Randomised open controlled study of efficacy of *Ashtang hridayokt "Vachadi gana"* on *Atisthaulya* W. S. R. to Obesity

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Abstract:

In all over the world prevalence of obesity and overweight has been increased rapidly in recent decades, same was 6.4% in women and 3.2%in men in 1975, which is now 14.9%and 10.8%resp. in 2014. As a result of this, 39%of global adult population was obese or overweight, also there is alarming sign of increase in child obesity rate. It can be largely preventable by healthy food habits and physical activity. Nothing can beat Ayurveda in prevention of diseases by following Dincharya and Rutucharya.

Also, with the help of Ayurvedic principles and Ayurvedic medicines, obesity or overweight can be controlled and one can get the quality of life. So in this article, Efficacy of Ayurvedic group of medicines i.e. "Vachadi gana" described in famous samhita "Ashtang Hriday" is studied in obese patients. This was randomised, open, controlled study.

Key Words: Obesity, Ayurveda, vachadi Gana, Atisthaulya

Introduction:

Nowadays, every person is running after life"s goal hence does not have time to think and act for a healthy life and not able to follow the proper Dincharya, Ritucharya, Dietetics rules and regulations. Due to artificial living lifestyle, people suffer many disorders called lifestyle related disorders. Obesity is one of them and has gotten attention of the scientists as it is traced to be risk factors in many diseases which are described as "killer diseases of millennium", such as IHD, D.M, Hypertension.

In Ayurveda Sthaulya has been described since very early days in various Samhitas, Sangraha granthas, Nighantu, etc.

Acharya charak has thrown light on the eight varieties of impediments which are designated as Nindita Purusha, (Ch. Su. 21) Ati Sthaulya comprises one of them and Samtarpanajanita roga (Ch. Su. 23).

A definition of Swastha Purusha as given by cha.su 21/18-19 and Su.su15/41,[(2)] A healthy body is the only one media to achieve ultimate goal among the Chaturvidh Purushartha. Acharya sushrut also said that Madhyam sharir is the best But Atisthula and Atikrisha are always affected with some complaints.

Acharya charaka has quoted a staulya under the eight varieties of important which designated as Astaunindita purusha, Atisthaulya comprises one of them. In Atisthaulya, due to heavy, oily, sweet diet with bad dietary habits as well as due to lack of activity, sedentary lifestyle, the diet could not digest properly. It diorites digestive fire and produces Aam, which mixes with Ahar rasa and only increases body fat i.e. Meda Dhatu which is Apachit means indigested. It vitiates Vata which increases hunger and vitiates Kaph also which blocks other channels. And all Dhatus converted and deposited as Med Dhatu i.e fat.

In pathogenesis of Sthaulya, kapha (kledak), vata (saman and vyana), medo dhatu (fats, lipid), medodhatwagni mandyata are main responsible factors. So in this study, tikta rasapradhan drugs in compound formulation of vachadi Gana has been selected. As vati is more palatable than churn, vati preparation has been decided. All contents from Vachadi Gana are readily available, cost effective and comparatively more digestible than guggulu containing tablets in market.

Aim & Objectives

1. To evaluate the effect of Vachadi gana Churn vati in atisthaulya.
2. To evaluate the effect of Medohar Guggulu in atistaulya.
3. To evaluate and Compare the changes in weight, BMI due to Vachadi Gana Churna Vati and Medohar guggulu
4. To review literature of atisthaulya, obesity & detail review of Vachadi Gana.

Materials & Methods:

1. Brihattrayi and Laghutrayi.
2. Other available Ayurvedic books.
3. Modern books.
4. Total no. of patients - 60.
5. Literature available on official web sites regarding Obesity.

Methods:

Inclusion Criteria:

1. Random selection of patients.
2. Age between 18 to 60 years.
3. Patient with B.M.I in between 25-30kg/m2
4. Both sexes included.
5. Able and willing to give written informed consent.

Exclusion Criteria:

1. Patients suffering from any disease
2. Patients with the age below 18 and above 60
3. Patient with the BMI below 25
4. Pregnancy
5. Lactating Mother
6. Obesity due to Hormonal Imbalance
7. Secondary obesity due to Hypothyroidism, D.M. Hereditary
8. Obesity with complications

Investigations:

1. CBC with ESR
2. BSL fasting & postprandial

Methods of drug administration:

A) Trial Group:

a) Drug –

Vachadi Gana (Ah.Hr.su.15/35).[3] contains[4]

1. ***Vacha***- Tikt, katu ras, Katu Vipak, Ushn veerya. Laghu, Ruksh, Tikshna Gunass
2. ***Musta***- Katu, Tikt, Kashay Ras, Katu Vipak, Sheet veerya, Laghu Ruksh Gunass
3. ***Devdaru***- Tikt Ras, Katu Vipak, Ushn Virya, Laghu Gunas
4. ***Shunthi***- Katu ras, Madhur Vipak, Ushn Virya, Laghu Gunas
5. ***Ativisha***- Tikt, Katu Ras, Katu Vipak, Ushn Virya, Laghu, Ruksh Gunass
6. ***Abhaya***- Pancharsa except lavan, Madhur Vipak, Ushn Virya, Tridoshgna, laghu Ruksh Gunass.

b) Method of drug preparation –

Vachadi Gana was administerd in the form of churna vati as vati is more palatable than churna.

The churn vati was made by giving bhavana of vachadi gana kwath to churna of this Gana. It was made by Yugandhar Pharmacy, Nashik as per guidelines in Sharangdhar Samhita.

c) Dose- churn vati dose -2 tab (1tab=500mg)

d) Sevankala- Pragbhakt (before Meal)

e) Anupana- koshna Jala

f) Duration- 8 weeks

g) Diet- All Pathyakar ahar vihar mentioned in Obesity.

h) Follow up -

1. Symptomatic improvement, after 4 week.
2. Lab Investigations done before treatment.

B) Control Group:

a) Drug: Medohar Guggul; Referance: Bhavprakasha also called as Navak guggul.[5,6]

Contents-

Triphala- Haritaki, Bibhitaki, Amalaki.[4]

Trikatu- Sunthi, Marich, Pippali

Trimad- Musta, Chitrak, Vidanga.

Guggulu (Shuddha)

As some contents are common in both medicines, Properties here described are of non similar dravyas:[4]

Bibhitak- Kashay Ras, Madhur Vipak, Ushn Virya with Ruksh, Guru Gunass.

Amalaki- Lavanvarjit 5 Rasas, Sheet viry, Madhur Vipak, Laghu, Ruksh, Rasayan Gunas.

Marich- Katu Ras Katu Vipak, Ushn viry, Laghu Teekshn, Pramathi Gunas

Pippali(Shushk)- Katu Ras, Madhur Vipak, Anushn Viry, Laghu, Tikshn, Snigdha Gunas

Vidang- Katu Ras, Katu Vipak, Ushn viry, Laghu, Ruksh, Tikshn, Krumihar.

Guggul(Puran) (Shodhit)- Katu, Tikt, Kashay Ras, Katu Vipak, Ruksh, Sar, Tikshn, Vishad Sukshm

b) Dose, Sevankal, Anupan, Duration Diet and follow up were as per Trial group.

Case Record Form– Record & follow up of all patients was documented & mentioned in case record forms.

Clinical examination– Complete clinical examination done from the point of view of obesity to diagnose & assess the condition of a patient.

Criteria of Assessment– Assessment of patients was done subjectively as well as objectively.

Subjective– Symptoms of obesity plus Symptoms of atisthaulya mentioned in the text or practically observed are assessed at each follow up. Presence or absence of these symptoms were registered. Different symptoms were graded into four grade scales (0-4) on the basis of severity to assess

the changes in clinical symptoms of atistyhaulya. Study of changes in gradation of each symptom was done before and after treatment

Gradations of practically observed symptoms:

- **Subjective Parameters:**

Gradation of symptoms was done as follows:

1)	**Chala Sphika Udara Stana**		**W0**	**W4**	**W8**
a)	Absence of Chalatwa	0			
b)	Little visible movement after fast movement	1			
c)	Little visible movement after moderate movement	2			
d)	Movement after mild movement	3			
e)	Movement even after changing posture	4			

2)	**Deficient energy (Ayatha upachaya utsaaha)**[1]		**W0**	**W4**	**W8**
a)	No Deficient of energy	0			
b)	Doing work satisfactory with initiation late in time	1			
c)	Doing work unsatisfactory with lot of mental pressure & late in time	2			
d)	Not starting any work in his own responsibility, doing little work very slow	3			
e)	Does not have any initiation & not wants to work even after pressure	4			

3)	**Javoprodh (Hampered movement)**		**W0**	**W4**	**W8**
a)	No heaviness in body	0			
b)	Feels heaviness in body but it does not hamper routine work	1			
c)	Feels heaviness in body which hamper daily routine work	2			
d)	Feels heaviness in body which hamper movement of the body	3			
e)	Feels heaviness with flabbiness in all over body which cause distress to the person	4			

4)	**Daurbalyata (Debility)**		**W0**	**W4**	**W8**
a)	Can do routine exercise	0			
b)	Can do moderate exercise without difficulty	1			
c)	Can do only mild exercise	2			
d)	Can do only mild exercise with very difficult	3			
e)	Can do even mild exercise	4			

5)	**Daurgandhata (Foul smell)**		**W0**	**W4**	**W8**
a)	Absence of bad smell	0			
b)	Occasionally bad smell limited to close areas difficult to suppress With deodorants	1			
c)	Persistent bad smell felt from long distance is not suppressed by Deodorants	2			
d)	Persistent bad smell felt from long distance even Intolerable to the Patient himself	3			

6)	**Swedadhikya (Over sweating)**		**W0**	**W4**	**W8**
a)	Sweating after heavy work	0			
b)	Sweating after little work	1			
c)	Profuse sweating after heavy work	2			
d)	Profuse sweating after minimal work	3			
e)	Sweating even in resting condition	4			

7)	Atikshuda (Too much hunger)		W0	W4	W8
a)	Unwilling for food but could take the meal	0			
b)	Willing towards only most liking food & not to others	1			
c)	Willing towards only one among Katu/ Amla / Madhura food stuffs	2			
d)	Willing towards some specific Ahara / Rasa Vishesa	3			
e)	Equal willing towards all the Bhojjaya padartha	4			

8)	Atipipasa (Excessive thirst)		W0	W4	W8
a)	Normal thirst	0			
b)	Up to 1 lit excess intake of water	1			
c)	1 to 2 lit excess intake of water	2			
d)	2 to 3 lit excess intake of water	3			
e)	More than 3 lit intake of water	4			

- **Objective Parameters:** [7, 8]

9)	Body Mass Index	W0	W4	W8
10)	Gross Body Weight	W0	W4	W8
11)	Chest circumference	W0	W4	W8
11)	Waist circumference	W0	W4	W8

Observations And Results:

1. Atisthaulya and Obesity were correlated by its symptoms, etiological factors and upto some level its pathogenesis. So effects of Vachadi Gana were seen in symptoms of Atisthaulya and Obesity.
2. Majority Patients were from the age group 30-50yrs.
3. There was more number of Females than Male.Females are more prone to obesity due to feminine factor like menopause and aggravating factors like delivery, I.U.C.D., oral contraceptive pills, miscarriage.
4. Most of the Patients were from middle and Upper Middle Class.
5. Incidance of family History of Ati sthaulya was observed in 20%. While no such history wasnoted 80%.
6. Most of the patients (76.66%) has mixed- diet Habit.
7. Most of the patients work was of sedentary type causing Ayisthaulya.
8. Most of the Patients were preferably fond of Vihar like Asyasukh, Swapnasukh, Chankramandwesha.
9. Most of the Patients are of Kapha predominant prakriti.
10. All patients were residing at Anup Desha for a longer period.
11. Meda, Mansa Dhatudushti was seen markedly in all the patients.
12. Medovaha, Mansavah, Udakvaha & Swedavaha Srotasas were vitiated remarkably in all the patients.

Table No. 1: Showing effect on Symptoms Score of 60 Patients of Atisthaulya i.e. Obesity

Sr. No.	Symptoms	Group A				Group B			
		BT	AT	DIFF	% RELIEF	BT	AT	DIFF	% RELIEF
1	Ayatha upachay utsah	70	28	42	60	65	29	36	55.38
2	Javoparodha	54	25	29	53.7	62	31	31	50
3	Daurbalya	55	22	33	60	55	27	28	50.91
4	Daurgandhya	47	18	29	61.7	56	20	36	64.29
5	Swedadhikya	64	22	42	65.63	60	23	37	61.67
6	Atiksudha	63	23	40	63.49	54	20	34	62.96
7	Atipipasa	55	20	35	63.64	52	18	34	65.38
	Average score	58.2	22.5	35.7	61.27	50.2	24	33.7	57.4

13. Effect of therapy on symptoms score:
It was observed that overall % of relief was more in Group A(61.27%) than in Group B (57.39%).All the symptoms were studied in this series as described in table.

Table No. 2: Showing Comparison between two groups with respect to symptoms score by Mann- Whitney Test

Sr. No.	Parameter	Mean±Sd	SE	U	U	P value
	Ayatha upachay utsah					
1.	Group A	0.90±0.71	0.13	427.50	472.50	P>0.05
	Group B	0.96±0.718	0.1312			
	Javoparodha					
2.	Group A	0.96±0.72	0.1312	405.5	494.5	P>0.05
	Group B	1.10±0.76	0.1385			
	Daurbalya					
3.	Group A	0.67±0.80	0.146	366	534	P>0.05
	Group B	0.90±0.76	0.138			
	Daurgandhya					
4.	Group A	0.60±0.62	0.11	434	466	P>0.05
	Group B	0.67±0.71	0.12			
	Swedadhikya					
5.	Group A	0.77±0.73	0.132	441	459	P>0.05
	Group B	0.73±0.69	0.126			
	Atikshudha					
6.	Group A	0.70±0.65	0.118	436	463	P>0.05
	Group B	0.66±0.66	0.120			
	Atipipasa					
7.	Group A	0.57±0.63	0.114	436	464	P>0.05
	Group B	0.60±0.62	0.113			

Comparison between two groups with respect to Symptoms score by Mann-Whitney Test:

This was done applying Mann-Whitney Test. There was not Significant difference found between Group A and Group B i.e. the therapy used for Group A was equally effective as in therapy used in Group B

Table No. 3: Showing comparison between two groups of Quantitative data by unpaired „t" test

Sr. No.	Parameter	Mean±Sd	SE	T value	P value
	Weight				
1	Group A	65.417±6.53	1.19	2.250	P<0.05
	Group B	69.233±6.61	1.20		
	BMI				
2	Group A	26.064±1.4	0.26	0.6789	P>0.05
	Group B	25.73±2.306	0.42		
	Chest Circumference				
3	Group A	86.367±2.55	0.466	0.10	P>0.05
	Group B	86.30±2.56	0.468		
	Waist Circumference				
4	Group A	91.55±3.68	0.69	2.145	P<0.05
	Group B	93.55±3.54	0.64		

Comparison between the groups by Unpaired t Test:

Weight:

Mean of difference in Group A was 65.417±6.53 which was compared with that of mean of difference in group B. It was 69.233±6.61. Unpaired t was 2.250; P < 0.05 which suggests that difference of mean exhib- ited by Control group was significant.

BMI:

Mean of difference in Group A was 26.064± 1.40which was compared with that of mean of difference in group B. It was 25.73±2.305. Un- paired t was 0.6789; P > 0.05 which suggests that difference of mean exhibited by Control group was insignificant.

Chest circumference:

Mean of difference in Group A was 86.367±2.55 was compared with that of mean of difference in group B. It was 86.30±2.56. Un- paired t was 0.10; P > 0.05 which suggests that difference of mean exhibited by Control group was insignificant.

Waist circumference:

Mean of difference in Group A was 91.55±3.68which was compared with that of mean of difference in group B. It was 93.55±3.54 Unpaired t was 2.145; P < 0.05 which suggests that difference of mean exhib- ited by Control group was significant.

Table No. 4: Showing effect of therapy in 60 patients of Atisthaulya

Sr. No.	Total Effect of therapy	Group A		Group B		Total	
		No. of patients	%	No. of patients	%	No. of patients	%
1	Cured	0	0	0	0	0	0
2	Markedly Improved	3	10%	1	3.33	4	6.66
3	Improved	26	86.66%	24	80	50	83.33
4	Unchanged	1	3.33%	05	16.67	06	10

Total effect of therapy:

In case of Group A 26 patients (86.66%) were improved, 3 patients (10%) were markedly improved, 1 patients (3.33%) remained unchanged.

In case of Group B, 1 patient(3.33%) was Markedly improved,24 patients (80%) were improved,5 patients (16.67%) patients remained Unchanged.

Discussion:

Conceptual Discussion:

Correlation of Atisthaulya and Obesity:

Table No. 5: Showing Correlation of Atisthaulya and Obesity

	Atisthaulya	Obesity
Etiological factors	Medyanam-Atisevana	Intake of high fat diet
	Avyayama	Lack of exercise
	Divaswapna and Achintana	Sedentary life style
	Ativaruni Sevana	Excessive intake of alcohol
	Bija-Swabhava	Genetic predisposition
Clinical Features	Sphika –Stana- Udara lambanam	Excessive deposition of fat in abdomen, waist, buttocks and breast.
	Sphika –Stana- Udara lambanam	Exertional dyspnoea
Management	Yav etc Kshudra dhanya sevan whichreduces Meda.	Low fat diet
	Medohara Dravyas	Antiobesity Drugs
	Prajagara, Vyayama	Exercise
Complications	Vikaran Darunan Kritwa Nashayanti aashu Jivitam	HTN, DM, Cardiovascular diseases,Increased Risk of CA which shortens the lifespan.
Samprapti	Kaphakar, Guru Ahar & Asyasukh, swapnsukh leads to vitiation of Meda along with Kapha resulting in quqntitative increase in Meda(Charak). Agnimandya is also a main factor which produces Aam rasa(Sushrut) and it is analogous to Meda, so this Ahar rasa continuously arrive through channels of the same dhatu resulting in exaggeration of that Dhatu(As. Sangrah Indu Tika). This exaggerated Apachit Medodhatu gives chalatwa or pendulous shape to sphik(Hip region), Udara (Abdomen) and Stana (Breasts).	In Obesity, consumption of Atherogenic diet is a risk factor for its development. Excessive intake of Carbohydrates and lack of exercise reduces metabolic activities in the body. So energy expenditure is no longer in equilibrium with daily energy intake. This accelerates fat deposition as there is no oxidation of glucose in body. This deposition mainly occurs over abdomen, hip region, cheeks and rest all over the body.

From the above table, it clearly shows that Atisthaulya can be correlated with obesity by comparing not only clinical features but also management, risk factors and upto some level its pathogenesis.

So a study was undertaken on the symptoms of Atisthaulya and Obesity. Results were obtained which are discussed in the next part of discussion called discussion on clinical work.

2. Overall Effect of Therapies

Total effect of therapy has been evaluated in terms of cured, markedly improved, improved and unchanged .In case of Group A Patients 26 (86.67%)were improved, patients 3(10%) were Markedly improved, 1(3.33%)patients remain unchanged & No one patient was cured completely. In case of Group B, 24(80%) Patients were improved, One patient(3.33%) was Markedly improved, 5(16.66%) patients remain unchanged.

3. Comparative Effect of Therapy

Comparison between two Groups was statistically evaluated It is suggested that there is not significant difference between two groups with respect to total effect of therapy.This shows that Vachadi Gana and Medohar Guggulu are equally effective in relieving symptoms of Atisthaulya i.e Obesity Dosha Dushti Lakshna, SrotoDushti Lakshna and on objective parameters i.e. Weight and waist Circumference, it is found that Vachadi gana is more effective than Medohar Guggul. So administration of vachadi gana in patients who are not compatible with guggul will be helpful. But it is not perfect master treatment to cure obesity in 8 weeks. Longer duration assessment is required for that. But Vachadi Gana oral administration along with Aharkalpana and Vyayam definitely give us hope in the Management of Atisthaulya i.e. Obesity.

Conclusion:

Study entitled "Randomised open controlled study of efficacy of ashtang hridayokt "vachadi gana" on atisthaulya w.s.r.to obesity" was undertaken. At the end of the study, following points concluded on the basis of Observations made in the form of tables & graphs and minutely discussed in the previous chapters, following conclusions are drawn.

1. Vachadi Gana showed significant results in symptoms of Atisthaulya.As comparison was done between two groups by Man-whitney Test, Vachadi gana showed more effective on symptoms like Daurbalya, Daurgandhya, Swedadhikya, Atipipasa, Atikshudha and on parameters like weight and waist circumference, it showed more effective results than control group.
2. As Vachadi Gana contains Katu Vipaki and Tikt Katu Rasatmak Dravyas, having Lekhan, Aampachan and Agnideepan property, it showed Better results in Ayatha upachay Utsah and Javoparodha.
3. Vachadi Gana was more effective on patients who were incompatable with Guggul.
4. Side effects like indigestion of Guggul and excretion of it as it is through fasces was not found in group A as it was containing only Churnas of kashthaushadhi.
5. In case of Group A Patients 26(86.67%) were improved, patients 3(10%) were Markedly improved, 1(3.33%) patients remained unchanged & No one patient was cured completely. In the case of Group B, 24 (3.33%)Patients were improved, 1 patient was Markedly improved,5(16.67%) patients remained unchanged.
6. No any serious side effects or adverse reactions were found during study.

Though this is not a detailed study in the field of Ayurveda & Obesity, it has been carried out sincerely on its level. The results of this work are encouraging. The efficacy of this drug can be evaluated further along with Ahar kalpana with larger sample size & prolonged duration of treatment in future.

Source of Support: Nil

Conflict of Interest: Nil

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