of *Sthoulya* vis-à-vis Obesity were selected and advised to the treatment for the duration of 30 days.

Table no. 1: Intervention.

Aushadhi	Dose	Duration	*Anupana*
Varunadi kashaya	24ml Twice daily (30 minutes Before food)	30 days	*Ushna jala*
Amruthadhyo guggulu	500mg 2tab crushed and consumed with honey TID (After food)	30 days	*Madhu*

Along with the above medications all the subjects were advised to follow *pathyapathya* and *vyayama* (brisk walk) for 30min every day.

Assessment criteria:
- The assessment was done based on Subjective and Objective Parameters of *Sthoulya.*

Subjective parameters are *Chala sphik, udara, sthana, Atikshuda, Atipipasa, Kshudra swasa, Atinidra, Swedadhikya, Kratana, Gatrasada, Daurbalya* and objective parameters was assessed on body weight, BMI, measurement of circumferences and skinfold thickness for the study. The circumferences measurements were taken using a measuring tape and skinfold thickness measurements are taken with the help of a digital caliper before and after treatment.

Assessment was done on: Pre test -1st day (Before the commencement of treatment) and Post test -31st day (After the completion of intervention)

Statistical analysis
- For the statistical analysis, the data obtained were recorded and presented in tabulations and graphs.
- For subjective parameters, Wilcoxon signed rank test was used to compare the mean rank within the group, and for objective parameters, students paired 't'-test was used to compare the mean value within the group.

OBSERVATIONS
Table no. 2: Observations.

Parameter	Category	Value	Percentage
Age	20-30yrs	13	43.33%
Gender	Female	23	76.67%
Religion	Hindu	27	97%
Marital status	Married	24	80%
Educational status	Graduate	21	70%
Socio-economic status	Middle class	16	53.33%
Occupation	Home maker	13	43.33%
Nature of work	Physically inactive	14	46.66%
Desha	*Sadharana*	30	100%
Ahara	mixed	24	80%
Addiction	No addiction	22	73.33%
Habits	coffee	14	46.67%
Nidra	Sound	12	40%
Chronicity	<2yrs	12	40%
Prakruti	*Kaphavataja*	12	40%
Sara	*Madhyama*	30	100%
Samhanana	*Avara*	16	53.33%
Sathmya	*Madhyama*	19	63.33%
Satwa	*Madhyama*	17	56.66%
Pramana	60-70kg	08	26.66%
BMI	25-29.9kg/m2	15	50%
Ahara shakti	*Madhyama*	16	53.33%
Jarana shakti	*Madhyama*	16	53.33%
Vyayama shakti	*Madhyama*	20	66.66%
Nidanas	*Vishamashana*	08	26.66%
	Adhyashana	11	36.66%
	Guru snigdha Madhura Ahara	15	50%
	Dadhisevana	13	43.33%
	Mamsa ahara sevana	14	46.67%
	Divaswapna	10	33.33%
	Bhojanottara snana- nidra sevana	05	16.66%
	Asana sukha	06	20%

	Nitya harsha	05	16.66%
	Achintya	05	16.66%
	Avyayama	13	43.33%
	Bhojanottara jalapana	14	46.66%
	Bheejadoshaja	02	6.66%
Lakshanas	*Chala spik, udara, sthana*	22	73.33%
	Atikshudha	12	40%
	Atipipasa	08	26.66%
	Kshudraswasa	19	63.33%
	Ati nidra	09	30%
	Swedadikya	10	33.33%
	Atigatra dourgandya	07	23.33%
	Krathana	08	26.66%
	Gatrasada	14	46.66%
	Dourbalya	11	36.66%

RESULTS
Effect of Intervention on Subjective Parameters
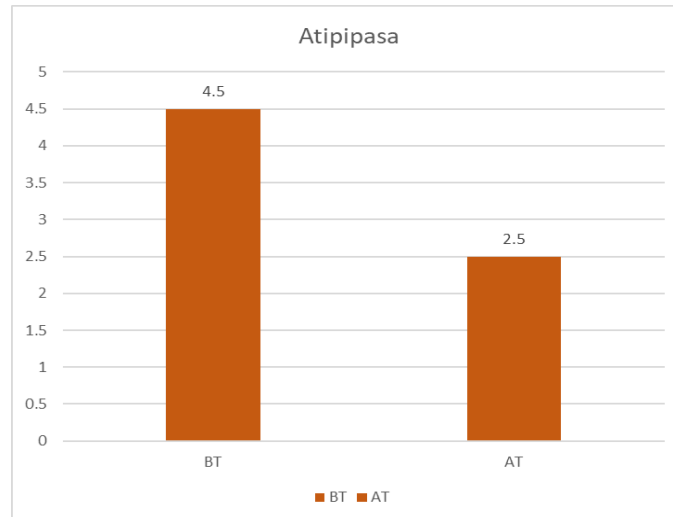a. **Chalatva of sphik-udara-sthana**
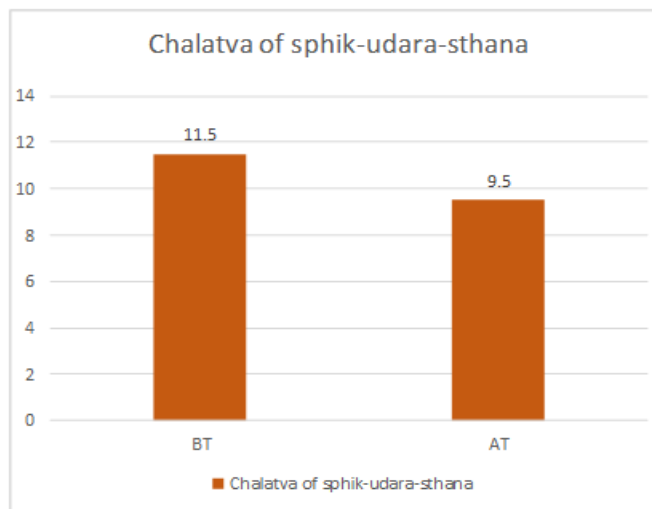
Graph no: 1: Reduction in *Chalatva* of *sphik-udara-sthana* was found statistically significant from BT-AT (Z= -2.236, p<0.05).
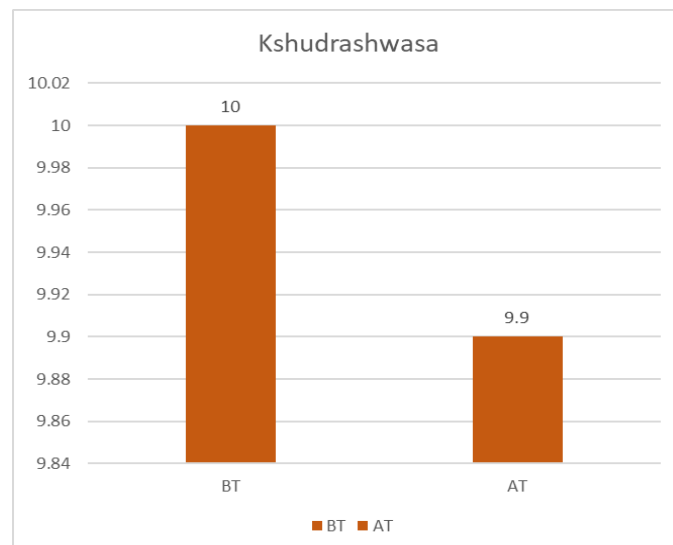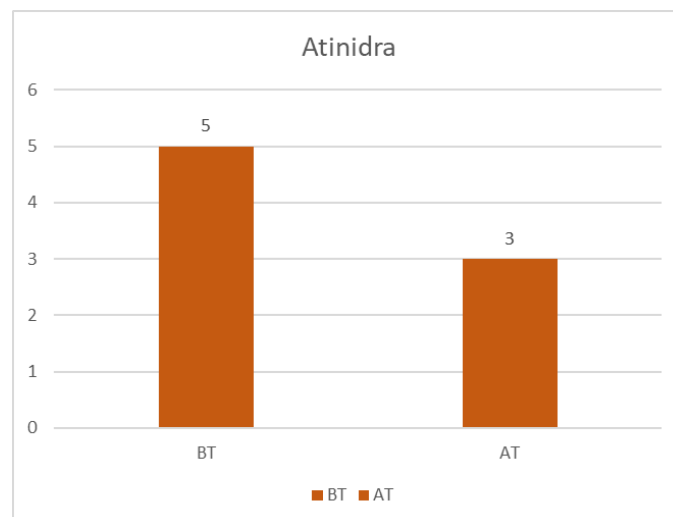
b. **Ati kshuda**
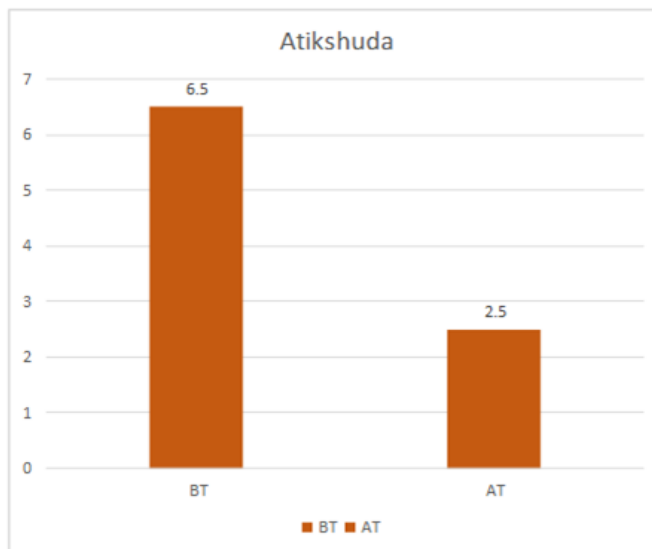
Graph no: 2: Reduction in *Atikshuda* was found statistically highly significant from BT-AT (Z= -2.71, p<0.01).

c. Atipipasa

Graph no: 3: Reduction in *Atipipasa* was found statistically significant from BT-AT (Z=-2.060, p<0.05).

d. Kshudrashwasa

Graph no: 4: Reduction in *Kshudrashwasa* was found statistically Highly significant from BT-AT (Z=-3.11, p<0.001).

e. Ati nidra

Graph no: 5: Reduction in *Atinidra* was found statistically significant from BT-AT (Z= -2.410, p < 0.05).

f. Swedadhikya
Table no: 3: Out of 30 subjects, In 28 subjects from BT to AT parameters was same which indicates no changes. As subjects are less than 5 statistics cannot be applied.
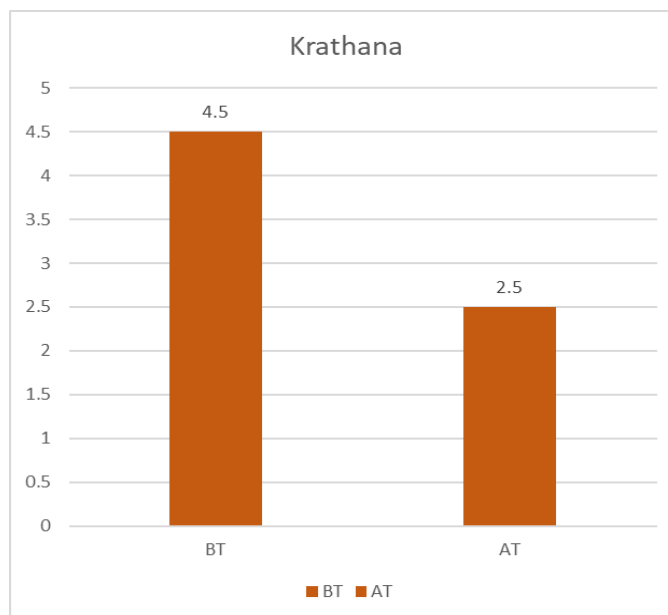
	Wilcoxon Rank	N	Sum of Rank	Mean Rank
BT-AT	NR	0	0	0
	PR	02	03	1
	Ties	28		
	Total	30		

g. Gatra dourgandhya
Table no: 4: Out of 30 subjects, In 28 subjects from BT to AT parameters was the same which indicates no changes. As subjects are less than 5 statistics cannot be applied.
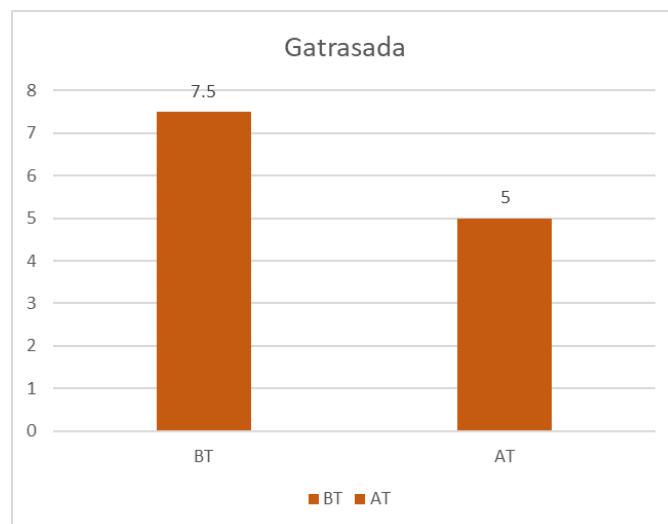
	Wilcoxon Rank	N	Sum of Rank	Mean Rank
BT-AT	NR	0	0	0
	PR	02	03	1
	Ties	28		
	Total	30		

h. Krathana

Graph no. 6: Reduction in *Krathana* was found statistically significant from BT-AT (Z= -2.060, p < 0.05).

i. Gatrasada

Graph no. 7: Reduction in *Gatrasada* was found statistically highly significant from BT-AT (Z= -2.713, p < 0.01).
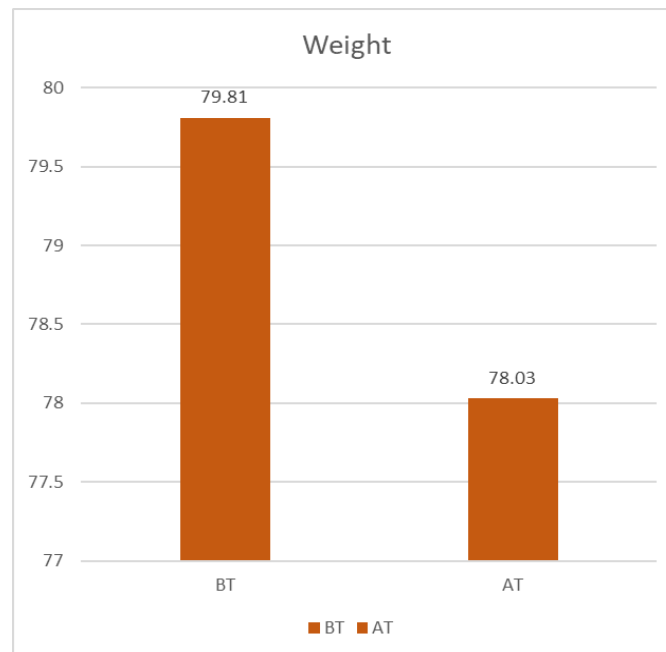
j. Dourbalya
Table no. 5: Out of 30 subjects, In 27 subjects from BT to AT parameters was same which indicates no changes. Since the number of subjects are less than 5 statistics cannot be applied.

	Wilcoxon Rank	N	Sum of Rank	Mean Rank
BT-AT	NR	0	0	0
	PR	9	45	5
	Ties	21		
	Total	30		

B) Effect of Intervention on Objective Parameters
a) Weight

Graph no: 8: Reduction in Body Weight was found statistically highly significant from BT-AT (t= 11.484, p<0.001).
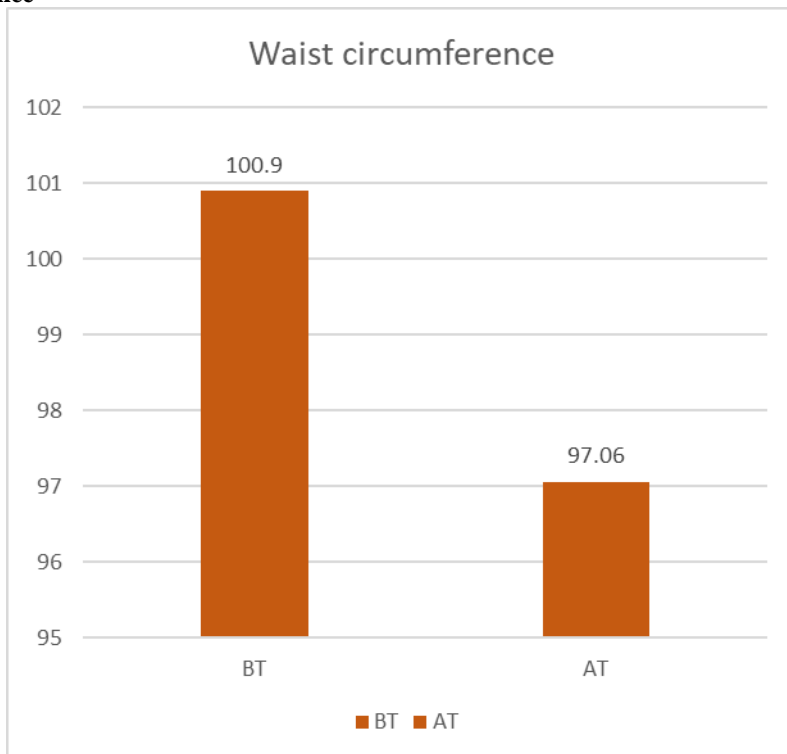
b) BMI
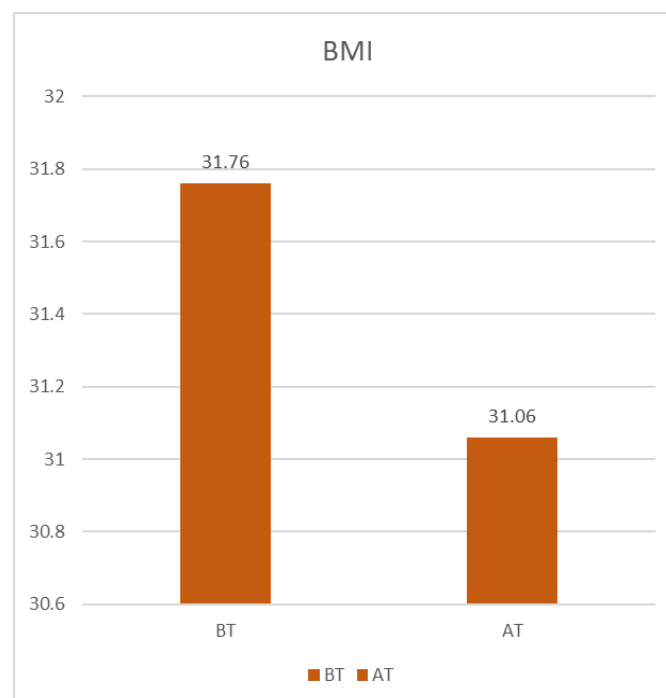
Graph no: 9: Reduction in BMI was found statistically highly significant from BT-AT (t= 10.556, p<0.001).
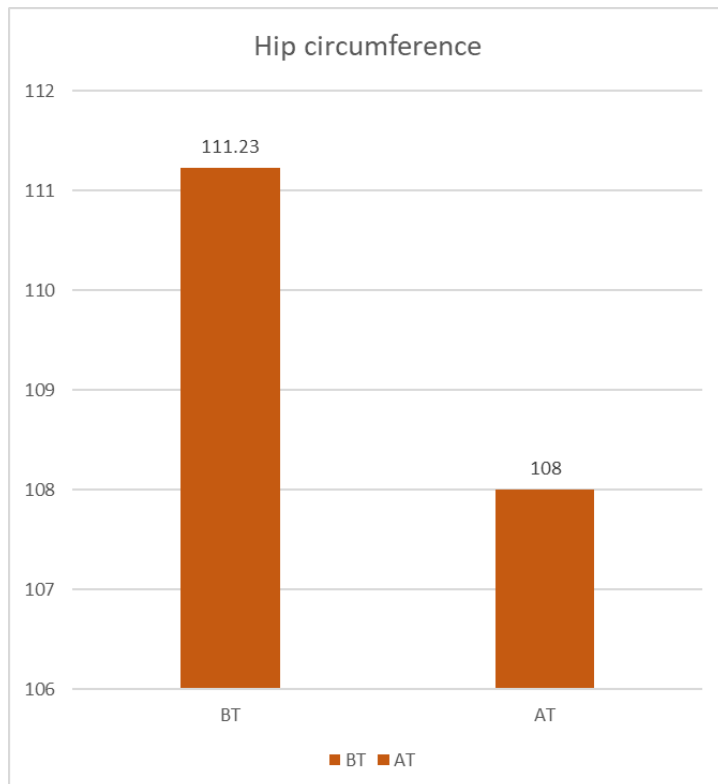
c) Chest circumference
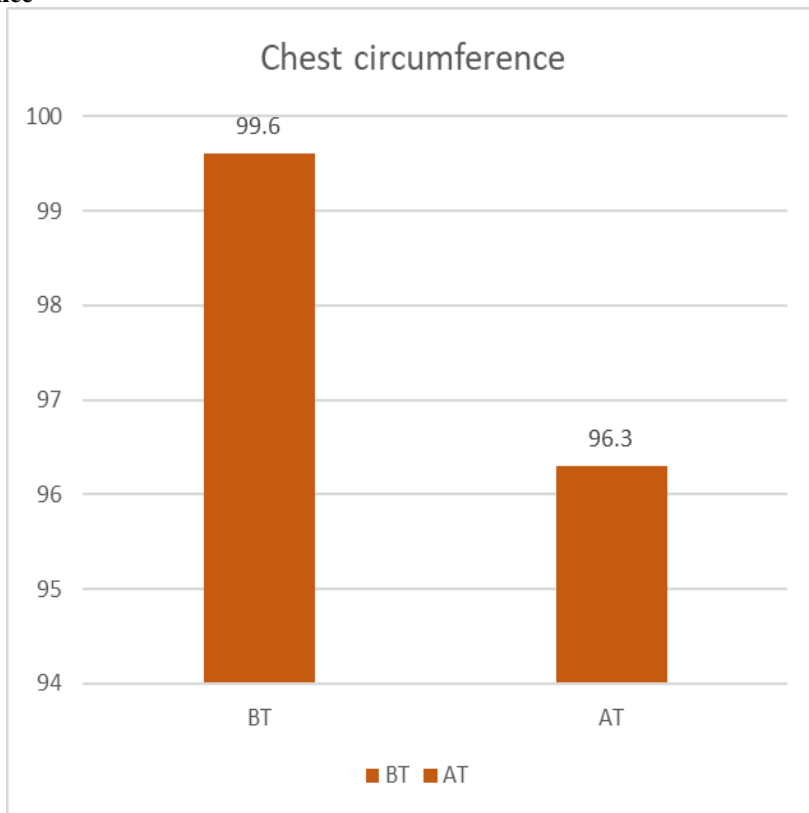
Graph no: 10: Reduction in Chest circumference was found statistically highly significant from BT-AT (t= 11.484, p<0.001).
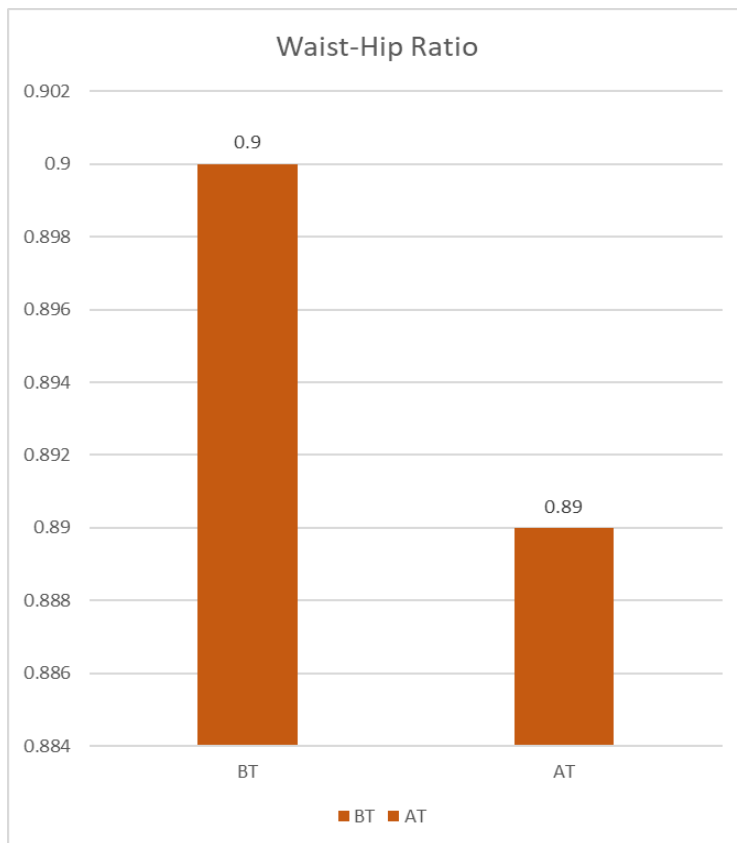
d) Waist circumference

Graph no: 11: Reduction in waist circumference was found statistically highly significant from BT-AT (t= 7.514, p<0.001).
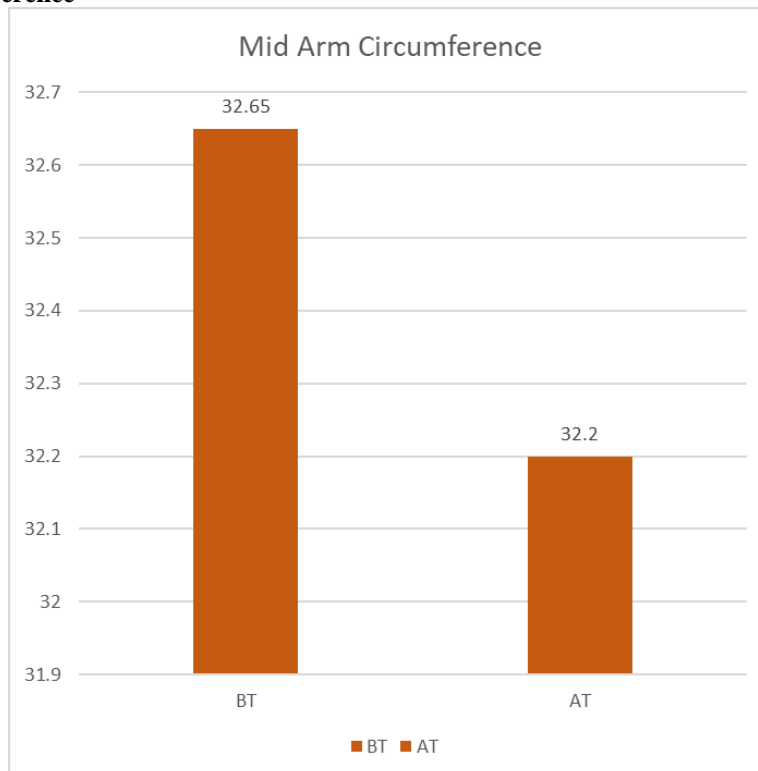
e) **Hip circumference**

Graph no. 12: Reduction in Hip circumference was found statistically highly significant from BT-AT (t= 6.525, p<0.001).
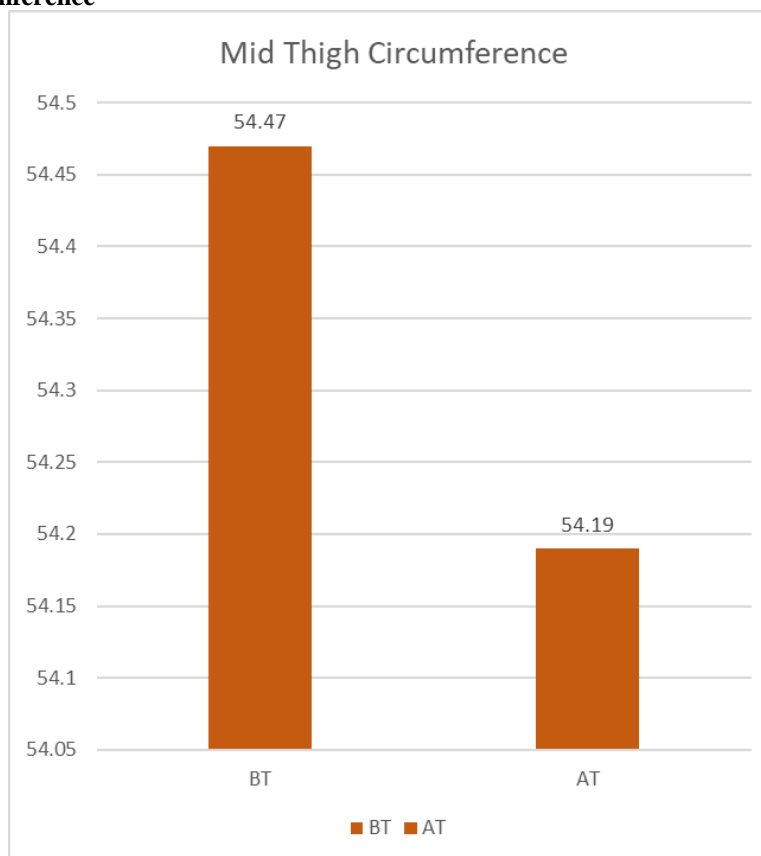
f) **Waist – hip ratio**

Graph no: 13: Reduction in waist-hip ratio was found statistically highly significant from BT-AT (t= 5.253, p<0.001).

g)   **Mid Arm circumference**

Graph no. 14: Reduction in Mid Arm circumference was found statistically highly significant from BT-AT (t= 7.894, p<0.001).
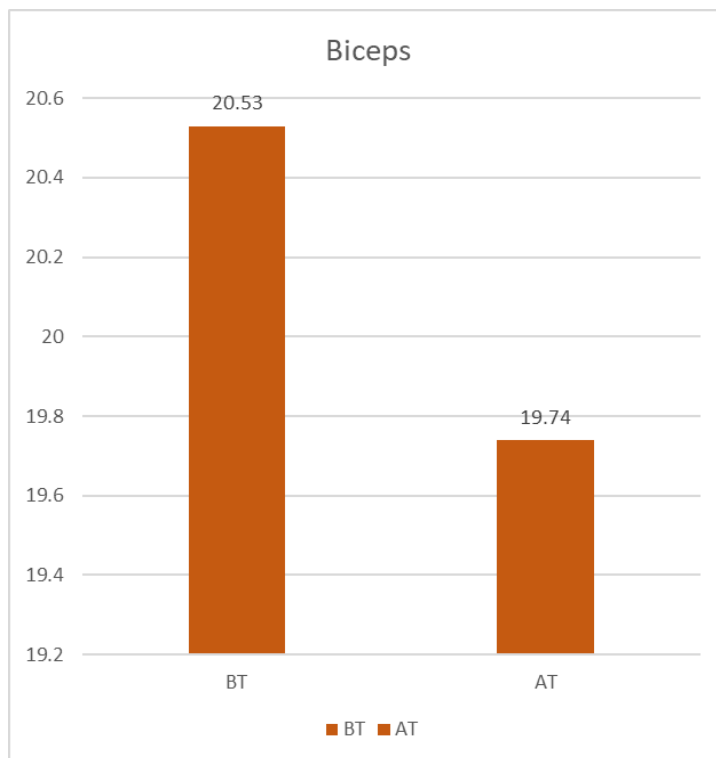
h)   **Mid-Thigh circumference**

Graph no: 15: Reduction in Mid-Thigh circumference was found statistically highly significant from BT-AT (t= 3.812, p<0.001).
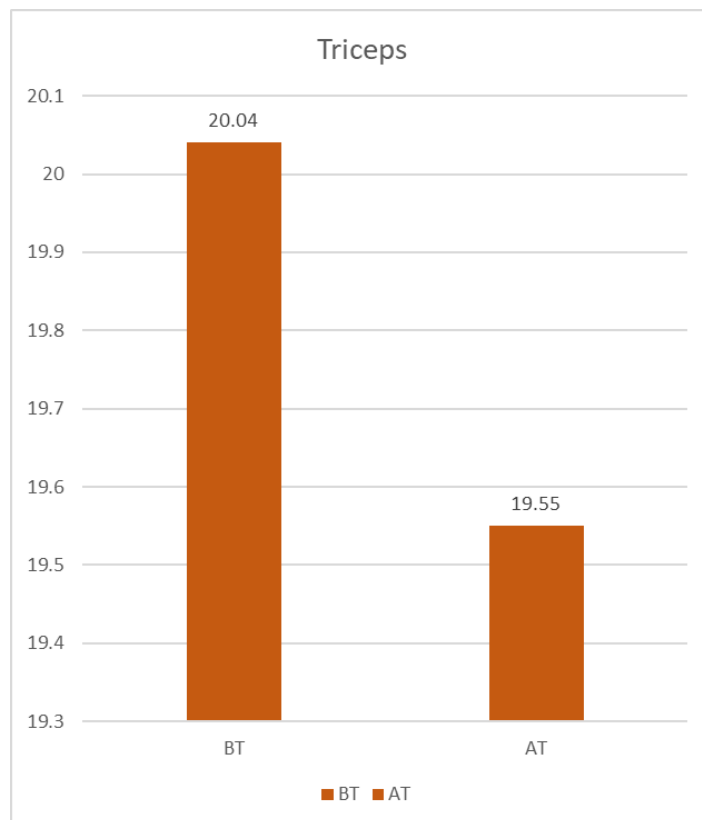
C) Effects of treatment on skin fold thickness
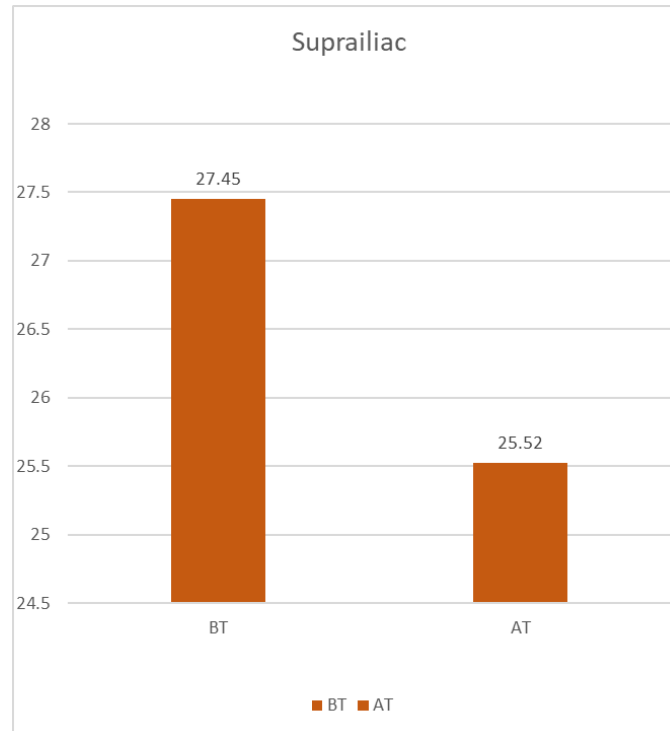**a) Biceps**

Graph no: 16: Reduction in Biceps skinfold thickness was found statistically highly significant from BT-AT (t=8.342, p<0.001).

b) Triceps

Graph no: 17: Reduction in Triceps Skinfold thickness was found statistically highly significant from BT-AT (t= 7.077, p<0.001).

c) **Suprailiac**

Graph no: 18: Reduction in Suprailiac was found statistically highly significant from BT-AT (t=5.485, p<0.001).

DISCUSSION

Sthoulya is *kapha pradhana vyadhi*. Drugs like *Triphala, guduchi, guggulu, shigru, jaya* due to their *ushna veerya* encounters the *kaphavata dosha*. Majority of the drugs possess *katu, tikta* and *Kashaya rasa* where *katu rasa* has *deepana, Sneha-kleda-sweda- abhishyandinashaka, kaphashamaka* and *srotoshodaka* properties. Since *katu rasa* is predominance of *vayu* and *agni mahabhoota* which is exactly opposite to *kapha* it helps in reducing excessive deposition of *meda*. Even *Tikta rasa* possess *deepana, pachana, chedana, shodana, lekhana, kleda-meda-sweda shoshana karma* which is a combination of *vayu* and *akasha mahaboota* exactly opposite to *kapha* qualities, hence causes *rookshata* and *laghuta* in the body there by reduces the excessive *vriddi* of *medodhatu*. As effective *chikitsa* includes *ahara, vihara* and *oushada* in the current study along with oral medication all the subjects were advised to adhere to *pathyapathya* and brisk walk for 30 min every day.

As *Ahara* is *mahabhaishajya* when consumed properly with the *pathyas* specific to that disease provides proper nourishment to the body. Here in this study we advised patients to follow certain do's and don't's with respect to *ahara* and *vihara*. As *vyayama* brings the *laghuta* in the *shareera*, does *meda kshaya* and *vibhaktaghana gatratwam* hence helpful in reduction of weight and other symptoms related to *sthoulya*

In the above formulations, majority of drugs possess *katu, tikta, Kashaya rasa, laghu, rooksha, sookshma guna, ushna veerya, katu vipaka, kapha-vatahara, medohara, lekhana, chedhana, deepana, pachana*

properties with the predominance of *Vayu, akasha* and *agni mahaboota* which acts as antagonist to *kapha dosha* as it is *kapha pradhana vyadhi.*

Due to its *samana guna* it also reduces the *medas (abadda)* which is *visheshataha* getting increased in *sthoulya* and relieves the *srotodushti* caused by the *ama.* In *sthoulya* both the *jataragni* and *dhatwagni* is hampered which results in the formation of *ama.* Due to *deepana* and *pachana* effect of the drugs it is helpful in correcting the *agni* at *dhatwagni* level (cellular level) by increasing BMR intern helpful in *amapachana* thereby reducing the excess accumulation of *meda* by correcting rasa *dushti*. Once the formation of *prakruta* rasa *dhatu* corrected *uttarottaradhatu poshana* is well achieved leading to the formation of qualitative increase in the *Teja* of all the *sapta dhatus* i.e *ojas*. Once proper *ojas* is formed it gives the *bala* to the *sthula purasha* and helps to combat the Lakshana of *sthoulya* by increasing the quality of life.

CONCLUSION

Sthoulya is a *santarpanotha vyadhi, rasanimmitaja vyadhi* and *shleshma nanatmaja vyadhi* with *kapha* as the main *dosha* and *meda* as the main *dushya* which does the *srotoavarodha* due to vitiation of *medodhatvagni* causes *Avarana* of the *vata* which is the underlying pathology of *sthoulya*.

In this study *Varunadi Kashaya* which is explained in Ashtanga Hrudaya and *Amruthadhyo Guggulu* with *madhu* as *anupana* explained in *Bhaishajya Ratnawali*

and *chakradatta* was planned as an intervention to administer together orally for 30days.

In the present study maximum subjects were overweight belonging to the age group of 20-30years, Married, Hindu, Middle class, Females who are graduates, consume a mixed diet with chronicity less than 2years belonging to *Kapha-vataja prakruti, avara samhanana, madhyama sara, satmya* and *satwa* along with *madhyama abhyavarana* and *jarana shakti* and *madhyama vyayama shakti*.

The administration of *Varunadi Kashaya* and *Amruthadhyo Guggulu* with *madhu* as *anupana* possess *laghu, ruksha guna, tikta – katu rasa, ushna veerya, deepana, pachana, lekhana, chedhana, kaphahara* and *medohara* properties which does the *samprapti vighatana* because of combined *samskara* and *samyoga* of *dravyas* hence helpful in reducing the *lakshanas* of *sthoulya* with its *dravya Prabhava.* During the study the trial drugs have not shown any adverse drug reactions and To calculate the results the subjective parameters were subjected to Wilcoxon signed rank test and objective parameters were subjected to Student's paired 't' test to compare the mean values. These tests were applied at different time points like before treatment (BT) and after treatment (AT).

The subjective parameters like *Atikshuda, Kshudra Shwasa* and *Gatrasada* showed statistically highly significant result from BT-AT whereas *chalatva* of *sphik, sthana* and *udara, Ati pipasa, Ati Nidra* and *Krathana* showed the result as statistically significant from BT-AT. And In all the objective parameters Statistically highly significant results were noted from BT-AT in this study.

Hence following alternate hypothesis can be accepted that there is a significant effect of *Varunadi Kashaya* with *Amruthadhyo Guggulu* in reducing *Sthoulya* vis-à-vis obesity.

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