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Clinical evaluation of the *Sthaulyahara* effect of *Haritaki* and *Amalaki* based on the principle of *Hrasa Hetur Visheshascha*

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ABSTRACT

Sthoulya is one of the most effective disease which affects someone social, physical and mental features. As per modern view, it is a precursor to coronary heart disease, high blood pressure, diabetic mellitis and osteoarthritis which have been recognised as the leading killer diseases of the millennium. *Sthoulya* is a state of increased *Vikruta Vruddhi* of *Medodhatu*. It is one of the *Santarponottha Vikaras* where a physician needs to apply the principle of *Vishesha* which can restore the unhealthy increase of components to the previous undiseased form. The drug *Haritaki* and *Amalaki* are having *Laghu* and *Rooksha Guna* which are opposite *Gunas* to that of the *Sthoulya*. **Objectives -** Practical evaluation of the *Sthaulyahara* effect of *Haritaki* and *Amalkai* based on the principle of *Hrasa Hetur Visheshascha*. **Results -** 60 patients (92%) had completed the trial, no adverse effect were reported. Both the groups had improved in the clinical trials, overall statistical significance was observed in the scores of both the groups. **Discussion -** By this statistical result we can concluded that Group A patients were more releived than Group B who were administered *Haritaki Choorna*. The hypothesis decided for the study was '*Vishesha'* is the prime cause for *Hrasa*. Here it was clear that *Vishesha* applied was *Guna Vishesha*. Here significant results itself shows that *Vishesha* has done its role in reducing the obesity (*Hrasa*) in better way in both the Groups.

Key words: *Vishesha, Sthoulya, Obesity, BMI, Haritaki, Amalaki.*

INTRODUCTION

Today's life style has completely changed by all the means our diet pattern, life styles and behavioral pattern which has made man the victim of many diseases. *Sthaulya* (obesity) is one among them. *Sthaulya* is one of the most effective disease which affect someone social, physical and mental features. As per modern view, it is a precursor to coronary heart disease, high blood pressure, diabetes melitus and osteoarthritis which have been recognized as the leading killer diseases of the millennium.[1] All these disorders are an indication of the failing systems, their inability to provide optimum performance to upkeep the physiological clock ticking.

In Ayurveda, *Sthaulya* has been described by Acharya Charaka as one of the eight despicable persons (*Ashtaunindita*) in the context of the body.[2]

Principles of Ayurveda have significant value even in the life of modern man. The reason behind this is, life is the underlying theme over which the whole science of Ayurveda is interwoven. Hence one cannot deny

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the implicability of these principles. The principles of Ayurveda are based on strict experimental studies of several years. These principles are the outcome of those studies. Several *Acharyas* have tested these principles for many years and then these principles have got a place in Ayurvedic *Samhitas*.

Sthaulya is a state of increased *Vikruta Vruddhi* of *Medodhatu*. It is one of the *Santarpanottha Vikaras*[3]where a physician needs to apply the principle of '*Vishesha'*, which can restore the unhealthy increase of components to the previous undiseased form.[4]

Since *Samhitakala Sthaulya* is well a known *Krcchrasadhya Vyadhi*. It can be betterly managed by applying the concept of '*Hrasahetur Visheshacha'*, as described in the classics in terms of *Dravya*, *Guna* and *Karma Vishesha Siddhanta*.[5]

The drug *Haritaki*[6] has *Laghu* and *Ruksha Guna* and *Amalaki*[7] is having *Kaphagna* property which are opposite *Gunas* to that of the *Sthaulya*.

Hence the present research work was planned to evaluate the concept of '*Hrasahetur Visheshascha'* and also compare the clinical effect of *Haritaki* and *Amalaki* in *Sthaulya (Obesity)*.

OBJECTIVE OF THE STUDY

Practical Evaluation of the *Sthaulyahara* effect of *Haritaki* and *Amalaki* based on the principle of *Hrasahetur Visheshascha.*

MATERIALS AND METHODS

Drug Source

The medicines required for the present study were procured from the Pharmacy of BLDEA'S AVS Ayurveda Mahavidyalaya, Vijayapur, Karnataka.

Clinical Source

Patients of either sex diagnosed to be suffering from obesity were selected from OPD and IPD of BLDEA's AVS Ayurveda Mahavidyalaya Hospital, Vijayapur.

Method of collection of data

A special proforma was prepared with details of history, physical signs and symptoms mentioned for the *Sthaulya*. Patients were analyzed and selected accordingly. A viable and indigenously designed method was used to assess the parameters of signs and symptoms.

Study Design: Randomised Single Blind Comparative Clinical Study.

Sample Size: Total number of patients taken for the study will be 60 including dropout.

Duration of treatment: 30 days

Duration of follow-up: 15 days

Study Duration

- Total study duration: 45 days
- Treatment duration: 30 days
- Follow up duration: 15 days

Inclusion Criteria

1. Patients diagnosed as *Sthaulya* having classical signs and symptoms will be selected.
2. Patients of either sex in between age group 20 - 60 years.
3. Patients with BMI more than 25

Exclusion Criteria

1. Patients age less than 20 and more than 60 years.
2. Patients having major systemic disorders or other illnesses which interfere with the present study.
3. Patients of *Sthaulya* with its severe complications like Cerebral vascular diseases, Ischemic heart diseases will be excluded.

Diagnostic Criteria

1. Diagnosis will be made based on classical signs and symptoms like *Spik*, *Sthana* and *Udara Lambana* (increased fat deposition in chest, abdomen and gluteals)
2. *Atisweda*, *Atikshudha* and *Atitrishna*.
3. *Kshudra Shwasa* (breathing difficulty) and *Daurbalya* (weakness)
4. Patients having BMI more than 25.

Assessment Criteria

Assessment will be done based on objective and subjective criteria before, during and after treatment.

Subjective Criteria

1. *Dourbalya* (general weakness)
2. *Swedabadha* (excessive sweating)

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3. *Kshudhatiyoga* (excessive hunger)
4. *Pipasaatimatram* (excessive thirst)

Objective Criteria

1. Calculation of BMI (Weight in kg divided by height in meter square)
2. Waist Hip circumference ratio
3. Circumference of chest, abdomen, mid arm and mid thigh.
4. Lipid profile (12 hours fasting)

Laboratory Investigations

1. Urine routine (Albumin, Sugar and micro)
2. Blood routine (Hb, TC, DC)
3. Lipid profile (12 hours fasting)
4. Serum total cholesterol, Serum triglycerides, Low density lipoproteins, High density lipoproteins, VLDL and HDL: Cholesterol ratio.

Drug and Posology

Group A: *Haritaki Churna*

- **Dosage:** 6 g / b.i.d.
- **Anupana:** Ushna Jala
- **Route:** Oral
- **Duration:** 30 days
- **Follow up:** 15 days

Group B: *Amalaki Churna*

- **Dosage:** 6 g / b.i.d.
- **Anupana:** Ushna Jala
- **Route:** Oral
- **Duration:** 30 days
- **Follow Up:** 15 days

Observations and Results

Table 1: Age wise distribution of 65 patients of *Sthaulya*

Age	*'A' Group*	*'B' Group*	*Total*	*Percentage*
20-30	12	13	25	41%
30-40	11	13	24	40%
40-50	5	3	8	13%
50-60	3	1	4	6%

The maximum number of patients are from 20-30yrs and 30-40 yrs. This shows middle age peoples are more prone to *Sthaulya*.

Table 2: *Medhavaha Srotas* wise distribution of 65 patients of *Sthaulya*

Symptoms	'A' Group	'B' Group	Total	Percentage
Javoparodha	2	1	3	4%
Daurbalya	25	28	53	81%
Daurgandhya	14	11	25	38%
Swedabhadha	15	12	27	41%
Angashaithilya	21	21	42	64%
Snigdhangata	17	12	29	44%
Alasya	28	28	56	86%
Pippasatimatra	22	16	38	58%
Mutrasada	2	0	2	3%
Talushosha	21	17	38	58%
Kanthamukhashosha	8	9	17	26%
Bahu Mutra	6	4	10	15%
Spik Sthana Udara Chalatwa	28	21	49	75%
Ati Slakshna	2	4	6	9%

Among 65 patients *Kanta Mukha Shosha* 75%, *Alasya* 86%, *Pipasatimatra* and *Talushosha* 58%, *Dourbalya* 81%, *Swedapravrutti* 41%, *Angashaithilya* 64% symptoms patients were suffering from *Sthaulya*.

Table 3: *Nidanawise (Aharatmaka)* distribution of 65 patients of *Sthaulya*

Symptoms	'A' Group	'B' Group	Total	Percentage
Athisampoorna	17	16	33	50%
Adhyshana	6	5	11	16%
Guruaharasevana	28	22	50	76%

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Madhuraahara Sevana	14	18	32	49%
Sheeta Ahara Sevana	26	25	51	78%
Snigdha Ahara Sevana	21	18	39	60%
Gramybha Ahara Sevana	9	8	17	26%
Phala Sevana	6	12	18	27%
Navamadhya Sevana	3	4	7	10%
Auduka Sevana	9	6	15	23%
Ksheera Sevana	8	12	20	30%
Shali Sevana	25	27	52	80%
Bhojanotar Sheet Jala Pana	20	19	39	60%

Among 65 patients, 80% are *Shali Sevana*, 78% are *Sheeta Ahara Sevana*, 76% are *Guruaharasevana, Bhojana Nantara Sheeta Jala Sevana* 60%, *Atisampoorna* 50%, *Snigdha Ahara Sevana* 60%, *Snigdha Ahara Sevana* 60% these are the main *Nidana* which are cause for the *Sthaulya.*

Table 4: *Nidanawise (Viharatmaka)* distribution of 65 patients of *Sthaulya.*

Symptoms	'A' Group	'B' Group	Total	Percentage
Avyayama	27	25	52	80%
Avyavaya	16	13	29	44%
Diwaswapna	5	12	17	26%
Asanasukha	13	18	31	47%
Gandha Malayanu Sevana	6	11	17	26%
Bhojanotar Snana	1	6	7	10%
Bhojanotar Nidra	24	25	49	75%

Among 65 patients, 80% are *Avyayama*, 75% are *Bhojanotar Nidra*, 47% are *Asanasukha,* 44% are *Avyavaya,* 26% are d*iwaswapna* and *Gandha Malayanu Sevana*, 10% are *Bhojanotar Snana.*

Effect of therapy in Group A

In this group total 62 patients were registered out of which 2 patients were dropped out while remaining 30 patients have completed the full course of treatment. Here the effect of drug *Haritaki Churna* on various parameters is presented in the following tables.

Table 5: Effect on subjective and objective criteria (*Haritaki Choorna*) in Group 'A'

Symptom	Mean BT	Mean AT	Mean Diff	% Relief	SD	SE	t	p
Kshudra Shwasa	0.766	0.1	0.666	86.95	0.0546	0.099	6.679	< 0.0001
Chala Sphik Udara Stana	1.066	0.3	0.766	71.87	0.678	0.123	6.185	< 0.0001
Dourbalya	1.3	0.4	0.9	69.23	0.607	0.111	8.115	<0.0001
Swedapravrutti	0.7	0.166	0.533	76.19	0.628	0.114	4.645	<0.0001
Dourgandhya	0.366	0.166	0.2	54.54	0.406	0.074	2.692	0.0117
Atikshuda (Ruchi)	3.8	3.766	0.033	0.87	0.718	0.131	0.254	0.8013
Abhyavara Shakti	4.266	4.166	0.1	2.34	0.547	0.1	1	0.3256
Jarana Shakti	3.6	2.866	0.733	20.37	0.784	0.143	5.117	<0.0001
Pipasa	1.833	1.266	0.56	30.90	0.773	0.141	4.01	0.0004
Alpa Vyavaya	0.333	0.333	0	0	0	0	0	1.0000

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Sexual Desire	2.961	2.961	0	0	0	0	0	1.00000
Erection	3	2.666	0.066	2.222	0.365	0.066	1	0.3256
Rigidity	1	0.666	0.666	6.666	0.253	0.046	1.439	0.16 09
Nidra	1.966	1.033	0.933	47.45	0.739	0.135	6.911	<0.0001
Alasya	1.3	0.333	0.966	74.35	0.413	0.075	12.793	<0.0001
Snigdhangata	0.666	0.2	0.466	70	0.507	0.092	5.037	<0.0001
Anga Gaurava	0.733	0.166	0.566	77.27	0.568	0.103	5.461	<0.0001
Gatrasada	0.766	0.1	0.666	86.95	0.758	0.138	4.816	<0.0001
Angashaithilya	0.8	0.1	0.7	87	0.466	0.85	8.225	<0.0001

In *Kshudra Shwasa* 86%, *Angashitilya* 87% and *Gatrasada* 86% relief was recoreded which is statistically significant (<0.0001), in *Anga Gaurava* 77%, *Swedapravrutti* 76%, *Alasya* 74 %, *Chala Sphik Stana Udara* 71%, *Snigdhangata* 70 %, *Dourbalya* 69%, relief were recorded and in *Nidra* 47%, *Jarana Shakti* 20% relief was recorded which is statistically significant (<0.0001), *Pipasa* 30% *Daurgandhya* 54%, *Atikshudha* 2.3% , *Alpa Vyayaya* 0% relief is recorded which is statistically insignificant.

Table 6: Effect on Objective Criterias in Group 'A'

Symptoms	Mean BT	Mean AT	Mean Diff	% of Relief	SD	SE	t	p
BMI	32.899	31.935	0.963	2.92916	0.971	0.177	5.435	<0.0001
Waiste circumference	42.633	42.333	0.3	0.703675	0.466	0.085	3.525	0.00014
Hip circumference	43	42.466	0.533	1.24031	0.73	0.133	4	0.00004
Abdominal circumference	42.566	42.1	0.466	1.096319	0.628	0.114	4.064	0.00003
Chest circumference	39.533	39.066	0.466	1.180438	0.507	0.092	5.037	<0.0001
Waist Hip circumference ratio	0.982	0.985	0.001	0.101764	0.011	0.002	0.462	0.6475
Mid arm circumference	13.55	13.416	0.133	0.98401	0.345	0.063	2.112	0.0434
Mid Thigh circumference	19.766	19.366	0.4	2.023609	0.498	0.09	4.396	0.00001
Weight	74.466	78.48	2.253	3.025962	1.559	0.284	7.913	<0.0001

Weight reduction 3.02% relief found which is statistically highly significant(p<0.0001) in BMI 2.929% relief found which is statistically highly significant. Relief was found which is highly significant (<0.0001), chest circumference 1.1804 relief found which is statistically highly significant (<0.0001), waist circumference 0.7036 relief found which is very statistically significant (0.0014) hip circumference 1.0963 relief found, abdominal circumference 1.096% relief were found which is consider as non significant (0.0004), (0.0003), in chest circumference 1.1804% relief were found which is highly statistically significant (<0.0001) mid arm 0.9 % and mid thigh circumference 2.02% relief were found which is not statistically significant.

Table 7: Effect on laboratory investigestion in Group 'A'

Symptoms	Mean BT	Mean AT	Mean Diff	% of Relief	SD	SE	t	p
WBC Count	6040	6436	-396	6.5673	1326.3	242.2	-1.638	0.1122

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Neotrophils Count	58.366	55.133	3.233	5.53969	7.872	1.437	2.249	0.0323
Eosinophils Count	4.266	3.133	1.133	26.5625	1.332	0.243	4.659	<0.0001
Lymphocites Count	37	40.3	-3.3	8.91892	7.715	1.408	-2.342	0.0263
Monocytes Count	0.733	1.266	-0.53	72.7273	0.628	0.114	-4.645	<0.0001
Basinophils Count	0	0	0	0	0	0	1	0
Haemoglobin Count	11.25	12.013	-0.75	6.72194	0.783	0.14	-5287	<0.0001
Serumcholestrol (HDL)	37.66	36.233	1.433	3.80531	5.302	0.96	1.48	0.1497
Serumcholestrol (LDL)	216.3	158.533	57.66	26.65639	27.252	4.97	11.589	<0.0001
Serumcholestrol (VLDL)	12.68	16.006	-3.32	26.2355	3.89	0.71	-4.683	<0.0001
Serum Triglycerids	62.73	80	-17.26	27.5239	20.025	3.65	-4.722	<0.0001
Serum Total cholestrol	260.1	210.83	49.33	18.9622	22.92	4.18	11.78	<0.0001

Eosinophil count 26 %, Monocyte count 72.7 % , Haemoglobin count 6.72% , Serum cholesterol (LDL) 26.65 %, Serum cholesterol (VLDL) 26.23% , Serum Trigylcerides 20.02 %, Serum total cholesterol 18.96 % relief were recorded which is highly statistically significant(<0.0001). WBC count 6.56 % , Neutrophils Count 5.53 % , Serum Cholesterol (HDL) 3.80 % relief were found which is statistically insignificant.

Effect of therapy in Group B

In this group 63 patients were registered out of which 3 patients have dropped out and 30 patients have completed the full course of treatment. Here the effect of *Amalaki Churna* on various subjective and objective parameters is as follow .

Table 8: Effect on subjective and objective criteria (*Amalaki Choorna*) in group 'B'

Symptoms	Mean BT	Mean AT	Mean Diff	% of Relief	SD	SE	t	p
Kshudra Shwasa	0.533	0.1	0.433	81.25	0.568	0.103	4.176	0.0002
Chala Sphik Udara Stana	1.666	0.433	0.633	59.375	0.668	0.122	5.187	<0.0001
Dourbalya	1.566	0.6	0.966	61.70213	0.668	0.122	7.918	<0.0001
Swedapravrutti	0.666	0.2	0.466	70	0.507	0.092	5.037	<0.0001
Dourgandhya	0.433	0.066	0.366	84.61538	0.556	0.101	3.611	0.0011
Atikshuda (Ruchi)	3.866	3.833	0.033	0.862069	1.098	0.2	0.166	0.8693
Abhyavara Shakti	4.5	4.333	0.166	3.703704	0.461	0.084	1.979	0.0574
Jarana Shakti	3.1	2.566	0.533	17.2043	0.507	0.092	5.756	<0.0001
Pipasa	1.6	0.9	0.7	43.75	0.83	0.152	4.582	<0.0001
Alpa Vyavaya	0.448	0.379	0.666	14.8717	0.253	0.046	1.439	<0.0001
Sexual Desire	2.769	2.538	0.2	7.2222	0.761	0.138	1.439	<0.0001
Erection	2.5	2.5	0	0	0	0	0	1.000
Rigidity	0	0	0	0	0	0	0	1.000
Nidra	1.533	0.8	0.733	47.82609	0.691	0.126	5.808	<0.0001
Alasya	1.266	0.366	0.9	71.05263	0.48	0.087	10.255	<0.0001
Snigdhangata	0.433	0.133	0.3	69.23077	0.466	0.085	3.525	0.0014
Anga Gaurava	0.766	0.233	0.533	69.56522	0.507	0.092	5.756	<0.0001
Gatrasada	0.6	0.2	0.4	66.66667	0.674	0.123	3.247	0.0029
Angashaithilya	0.833	0.133	0.7	84	0.466	0.085	8.225	<0.0001

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In *Chala Sphik Stana Udara Lambana* 59 %, *Dourbalya* 61.7%, *Sweda Pravrutti* 70%, *Jarana Shakti* 17 %, *Pipasa* 43 %, *Alpa Vyava*ya 14.4 % relief was found which is statistically highly significant. In *Kshudra Shwasa* 81%, *Atikshudha* 0.86%, *Abhyavarana Shakti* 3.7 % relief was found which is statistically insignificant.

Table 9: Effect on subjective criteria in Group 'B'

Symptoms	Mean BT	Mean AT	Mean Diff	% of Relief	SD	SE	t	p
BMI	31.113	29.982	1.131	3.63509	1.091	0.199	5.676	<0.0001
Waiste circumference	42.883	42.816	0.066	0.155461	0.253	0.046	1.439	0.1609
Hip circumference	43.433	43.333	0.1	0.230238	0.305	0.655	1.795	0.0831
Abdomenal circumference	43.933	43.433	0.5	1.138088	0.508	0.092	5.385	<0.0001
Chest circumference	39.133	38.666	0.466	1.192504	0.681	0.124	3.75	0.0008
Waist Hip circumference ratio	0.936	0.936	0	0	0	0	0	1.000
Mid arm circumference	14.05	13.783	0.266	1.897983	0.449	0.082	3.247	0.0029
Mid Thigh circumference	19.366	19.1	0.266	1.376936	0.449	0.082	3.247	0.0029
Weight	74.766	72.016	2.75	3.67811	1.813	0.331	8.305	<0.0001

In weight reduction 3.67% relief was found which is extremly significant in BMI 3% were get relief which is extremely statistical significant, waist circumference 0.155461% got relief and which is statistically insignificant. Hip circumference 0.2302% relief was found which is statistically insignificant, chest circumference 1.192% releif was found which is statistically insignificant.

Table 10: Effect on laboratory investigestion in Group 'B'

Symptoms	Mean BT	Mean AT	Mean Diff	% of Relief	SD	SE	t	p
WBC Count	6123.333	6906.667	-783.3	12.79	1486.272	271.356	-2.886	0.0073
Neotrophils Count	58.8	52.833	5.96	10.14	9.114	1.664	3.585	0.0012
Eosinophils Cont	4.133	3.3	0.833	20.16	1.288	0.235	3.541	0.0014
Lymphocites Count	36.766	42.933	-6.16	16.77	9.439	1.723	-3.578	0.0012
Monocytes Count	0.633	1.366	-0.73	115.78	0.691	0.126	-5.808	0.0284
Basinophils Count	0	0	0	0	0	0	1	0
Haemoglobin Count	11.426	12.286	-0.86	7.52	0.706	0.129	-6.663	<0.0001
Serumcholestrol (HDL)	39	38.666	0.333	0.85	4.293	0.783	0.425	0.674
Serumcholestrol (LDL)	192.766	146.6	46.16	23.94	30.078	5.491	8.406	<0.0001
Serumcholestrol (VLDL)	12.5	16.966	-4.46	35.73	4.116	0.751	-5.94	<0.0001
Serum Triglycerids	62.166	84.5	-22.3	35.9249	20.202	3.688	-6.054	<0.0001
Serum Total	244	202.16	41.8	17.144	27.992	5.11	8.18	<0.000

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Haemoglobin count 7.52% , Serum Cholesterol (LDL) 23.94 %, Serum Cholesterol (VLDL) 35.73%, Serum Triglycerides 35.92 % , Serum total Cholesterol 17.144% relief was found which is statistically highly significant . WBC count 12 % , Neutrophils count 10%, Eosinophil count 20 %, Lymphocyte count 16.7%, monocyte count 115 % , Serum cholesterol (HDL) 0.85% relief was found which is statistically insignificant.

Table 11: Overall effect of treatment in Group A and B.

Assessment	'A' Group	'B' Group	Total	Percentage
Cured	3	4	7	10%
Markedly. Imp	5	6	11	16%
Moderately. Imp	12	12	24	26%
Mild.Imp	8	5	13	20%
Unchanged	2	3	5	7%

DISCUSSION

It is the necessity of time to refurbish the principles of Ayurveda in today's context. It is not sufficient to prove these principles conceptually but it should be supported by some clinical data. These principles cannot be accepted if they are not supported with clinical observations. Clinical study gives authenticity to such principles. It is already said that the study was undertaken to prove the principle 'Hrasa Hetur visesasca' clinically. The hypothesis decided for the study was *Vishesha* is a principle cause for *Hrasa* (Diminution). To prove this hypothesis a clinical study was performed in the patients of *Sthaulya*. Here *Sthaulya* is taken for the study because in *Sthaulya* there is abundant growth of *Medodhatu* in the body which is having *Prthvi* and *Apa Mahabhuta* dominance. It is a condition of *Vrddha Medodhatu*. So, it requires the drug which can cause *Hrasa* (diminution) of *Medodhatu* for its cure. As per the hypothesis of this study, this is the unique condition to apply *Vishesha*. *Vishesha* applied for this study was *Haritaki* and *Amalaki*. Both are having *Kaphagna* and *Medoghna* properties due to *Agni* and *Vayu Mahabhuta* dominance in them. So, it was thought at that time that being a *Vishesha* for *Medhodhatu*, *Haritaki* will cause *Hrasa* of increased *Medodhatu* in *Sthula* patients .

In present study it was observed that most of the patients i.e. 41% were from the age group of 20 to 30 years, 40% were from age group of 30-40 yrs. Modern textbooks also supports the same observations i.e. Excess weight gain usually starts when individuals are aged between 20 and 40 years with maximum body weight being achieved in middle age.[8] The reason behind this observations might be that as the age progresses person are not changing their dietic habits. As the age progress energy expenditure reduces but food intake providing energy remain the same. It leads to storage of excess energy in the form of fat, which leads to *Sthaulya* (Obesity).

In this study almost 80% patients were females. In young women, body fat stores may be below 30 percent and increase gradually to more than 35 percent in older women whereas in men it increases upto 25 percent only. In every region the prevalence of Obesity is higher among women then among men (Oxford's textbook of Medicine). The reason behind this observation might be the feminine factors like puberty, menstrual disturbances, menopause, post operative and oral contraceptives.

In this study maximum number of patients (73%) were married. This might be due to the middle age in which a person remains married. The reason behind this might be light nature of work, advancement of new techniques, tools (eg. Mixtures, washing machines) which reduces energy expenditure and besides these the most important cause is *Diwaswapna*. 78% patients were from middle class (S/E status). 18 % patients were from higher class. From this observation it cannot be said that *Sthaulya* has dominance in Middle class. In the present study 75 % patients were sedentary occupation, 23% patients

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were active occupation it shows sedentary occupation people more prone to *Sthaulya*. In the present study 95% patients get gradually increase of weight, 3% patients get insidious weight gain and 3% patients got rapid weight gain. It shows the time of onset of weight gain is gradually increased. In the present study 76% patients were of *Kapha Pitta Prakriti* and 23% patients were of *Kapha Vata Prakrti*. It shows the dominance of *Kaphadosha* in *Prakriti*, which is the most conductive one for *Sthaulya*. The study points out that involvement of *Kapha Dosa* playing very important role in *Sthaulya*. Most of the patients from the present study were having their weight between 60 to 80 kg. As the selection criteria of patients itself shows selection of overweight patients only. In this study maximum number of patients were found to have *Mandagni*. Obstructed *Vatadosa* due to *Medodhatu* leads to *Tiksnagni*, which is the major consequence of *Sthaulya*. Due to this *Tiksnagni*, whatever a person eats is digested in short time and patient demands for more food again and again. This might be due to *Tiksnagni* condition which manifests in the form of symptoms like increased *Abhyavaharana* and *Jaranasakti*. Maximum number of patients in the present study were i.e. 55% were Vegetarians, 38% patients were mixed. This observation reflects the predominant diet of this region which is vegetarian followed by local population. Vegetarian diet enriched with extra oil, butter, ghee, milk products causes production of extra fat which leads to conditions like *Sthaulya*.

Observations from clinical study shows the *Madhura* 87%, *Amla* 13% and *Lavana Rasa* 1%, *Katu* 98% consuming tendency of the patients. All the patients possessing *Katu Rasa Dravyas* are not prone to *Sthaulya*, in this study patients of this region used to consume more *Katu Dravyas*. As well as over indulgence of the patients in the diet having *Guru* 89 %, *Sheeta* 26% and *Snigdha Guna* 58% dominance. This is evidenced in classics as well as in previous studies that these are *Medovriddhikar* factors which ultimately leads to *Sthaulya*.

Maximum number of patients i.e. 25% were found to be doing moderate type of work followed by 75% who were doing sedentary type of work. In classics *Acharyas* have stated that causative factors like *Avyayama, Cestadvesa, Asanasukha* etc. Are the principles causes of *Sthaulya*. Maximum number of patients i.e. 72% were found to have sound sleep and 27% patients were having good sleeping hours as 6-8 hrs/day. Henceforth, sound sleep persons are more prone to *Sthaulya*. As it is stated in classics also that patients of *Sthaulya* are having *Kapha* dominant *Sharira Prakrti* and *Tamas* dominant *Manasprakrti,* so it is obvious that maximum number of patients should have sound sleep. This shows good prognosis of the disease.

Aharatmaka Nidanas were found in maximum number of patients as evidenced in classics. All these *Nidanas* were having *Kapha Medovriddhikar* properties and owing to these properties they increase *Kapha* and *Meda* in the body. *Viharatmaka Nidanas* reported in the present study were also as per classics. The combine effect of all these *Nidanas* is reduction in energy expenditure and increase in energy gain which ultimately disturbs the balance and leads to *Sthaulya*.

All the patients were selected for this study, after assessing the selection criteria for *Sthaulya*, so it is obvious that all the patients should have complaint of *Bharvrddhi*. 100% patients were found to be suffering from *Angagauravata*. The reason behind this is, *Medodhatu* is having *Prthvi* and *Aap Mahabhuta* dominance, so abundant growth of *Medodhatu* in *Sarira* leads to increase of *Gunas* like *Guru, Seeta, Snigdha* in the body, which ultimately leads to *Angagauravata*. It is also said in classics that *Medodhatu* produced in *Sthaulya* condition is in *Amavastha* which causes *Angagauravata*. In *Sthaulya, Medodhatu* obstructs the normal path of *Vatadosa*, this *Vatadosa* (*Samana Vayu*) stimulates the *Pachaka Pitta* in the *Kostha* which leads to symptom like *Atiksudha*. *Sweda* is said to be *Mala* of *Medodhatu*, increased production of *Medodhatu* increases *Swedapravrtti* of the body. This increased *Swedapravartuna* might be the reason behind *Atipipasa*.

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Better results were found in symptoms like *Atiksudha* and *Atinidra* in both group A and group B. Due to this reason symptom like *Atiksudha* were found to have better results. This is also evidenced in classics that *Haritaki* with its own properties can do the function of *Strotovibandhanasana*.

In *Kshudra Shwasa* 86% in group A and 81% patients were relieved in group B. in *Chala Sphik Stana Udara* 71% in group A and 59% in group B were relieved. In dourbalya 69% in group A and 61% in group B were relieved. In *Sweda Pravrutti* 76% in group A and 70% in group B were relieved. In *Dourgandhya* 54% in group A and 84% in group B were relieved. In *Atikshudha* both group 0.8% patients were relieved. In *Abhyavarana Shakti* 2.3% in group A and 3.7% in group B were relieved. In *Jarana Shakti* 20% in group A and 17% in group B were relieved . In *Pipasa* 30% in group A and 43% in group B were relieved. In *Alpa Vyavaya* 14% group B were relieved. In *Nidra* 47% in both group patients were relieved. In *Alasya* 74% patients of group A and 71% in group B were relieved. In *Snigdhangata* 70% in group A and 69% in group B were relieved. In *Anga Gourava* 77% in group A and 69% in group B patients were relieved. In Gatrasada 86% in group A and 66% in group B were relieved. In *Angashaithilya* 87% in group A and 84% in group B were relieved.

In BMI 2.92% in group A , 3.63% in group B waist circumference 0.70% in group A and 0.155% in group B , Hip circumference 1.2 4% in group A and 0.23% in group B . In Abdominal circumference 1.09% in group A and 1.13% in group B. In chest circumference 1.18% in group A and 1.19% in group B . In Mid arm 0.98% in group A and 1.89% in group B. Mid thigh circumference 2.02% in group A and 1.37 in group B . weight 3.02% in group A and 3.67% in group B . By this statistical data we can depict or conclude that group A is highly significant in reducing the BMI in all circumference as compared to group B .

In *Medovaha Srotas* the prominent symptoms are *Alasya* 86%, *Dourbalya* 81%, *Sphik Stana Udara Chalatwa* 75%, *Snigdhangata* 44% , *Angashaithilya* 64%, *Pipasa Atimatra* 58%, *Talushosha* 58%, *Swedabadha* 41%, *Dourgandhya* 38%, *Kantashosha* 26%, *Bahumutrata* 15%, *Javoparodha* 4%, *Atishlakshna* 9%, *Mutrasada* 3%.

CONCLUSION

By this statistical result we can conclude that Group A patients were more relieved than group B who were administered *Haritaki Churna*. *Nidanas* of *Sthaulya* mentioned in classics are now changing. Increasing stress, faulty dietary habits and decreased awareness regarding exercise are becoming the prominent causative factors for *Sthaulya*. The drug *Haritaki* and *Amalaki* shows better results on the objective parameters realted to obesity (i.e. body weight, BMI, body circumference) which shows depletory action. The hypothesis decided for the study was 'Vishesha' is the prime cause for *Hrasa*. Here it is clear that *Vishesha* applied were *Guna Vishesha*. Here significant result itself shows that *Vishesha* has done its role of Hrasa in betterway.

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