

## CLINICAL EVOLUTION OF YAVA IN THE MANAGEMENT OF STHAULYA (OBESITY)

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### ABSTRACT :

In spite of scientific advances & breakthrough in modern medicine we are witnessing a renewed interest in the alternate therapies. Ayurveda is one such Science, which is increasingly taking its place alongside the modern forms of treatment. Prevalence of *Sthaulya* in society is increasing day by day due to decreased awareness regarding exercise & faulty dietary habits. The present study finds its place in providing a safe and efficacious intervention with regards to *Sthaulya*. So people are expecting solution from Ayurveda. Considering it as a challenge, the project has been undertaken to find out a whole some remedy for this crippling problem. 30 patients from the OPD of Shubhdeep Ayurved Medical College and Hospital, Indore were selected and treated with 100 gm *Yava* (Yavakut form) over period of two month. On the basis of statistical tests of significance, *Yava* has highly significant in subjective criteria and objective criteria as well in the obesity.

**Key words:** *Sthaulya*, *Yava*, Obesity, *Hordeum Vulgare*

**INTRODUCTION:** Obesity is widely regarded as a pandemic, with potentially disastrous consequence for human health. Nearly one-quarter of adults in the UK were obese in 2006, compared with 7% prevalence in 1980 and 16% in 1995<sup>1</sup>. Every five Indian men and women are either obese or overweight. According to the study, number of overweight and obese people globally increased from 857 million in 1980 to 2.1 billion in 2013. This is one third of the world's population<sup>2</sup>. *Sthaulya* (Obesity) is one among the major diseases of Modern era. In Modern era with continuous changing life styles and environment, changed diet habits, man has become the victim of many disease caused by unwholesome dietary habits and Obesity is one of them. Acharya Charaka has counted *Sthaulya* under the eight

varieties of impediments which are designated as *Nindita Purusha*<sup>3</sup>. This is also described under the title of *Santarpanajanya Vyadhi*.<sup>4</sup> Almost all Acharyas of Ayurveda considered dietetic, behavioural pattern and psychological factors as causes of *sthaulya*<sup>5</sup> For the first time, the hereditary components besides above mentioned factors were described by Acharya Charaka<sup>6</sup> It is the diet which plays the major role in the causation of obesity. Bhav prakash nighantu has described *yava in shukadhanya varga* along with morphological characters and therapeutic uses. It is considered to be having *lekhana* property, so can be useful in obesity. It is also traditionally used as a dietary solution in obesity. Since *yava* is easily available and cost effective.<sup>7</sup> *Yava* is suitable for “*Guru Cha Atarpanam*”

*Siddhant* because it is guru in nature and consider as non nourishing food. Hence it is selected. Present work had carried out regarding evaluate the efficacy of *Yava* (*Hordium Vulgare*) in *Sthaulya*.

#### AIMS AND OBJECTIVES:

To evaluate the efficacy of *Yava* (*Hordium Vulgare*) in *Sthaulya*.

**MATERIAL & METHODS:** In the present study the clinical trial was undertaken on *Sthaulya*. Prevalence of *Sthaulya* in society is increasing day by day due to decreased awareness regarding exercise & faulty dietary habits. It has reached up to epidemic level. Several works were carried out on *Sthaulya* at different institute of India. It is a challenging health problem of modern society. Many theories and medicaments put towards us for the management of the disease but till now perfect remedy for this problem is not found in modern medicine also. So people are expecting solution from Ayurveda. Considering it as a challenge, the project has been undertaken to find out a whole some remedy for this crippling problem with following aims and objectives.

#### • Clinical study:

##### 1) Inclusion criteria:

- Patients of general obesity will be taken for study between the age of 16-50 years of either sexes from all religions & community.
- Diagnosed patients of obesity will be undertaken as per WHO height weight chart.
- The patients will be selected which are not suffering from any major illness i.e. HTN/DM/Thyroid/cardiac disease etc.

##### 2) Exclusion criteria:

- Patients of age group less than 16 years and more than 50 years will be excluded.

- Obesity produced due to certain secondary causes such as Hereditary, Hormonal, changes also excluded.
- Pregnant and lactating women.
- Obesity due to Caesarean section & HRT (Hormonal replacement therapy).

**A) Subjective criteria :** A multidimensional scoring pattern will be adopted for the sign and symptoms of *sthaulya* mentioned in Ayurvedic texts . The score of symptoms will be assessed before and after the treatment and statistical analysis will be undertaken. Apart from cardinal sign and symptoms other sign and symptoms will be also assessed.

**Score will be given according to the severity of the symptoms.**

Absence of symptoms	---	0
Mild degree	---	1
Moderate degree	---	2
Severe	---	3
Severe of symptoms with chronicity	---	4

#### B) Objective criteria:

Assessment criteria of Obesity Changes in:

##### 1. Body weight.

- Grade 1: normal weight for specific height
- Grade 2: 1-15%>normal weight
- Grade 3: 15-30%> normal weight
- Grade 4: 30-45%>normal weight

##### 2. BMI >25

- Grade 1: 25-28
- Grade 2: 28-32
- Grade 3: 32-36
- Grade 4: 36-39

3. Circumference of abdomen, hip, mid arm and mid thigh (by using measuring tape before and after the treatment)

4. Skin Fold Measurements test (SFM) by Varnier Calipers

**Follow up study:** During the course of treatment, all the patients will be asked to report for follow- up study for the period of 2 months. In follow-up study statistical

changes in body weight. Chest circumference, hip circumference, abdomen circumference, skin fold measurements (SFM) will be observed.

**Drug selection :** Yava (*Hordium vulgare*) which has mentioned in Charak Samhita Sutrasthan 21th chapter “*Ashtauninditiyadhyay*” was taken for clinical trial.

**Dose:** 100 gm (of *yava in yavakuta* form) in divided dose.

**Route of administration:** Oral

**Time:** Morning empty stomach & 1/2 hour before meal

**Duration:** two months.

**Method of preparation:** Patients were asked to roast (*bhrista*) the *yava* and then prepared with five parts of water till it

cooked well. Then after preparation *yava* was taken orally.

**No. of patients:** 30 patients in a single group by random sampling.

**Study design:** The sample of 30 patients with classical sign and symptoms of *Sthaulya (Obesity)* were selected randomly & to evaluate the efficacy of *Yava* with the Concept of *Guru cha Atarpana...*

Statistical Analysis to assess of the groups was done by using One Sample paired t-test. The data comprehended while conducting this clinical study on varied parameters are significant clues regarding the etiopathogenesis and progression made in this morbid state. The observation made in this regards are analytically compounded here under.

**OBSERVATION AND RESULT:**

**Table No-1**  
**Effect of yava on cardinal signs and symptoms**

Sign & symptoms	Mean score		% Relief	S.D.	S.E.	T	N	P	Df
	B.T.	A.T.							
Chalatva	1.900	1.100	42.105	0.610	0.111	7.180	30	<0.0001	29
Daurbalya	1.733	0.900	46.162	0.664	0.121	6.113	30	<0.0001	29
Sarvkirya asmrthata	1.833	0.900	50.90	0.691	0.126	7.393	30	<0.0001	29
Kshudra shwas	1.767	1.233	32	0.679	0.124	4.000	30	<0.0001	29
Swedadhikya	2.467	1.267	48.642	0.664	0.121	9.893	30	<0.0001	29
Daugandhya	1.367	0.933	31.675	0.626	0.114	3.791	30	<0.0001	29
Snigdhangata	1.333	0.933	30	0.498	0.091	4.397	30	<0.0001	29
Atikshudha	1.833	0.867	52.75	0.809	0.148	6.547	30	<0.0001	29
Atipipasa	2.367	1.200	49.302	0.874	0.160	7.309	30	<0.0001	29
Nidradhikya	1.733	1.100	36.52	0.669	0.122	5.188	30	<0.0001	29
Krithan	1.733	1.433	17.31	0.466	0.085	3.525	30	<0.0001	29

**Table No-2**

**Effect of yava on body weight and bmi**

Objective criteria	Mean score		% Relief	S.D.	S.E.	T	N	P
	B.T.	A.T.						
Weight in kg	81.467	77.933	4.33	1.624	0.296	11.918	30	>0.0001
BMI(kg/m <sup>2</sup> )	31.907	30.368	4.46	0.757	0.138	7.955	30	>0.0001

**Table No-3**

**Effect of yava on circumferece**

Circumference in c.m.	Mean score		% Relief	S.D.	S.E.	T	N	P
	B.T.	A.T.						
Chest	105.442	101.958	3.304	2.338	0.427	8.035	30	>0.0001
Abdomen	102.750	97.775	4.84	3.262	0.595	8.381	30	>0.0001
Buttock	110.050	106.450	3.271	2.179	0.398	3.465	30	>0.0001
Mid arm(rt)	33.342	32.923	2.45	0.635	0.116	7.060	30	>0.0001
Mid thigh (lt)	57.708	56.848	1.490	0.622	0.114	6.644	30	>0.0001

**Table No-4**

**Effect of yava on skin fold thickness (in cm)**

Thickness (in cm)	Mean score		% relief	S.D.	S.E.	T	N	P
	B.T.	A.T.						
Biceps	1.83	1.44	21.28	0.16	0.05	7.4	30	>0.0001
Triceps	2.22	1.83	17.34	0.16	0.05	7.55	30	>0.0001
Subscapular	2.91	2.34	19.58	0.2	0.06	8.94	30	>0.0001

**Table No-5**

**Over all effect of yava on sthaulya [symptoms wise]**

Treatment effect	No. of pt.	%
Complete remission	0	0
Marked improvement	0	0
Moderate improvement	8	26.66
Mild improvement	18	60.00

Negligible improvement	4	13.33
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**Table No-6**

**Over all effect of yava on sthaulya [BMI wise]**

Treatment effect	No. of pt.	%
Complete remission	0	0
Marked improvement	2	6.66
Moderate improvement	9	30
Mild improvement	16	53.37
Negligible improvement	3	10

**Table No-7**

**Percentage relief bestowed in subjective criteria**

Sign & symptoms	% relief
Chalatva	42.105
Daurbalya	46.162
Sarvkirya asamrthata	50.90
Kshudra shwas	32
Swedadhikya	48.642
Daurgandhya	31.675
Snigdhangata	30
Atikshudha	52.75
Atipipasa	49.302
Nidradhikya	36.52
Krithan	17.31

**Table No-8 Percentage relief bestowed in objective criteria**

Objective criteria	% relief
BMI(kg/m <sup>2</sup> )	4.46
<b>Circumference in c.m.</b>	
Chest	3.304

Abdomen	4.84
Buttock	3.271
Mid arm(rt)	2.45
Mid thigh (lt)	1.490
<b>Thickness (in cm)</b>	
Biceps	21.28
Triceps	17.34
Subscapular	19.58

**Table No-9 Patient wise % of relief on symptoms/ BMI / Wt.**

Patients	Opd no.	Symptoms wise relief	BMI wise relief	Weight wise relief
1	22988	40	1.228	1.49
2	22987	69.27	1.89	8.06
3	22986	66.92	8.039	7.81
4	33702	35.79	5.008	4.46
5	22739	7.697	2.27	2.43
6	27051	26.16	4.22	4.21
7	26992	15.32	1.09	1.23
8	27050	26.42	3.5	3.57
9	17173	30.81	4.18	4.21
10	17226	41.61	6.43	6.38
11	19528	41.61	6.56	6.57
12	33635	36.36	4.01	4.05
13	26151	39.10	9.45	9.45
14	28912	23.09	2.91	2.94
15	27812	39.1	6.48	6.49

16	25743	43.45	6.58	6.57
17	25769	30.79	2.31	1.74
18	26887	36.36	5.25	5.25
19	26927	25.97	2.75	2.74
20	27110	32.03	3.04	3.12
21	28898	68.07	2.33	2.24
22	26463	52.63	6.75	6.74
23	27212	69.33	3.74	3.72
24	26549	64.84	3.12	3.125
25	25826	60.89	7.65	7.69
26	25939	21.47	1.44	1.47
27	25982	35.41	3.89	3.88
28	30871	47.22	4.67	3.97
29	26435	69.27	4.63	4.65
30	27247	38.27	2.25	2.24

**DISCUSSION:** The pharmacological action of any dravya depends upon its *pancha mahabhautika sanghatana* and ultimately *ras panchaka*. Most of Acharya considered *yava* as a *Madhura, Kashaya rasa; Guru, Ruksha, Pichhala and Sara guna; Sheeta virya and Katu vipaka* having mainly *kapha pittahara and vata vardhaka* action.<sup>8</sup> The *vayu* is responsible for clarity among channels, *shoshana* of *dosha* and stimulation of *agni, katu vipaka dravya* are generally said be *Lekhniya* because of having *vayu, agni* and *akash mahabhoot* dominance. After the *dhatvagni* and *bhutagni paka* they reduce *kapha* and homologues *dhatu*. Owing to these properties *yava* helps to stabilise the *agni* in *kostha*, clears the channels

obstructed by *meda*, so that the user feels normal hunger as compared with voracious *agni in medoroga*. Acharya charaka has mentioned *guru (aahar)* and *aptarpana chikitisa* for *sthaulya* treatment.<sup>9</sup>

*Pichhala guna* is providing the gel forming activity of beta glucan and providing some sliminess in tract. *Yava* has *guru guna* means it will take much time for digestion and remain for long time in intestinal tract because of which person feel fullness for a long duration and it can be concluded that increased bile acid is excreted out due to its *sara* property.

Discussion On Siddhant: Charaka Samhita has been given treatment as –

Administration of *Guru* and *Atarpana* articles which possess additional *Vata, Slesma* and *Meda Nashaka* properties is

considered as an ideal for *Samasaman* therapy. Chakrapani has explained that Guru property is sufficient to alleviate vitiated agni and thereby *Atikshudha*. The Atarpana property provides non nourishment and thus leads to depletion of Meda. For example *Yava* possess Guru and *Ruksha* properties, hence it is ideal for management for *Sthaulya*<sup>10</sup>. Gangadhara has interpreted it as Guru Property is suitable to alleviate *Tikshnagni* and vitiated vata especially *Kosthagata vata* and thereby *AtiKshudha*. The *Atarpan* property is that which cannot provide *Tarpana* (Trupti) and cause reduction of *Meda* due to under nourishment (Aposhakatvat).

Modern literature reveals that beta glucan is responsible for antihypercholesterolemic activity and also helpful in reducing total lipid profile. The physiological effects are probably related to the gel forming properties of beta glucan which increase viscosity of intestinal chyme and increased viscosity disturbs micelle formation, which may inhibit cholesterol absorption, slow cholesterol transfer across the unstirred layer and increase bile acid excretion by inhibiting bile acid reabsorption.<sup>11</sup>

**CONCLUSION:** The conclusion is an essence of whole study. Following points can be concluded on the basis of observation, results and thorough discussion in the present context. Overall effect observed in patients of *yava* treatment on all criteria of assessment showed that the treatment is proved better statistically & symptomatologically. One more thing that results of this study are encouraging, still trial should be conducted for longer duration to provide much better results to patients. *Guru cha Atarpana* being a *Chikitsa Siddhanta* is proved

beyond doubts for all times and its utility and applicability is proved in this era too as being effective in *Sthaulya* by this study. As mentioned in Charak Sutra sthan that the *Atisthul* person have eight kind of defects that is *Ayush-Hras*, *Javoparodh*, *Krichhvyavayta*, *Daurbalayam*, *daurgandhyam*, *swedabhadh*, *pipasatiyoga* & *Kshudaatimatra*.<sup>12</sup> The person exhibit features like pendulous buttocks, abdomen, breast because of excessive accumulation of fat and muscles, the person looks ugly. Due to above mentioned symptoms, the *Atishaulya* person is criticized or discarded by the society.

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