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RESEARCH ARTICLE

CLINICAL STUDY TO EVALUATE THE EFFICACY OF VACHAHARIDRADI GANA AS UDVARTANA IN STHOULYA WSR TO OBESITY

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ABSTRACT

Ayurveda is one of the primeval medical science among the world. It narrates conceptual study of different diseases with reference to its principles and postulates. *Sthoulya* (Obesity) is described by different *acharyas* in the classics, whereas *Charakacharya* acknowledged *Sthoulya* as "*Astau Nindita Purusha*" and one of "*Santarpana Janya Vikaras*". *Charakacharya* while enlisting *Astau ninditha Purusha* he emphasized in detail regarding *Atisthoola* and *Atikrushi*, wherein *Atisthoola* being considered to be hardship among them due to its *Samprapti*, *Bahudoshavastha*, complications and longstanding therapy. *Sthoulya* is such a disease where it's becoming stepping stone for many hazardous like DM, HTN, Ischaemic disease and Psychological disorders. The mortality and morbidity rates are high in the obese people. *Ayurveda Chikitsa* greatly emphasize on removal of *Nidana* of the diseases and restoration of *Doshic* equilibrium. There are two chief segments in *Ayurveda Shodhana* Therapy viz. *Bahya* and *Abhyantara*. *Abhyantara Shodhana* includes *Panchakarma*, whereas *Udvartana* is included under *Bahyashodhana*. *Udvartana* being suggested remedy for *Sthoulya* and have good efficacy over *Sthoulya*, so chosen for present study. Hence an attempt was made to assess the efficacy of *Vachaharidradi Gana* as *Udvartana* in *Sthoulya*. It's an open randomised clinical study with the pretest and post-test designs, where minimum of 30 patients suffering from *Sthoulya* were selected and executed for clinical trials. There were significant changes seen in the parameters like BMI, Body Circumference, Weight.

INTRODUCTION

Obesity is a global epidemic resulting from a complex variety of social, behavioral, cultural, environmental, physiological and genetic factors. Thus sedentary lifestyles, improved socio-economic conditions and availability of processed, high calorie foods and soft drinks in industrialized societies are considered the prime ones. Though identified recently as an emerging disease, *Ayurveda* has mentioned Obesity under *Sthoulya* in a very lucid way of contemporary relevance many centuries ago. Obesity is not a single disease entity but it substantially increases the risk of illness from HTN, High cholesterol, DM, Stroke and certain types of cancers. Obese individuals also may suffer from social stigmatization, discrimination and lowered self esteem. These complications are also mentioned in *Ayurveda* with the *Dosha* involvement and so that we can deduce a number of complications associated with Obesity. Obesity is defined as a BMI = 25 Kg/m², a body weight 20% or more than desirable normal weight according to age, sex and height is Obese (Golwala, 2003). *Ayurveda* is not only a system of medicine but a way of life advocating prevention of disease with a holistic approach. The word *Sthoulya* is derived from the Dhathu "*Sthoola brihmae*" suffix "*ach*" withstands probably for thick or solid or strong or bulky (*Vachaspatyam*).

A person having heaviness and bulkiness of the body due to extensive growth especially in abdominal region is termed as *Sthoulya* (*Bhavaprakasha et al., 2010*). *Acharya Charaka* has enumerated *Sthoulya* under *Astau nindithiya* (eight undesirable constitutions) based on their ugly appearance, unmanageable health conditions (*Charaka Samhita et al., 2008*). *Atisthoola* has been defined as a person who on account of the inordinate increase of fat and flesh is disfigured with pendulous buttocks, belly and breasts with reduced zeal towards life (*Agnivesha et al., 2011*). *Sthoulya* is *Kapha* predominant disease (*Sleshma Nantamaja*) involving *Kapha*, *Medas* as main *Dosha* and *Dushya* in the *Samprapti* (*Acharya Vagbatta et al., 2007*). In classics it is mentioned under *Santarpanajanyavikara* and in *Bahudoshavastha* condition. Different *Shodhana* modalities have been mentioned like *Vamana*, *Virechana*, *Basti* for *Sthoulya*. In *Bahyashodhana*, *Udvartana* being considered as a remedy for *Sthoulya*. Many *Acharyas* have mentioned *Bahyashodhana* for the management of *Sthoulya*. *Ruksha Udvartana* has been mentioned by *Vagbhatta* with its property like *Kaphahara*, *Medohara* and removes foe tied odors, restricts the process of excessive sweating and alleviates the aggravated *Dosha* by function (*Acharya Vagbhatta et al., 2002*). In this regard the study was designed to assess the applicability of *Vachaharidradi Gana* (*Acharya Vagbhatta*)

mentioned by Vagbhata was taken up for Udvartana in Sthoulya on the Kaphamedohara property of the Ganadravya which is the elemental base for the intervention of the Sthoulya.

Aims and objectives

- 1) To Evaluate the clinical efficacy of *Vacha Haridradi Gana* in *Sthoulya* as *Udvartana*.
- 2) To assess the effects in anthropometric measures.

MATERIALS AND METHODS

Source of data

Patients fulfilling the criteria, attending the OPD and IPD of the department of Panchakarma, Ramakrishna Ayurveda Medical college, Bengaluru were selected for the present study with irrespective of age, sex, religion etc. A detailed proforma was specially designed including all the aspects of disease to collect the data. Patients were assessed before treatment, after treatment and after follow up.

Table 1. Showing Drug Review

Dravya	Botanical name	Guna	Rasa	Vipaka	Vīrya	Karma
Vacha ⁹	<i>Acorus calamus</i> Linn	Laghu, Tikshna, Sara	Tikta, katu	Katu	Ushna	Kaphahara, Vatahara
Jalada ⁹	<i>Cyperus rotundas</i>	Laghu, Ruksha	Katu, Tikta, Kasaya	Katu	Sheeta	Kaphahara, pittahara
Devahva ⁹	<i>Cedrus deodar</i> Roxb.	Laghu, Snigdha	Tikta, Katu	Katu	Ushna	Kaphahara, Vatahara
Nagara ⁹	<i>Zingiber officinale</i> Roscoe	Laghu, Snigdha	Katu	Madhura	Ushna	Kaphahara, Vatahara
Ativisha ⁹	<i>Aconitum heterophyllum</i> Wall	Laghu	Tikta, Ruksha	Katu	Ushna	Tirdoshahara
Abhaya ⁹	<i>Terminalia chebula</i> Retz	Laghu, Ruksha	Lavana varjita Pancharasa	Madhura	Ushna	VataKaphahara, Tridosahara
Haridra ⁹	<i>Curcuma longa</i> Linn	Laghu, Ruksha	Tikta, Katu	Katu	Ushna	KaphaVatahara,
Daruharidra ⁹	<i>Berberis aristata</i> De	Laghu, Ruksha	Tikta, Kashaya	Katu	Ushna	KaphaPittahara
Kalasi ⁹	<i>Ureria picta</i> desv	Laghu, Snigdha	Madhura, Tikta	Madhura	Ushna	Tridosahara
Indrayava ⁹	<i>Holarrhena antidysentrica</i>	Ruksha	Tikta, Kashaya	Katu	Sheeta	KaphaPittahara
Yestahvy ⁹	<i>Glycerrhiza glabra</i> Linn	Guru, Snigdha	Madhura	Madhura	Sheeta	Vatapittahara

Inclusion criteria

- 1) Patients with signs and symptoms of *Sthoulya*
- 2) Patients of either sex of age group between twenty to fifty years.
- 3) Patients with BMI more than 25 Kg/m².

Exclusion criteria

- 1) Obesity due to endocrinal abnormalities and with systemic disorders.
- 2) Pregnancy and lactating women.
- 3) Patients suffering from any skin diseases.
- 4) Patients undergone any surgery (6 months to 1 year duration)

Investigations

Routine hematological examination was done before treatment to rule out any pathological condition.

Study design

It is an open randomized single group clinical study with pretest and post-test design. An Informed consent was taken from all the patients before including them in the clinical trial. 30 patients were selected in the present clinical study.

Drug review

Preparation of the drug

All the authenticated raw drugs were taken in equal ratio and then powdered in to *Udvartana Churna* form and used for the clinical trial as per the quantity sufficient for the individual patients.

Intervention

Udvartana being done in seven different postures for individual postures for seven days and follow up is done on fourteenth day.

Purvakarma

- 1) Preparation of the patient to comfortable environment.
- 2) Apparatus for the procedure is collected.
- 3) Udvartana dravya is taken.
- 4) Towel.
- 5) No internal medications given.

Pradhanaa Karma

The *Udvartana dravya* is taken in a bowl, quantity as per the patients physique(male palm ~150 – 200 gms) and mildly heated. It is rubbed over the body in *Pratiloma gati* in 7 different postures.

Posture 1: Patient sitting on the *Droni*, with lower limbs extended

Posture 2: Patient lying in supine position (on back)

Posture 3: Patient lying on one side, turning towards left (left lateral)

Posture 4: Patient lying on prone position (on belly)

Posture 5: Patient lying on side, turning towards right (right lateral)

Posture 6: Patient on supine position

Posture 7: Patient sitting straight with lower limbs extended

Paschatkarma

- 1) Cleaning of the body with the towel
- 2) Rest for fifteen minutes
- 3) Warm Bath
- 4) No diet or exercise being advised.

Total duration of procedure: 40 – 60 minutes (Including the bath)

Number of days: 7 Days Procedure

Follow up: On 14th day.

Assessment criteria

The Subjective and Objective criteria are assessed based on the grading system. The Objective criteria gradings are as follows

Table 2. The Objective Parameters Gradings

Weight	Grade 0	Above 3kg
	Grade 1	Upto 3kg
	Grade 2	Upto 2kg
	Grade 3	Upto 1kg
	Grade 4	No change (basic Value)
BMI	Grade 0	Above 1.20
	Grade 1	0.9-1.19
	Grade 2	0.6-0.89
	Grade 3	0.3-0.59
	Grade 4	0.0-0.29
In general Body Girth Circumference (chest, abdomen, hip, etc) in cms	Grade 0	Above 2cms
	Grade 1	2-1.5cms
	Grade 2	1.5-1cms
	Grade 3	1-0.5cms
	Grade 4	<0.5cms

Tools used for objective parameters

- 1) Weight: A digital weighing machine was used for the present study.
- 2) Body Circumference: The body circumference was measured at various parts like chest, abdomen, biceps, thigh etc with the help of measuring tape
 - a) Neck – At the level of Thyroid cartilage
 - b) Chest – In normal expansion at the level of nipple
 - c) Abdomen – At the level of umbilicus
 - d) Waist – The waist circumference measured at the midpoint between the lower margin of the last palpable rib and the top of the iliac crest.
 - e) Hip – At the level of highest point of distension of buttock
 - f) Mid-Arm – Mid of the arm between shoulder joint and elbow joint
 - g) Mid-Thigh – Mid of the thigh between pelvic joint and knee joint
- 3) BMI = Weight/Height in M²

Statistical analysis

The data was analysed by students paired t – test. The obtained results were interpreted as:

Insignificant P<0.5

Significant P<0.01

Highly significant P<0.001

OBSERVATION AND RESULT

The study was conducted on 30 patients. Among them 60% were from the age group 30 – 40 years and 23% were of 40 – 50 years and 17% were of 20 – 30 years of age group. About 67% were females and 33% were males. About 90% were married and 10% were unmarried and widower. About 65% were of Kapha dominant Prakruti.

Effect of therapy

Table 3. Effect of Therapy on BMI

	Mean	S.D	t	p	Remark
BT	32.8987	4.1878			
AT	32.205	4.1281	1.69913	0.00000003	S
BT	32.8987	4.1878			
AF	32.189	4.1789	1.69913	0.00001	S

Table 4. Girth Measurement – Neck

	Mean	S.D	t	p	Remark
BT	39.0167	3.32971			
AT	37.9533	3.23875	1.69913	0.00000003	S
BT	39.0167	3.32971			
AF	37.9333	3.34956	1.69913	0.00000003	S

Table 5. Mid – Arm – Right

	Mean	S.D	t	p	Remark
BT	32.35333	3.357414			
AT	30.85	3.383607	1.699127	0.0000000006	S
BT	32.35333	3.357414			
AF	30.86667	3.438959	1.699127	0.0000000001	S

Table 6. Mid – Arm – Left

	Mean	S.D	t	p	Remark
BT	32.33	3.668049			
AT	30.93	3.424471	1.699127	0.000000006	S
BT	32.33	3.668049			
AF	30.89	3.450772	1.699127	0.000000008	S

Table 7. Chest

	Mean	S.D	t	p	Remark
BT	96.7333	11.8807			
AT	94.35	11.5207	1.69913	0.00000001	S
BT	96.7333	11.8807			
AF	94.35	11.5036	1.69913	0.00000002	S

Table 8. Navel

	Mean	S.D	t	p	Remark
BT	100.9	10.1543			
AT	98.6833	9.41522	1.69913	0.000000001	S
BT	100.9	10.1543			
AF	98.55	9.30179	1.69913	0.000000004	S

Table 9. Hip

	Mean	S.D	t	p	Remark
BT	107.917	14.0799			
AT	105.95	13.897	1.69913	0.000000001	S
BT	107.917	14.0799			
AF	105.55	13.8136	1.69913	0.000000003	S

Table 10. Mid – Thigh – Right

	Mean	S.D	t	p	Remark
BT	54.0133	8.33967			
AT	52.05	8.51189	1.69913	0.0000000005	S
BT	54.0133	8.33967			
AF	52.07	8.50489	1.69913	0.0000000006	S

Table 11. Mid – Thigh – Left

	Mean	S.D	t	p	Remark
BT	53.96	8.559673			
AT	52.22333	8.657414	1.699127	0.000000004	S
BT	53.96	8.559673			
AF	52.21	8.689524	1.699127	0.000000006	S

Overall effect of therapy

The overall effect of the therapy was assessed based on the grading system and compared the results after treatment and after follow up.

Body Girth Measurements: The Body Girth Measurement of patients were assessed after treatment and after follow up by comparing the results. After treatment shows 1 patient 3.33% as Minimum change, 3 patients i.e 10% as Mild Result, 9 patients i.e 30% as Moderate Result, 10 patients 33.3% were of Good Result, 7 patients 23.4% were of Excellent Result. The 't' and 'p' value for Body Girth Measurement after treatment in all the Parameters is significant (refer table). The Body girth Measurement after follow up shows 2 patient 6.66% as Minimum change, 2 patients i.e 6.66% as Mild Result, 9 patients i.e 30% as Moderate Result, 11 patients 36.66% were of Good Result, 6 patients 20% were of Excellent Result. The 't' and 'p' value for Body Girth Measurement after follow up in all the Parameters is significant.(refer table)

BMI: The BMI of patients were assessed after treatment and after follow up by comparing the results. After treatment 3 patient i.e 10% shows Minimum change, 9 patients 30% as Mild Result, 7 patients 23.4.% as Moderate Result, 7 patients i.e 23.4% as good result and 4 patient 13.33% as Excellent. The 't' value of BMI after treatment is 1.699 and the 'p' value is 0.000003 which is significant. The BMI after follow up was 4 patient i.e 13.33% shows Minimum change, 9 patients 30% as Mild Result, 6 patients 20% as Moderate Result, 6 patients i.e 20% as good result and 5 patient 16.67% as Excellent. The 't' value of BMI after follow up is 1.699 and the 'p' value is 0.0000001 which is significant.

DISCUSSION

Vachaharidradhi gana have been preferred for *Udvartana* as it is *laghu*, *Ruksha* in *guna* and *tikta*, *katu* in *rasayukta* which is contrary to the properties of *kapha* and *meda*. The properties of *Vachaharidradhi gana* is mentioned as *Kaphamedohara* which is quite conflicting to that of *Sthoulya*. Due to *laghu*, *Ruksha guna* it does *medoshoshana*. *Udvartana* is having the *gunas* of *kapha-Medo Vilayana* property. Due to *laghu*, *Ruksha guna* of *dravya* and forceful massage effect on *romakupa*, the *virya* of drug enters into the body through, therefore it opens the *mukhas* of *siras*, thereby making *paka* of *Kapha* and *Meda*. Due to this, there will be *dravata vriddi* of *kapha* and *medas*. Warm bath, which is given after *Udvartana* will further makes *paka* of the same, which also does *sweda pravarthana*.

Conclusion

Sthoulya is a *Santarpana Janya Vyadi* having unique *Samprapti*. *Ahara* and *Viharatmaka Nidana* place major role in causing *Sthoulya*. *Guru* and *Apatharpana* is the line of treatment to conquer *Tikshnagni* and *Medovruddi* respectively. *Udvartana* can be adopted without much restrictions and complications. As per the result of statistical analysis it has proven significant in all the subjective and objective parameters. So only *Udvartana* procedure with *Vachaharidradi Gana* has proved significant in *Sthoulya*.

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