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Research Article

CLINICAL STUDY ON *MEDOROGA* WITH SPECIAL REFERENCE TO *VISESHA* BY *YAVAMALAKA CHURNA*

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ABSTRACT

The present era termed as age of Machines and Materialism has led to global economic advancement and affluence brought a drastic change in the life styles and living environment. Change in food habits, sedentary work, stressful environment etc. are the gifts of Industrialization to mankind. One side of life is happy with reduced physical activity and fat rich tasty food but the other side is showing affliction to chronic lifestyle disorders like diabetes mellitus, hypertension, cancer, ischemic heart disease, cerebro-vascular accidents, atherosclerosis, varicose veins etc. These diseases have been recognized as the leading killers of the millennium. Obesity is traced to be a major risk factor for these diseases. This study includes evaluate the applicability of concept of *Visesha* in *Medoroga* and clinical study on management of *Medoroga* by using *Yavamalaka churna* with special reference of "*Prakopana viparyayo hi dhatunam prasham karanam iti*". Considering the above problem this study was planned the concept of "*Prakopana viparyayo hi dhatunam prasham karanam iti*" in the management of *Medoroga* with *Yavamalaka churna* because *Medo dhatu* is *snigdha* and *guru* in nature while *Yava* (*Hordeum vulgarae*) is *Ruksha* and *Aguru* and *Amalaki* (*Emblica officinalis*) also *Ruksha* in nature. The *Amalaki* has *Tridoshahara* properties especially *Medohara*. So these two drugs have opposite properties to *medo dhatu*. Hence due to the concept of *Prakopana viparyayo hi dhatunam prashama karanam iti, yava* and *Amalaki* cause the *Hrasa* of *Medo dhatu*.

KEYWORDS: *Medoroga*, *Sthoulya*, *Yavamalaka churna*, *Samanya*, *Visesha*, Obesity.

INTRODUCTION

Obesity[1] is a contribution of the modern era. The emergence of this disease as a major health problem in public shows the epidemic form of the disease which is evident by rapid increase in its incidence. The world wide latest report on prevalence of obesity according to W.H.O. states that around 250 million cases of obesity are being reported every year afflicting about 7% of adult population. Total health care expenditure for obesity patients is estimated to be around 2-8% of total health cost. British Medical Journal states that two decades before 1/3 of worldwide population were suffering from obesity. As per its report, obesity causes 30,000 deaths per year. In spite of advanced technology and researches, the modern medicine is failing to give the best results for obesity, due to its multi-factorial nature. The importance of the adipose tissue in sustaining the body during starvation is evident even to a casual observer. Eating more energy than the body needs whether it is as fat, carbohydrate or protein leads to deposition of fat in the adipose tissue and contributes to development of obesity[2]. The causative factors are divided into three groups, Exogenous (Mostly related with over feeding), Endogenous (Related with endocrine factors), Miscellaneous (Remaining others are involved in

it). This failure made the people to look anxiously towards the ancient medical science like *Ayurveda* for better management. In *Ayurveda*, *Medoroga*[3] has been dealt by different *Acharyas* in reference to its causes, signs and symptoms[4], complications, prognosis and management. *Acharya Charaka* has described it as one among the *Ashtanindita purusha*[5] (eight despicable persons) and mentioned different principles of management. While *Acharya Sushruta* considers *Sthoola* [6] as *sadatura* because *Sthoulya* needs regular and continuous care and prevention is the best way of management. The principles of *Samanya* and *Visesha*[7-8] are very essential for the understanding of health and diseases. Due to the similar qualities of the substances our bodily tissues will causes growth. Similarly by regular intake of food which contains more fat causes *Medovriddhi* due to *Samanya*. In this conditions our *Acharyas* mentioned *as "prakopana viparyayo hi dhatunam prasham karanam iti* [9]*"*. It means we should select medicines *Yava* (*Hordeum vulgare* L.)[10] and *Amalaki* (*Emblica officinalis* Gaertn.)[11] which are having opposite qualities to Medo dhatu. So, *Yavamalaka churna* is selected which is having *Medohara* properties and acting as *Visesha* to this disease. The present study was planned to evaluate the efficacy of *Yavamalaka churna* in the management of *Medoroga* considering its cost effectiveness and easy usage on regular basis.

MATERIAL AND METHODS

Step 1: preparation of *Yavamalaka churna*

Materials

- *Yava* (*Hordeum vulgarae*), *Amalaki* (*Emblica officinalis*) - 4:1 ratios.

METHOD

Yava seeds cleaned, fried and then powdered in a grinder. *Amalaki* was powdered separately in grinder and mix the both powder. This is called *Yavamalaka churna*.

Step 2: Clinical Study

30 patients were selected for this study from O.P.D. & I.P.D. of S. V. *Ayurvedic* College Hospital on the basis of inclusion and exclusion criteria. The selected patients were subjected to take the prescribed drugs, *Bhrista yava* powder mixed with hot water in the dose of 10 gm BD and *Amalaki churna* with honey 3 gm BD Orally with hot water in *Prakbhaktam* for a period of 3 months. Treatment was planned under controlled diet pattern. All the patients were subjected to investigations as mentioned in material and methods. The progress and follow-up study was conducted 30 days.

Inclusion Criteria Age between 16-50 years, Waist hip circumference ratio >0.95 in males & >0.80 in females, BMI >25.

Exclusion Criteria

Patients aged below 16 yrs and above 50 yrs, Patients with systemic, metabolic and endocrine disorders like Diabetes, Hypothyroidism etc.

Assessment Criteria

Efficacy of treatment was assessed by the marked changes observed in the signs and symptoms which were recorded before, during and after the course of clinical trial. The assessment was done with the help of objective parameters and self-graded assessment scale for subjective parameters.

Subjective parameters

Ayasa swasa (Dyspnoea on exertion), *Adhika kshudha* (Excessive Hunger), *Athi Pipasa* (excessive thirst), *Sweda adhikyata* (Excess sweating), *Chalsphikudarastanah* (Pendulous movement of hip, abdomen & breast), *Daurgandhya* (Bad body odours).

Objective parameters:

Weight, BMI, Circumference of Chest, Waist, Hip, & Mid-arm, Waist-Hip Ratio and Lipid profile.

Grading for subjective parameters

1. Assessment of *Ayasa swasa* (Dyspnoea on exertion):
   Absent - grade 0
   Dyspnoea on moderate work - grade 1
   Dyspnoea on slight work - grade 2
   Dyspnoea even at rest - grade 3
2. Assessment of *Adhika kshudha* (excessive hunger) :
   Feels hunger at next annakala only - grade 0
   Feels hunger for once in between Anna kala - grade 1
   Feels hunger for more than twice - grade 2
   Feels hunger always - grade 3
3. Assessment of *Athi Pipasa* (excessive thirst):
   Normal thirst - grade 0
   Up to one liter excess intake of water / fluids - grade 1
   Up to two-three liter excess intake of fluids - grade 2

More than three liter excess intake of fluids - grade 3

4. Assessment of *Sweda adhikyata* (Excess sweating) :
   No sweating - grade 0
   Profuse sweating after moderate work - grade 1
   Profuse sweating after slight work - grade 2
   Sweating even in resting condition - grade 3
5. Assessment of *Chalsphikudarastanah* (Pendulous movement of hip, abdomen & breast) :
   No feeling of movement - grade 0
   Feels slight movement but it doesn't hampers routine work - grade 1
   Feels less movement and hampers routine work - grade 2
   Feels more movement - grade 3
6. Assessment of *Daurgandhya* (Bad body odours) :
   Absent grade - 0
   Feeling after moderate work grade - 1
   Feeling after slight work - grade 2
   Feeling even in resting condition - grade 3

OBSERVATION

1. In the present study, 30 patients of *Medoroga* were treated with *Yavamalaka churna*. The effect of this therapy on the subjective and objective parameters of *Medoroga* patients are presented here. The mean score was reduced from 1.96 to 1.26 with 35.59% of mean improvement with highly statically significant at the level of p<0.0001.

Table 1: Changes in *Ayasa swasa*

Response	Changes	Patients	%
No	0	11	36.7
Mild	1	17	56.7
Moderate	2	02	06.6
Good	3	0	00

2. The mean score was reduced from 2.20 to 1.16 with 46.97% of mean improvement with highly statically significance at the level of p<0.0001.

Table 2: Changes in pendulous movement of *Sphik*

Response	Changes	Patients	%
No	0	4	13.3
Mild	1	21	70
Moderate	2	05	16.7
Good	3	0	00

3. The mean score was reduced from 2.36 to 1.56 with 33.80% of mean improvement with highly statically significance at the level of p<0.0001.

Table 3: Changes in pendulous movement of *udara*

Response	Changes	Patients	%
No	0	11	36.7
Mild	1	14	46.7
Moderate	2	05	16.6
Good	3	0	00

4. The mean score was reduced from 1.93 to 1.33 with 31.03% of mean improvement with highly statically significance at the level of p<0.0001.

Table 4: Changes in pendulous movement of *Stana*

Response	Changes	Patients	%
No	0	13	43.3
Mild	1	16	53.4
Moderate	2	01	3.3
Good	3	0	00

5. The mean score was reduced from 2.06 to 1.10 with 46.77% of mean improvement with highly statically significance at the level of p<0.0001.

Table 5: Changes in *Ati kshudha*

Response	Changes	Patients	%
No	0	07	23.3
Mild	1	17	56.7
Moderate	2	06	20
Good	3	0	00

6. The mean score was reduced from 1.70 to 1.03 with 39.21% of mean improvement with highly statically significant at the level of p<0.0001.

Table 6: Changes in *Ati pipasa*

Response	Changes	Patients	%
No	0	12	40
Mild	1	16	53.3
Moderate	2	02	6.7
Good	3	0	00

7. The mean score was reduced from 2.10 to 1.03 with 50.79% of mean improvement with highly statically significant at the level of p<0.0001.

Table 7: Changes in *Swedadhikyata*

Response	Changes	Patients	%
No	0	04	13.3
Mild	1	20	66.7
Moderate	2	06	20
Good	3	0	00

8. The mean score was reduced from 2.03 to 1.03 with 49.18% of mean improvement with highly statically significance at the level of p<0.0001.

Table 8: Changes in *Ati daurgandhyata*

Response	Changes	Patients	%
No	0	06	20
Mild	1	18	60
Moderate	2	06	20
Good	3	0	00

9. There was a maximum of 9 kg decrease, and it showed highest percentage i.e.26.7% of good response. The mean score was reduced from 82.96 to 78.03 with 36.91 of mean percentage benefit with highly statically significance at the level of p<0.0001.

Table 9: Changes in weight before and after treatment

Response	Changes	Patients	%
Poor	0-3 kg	09	30
Moderate	3-6 kg	13	43.3
Good	6-9 kg	08	26.7

10. 50% percentage of patients showed good response i.e. >2 BMI variation, 33.3% showed 2and 16.7% showed ≤ 1 BMI variations. The mean score was reduced from 31.20 to 29.34 with 36.90 of mean improvement with highly statically significance at the level of p<0.0001.

Table 10: Changes in BMI

Response	Changes	Patients	%
Nil	0	0	0
Mild	≤1	05	16.7
Moderate	2	10	33.3
Good	>2	15	50

11. 20% of patients showed a reduction of more than 2cm chest circumference, 63.3% showed 2cm, 10% showed ≤1cm. But only 6.7% showed no response. The mean score was reduced from 95226 to 93.23 with 25.93% of mean improvement with highly statically significance at the level of p<0.0001.

Table 11: Changes in chest circumference

Response	Changes in cm.	Patients	%
Nil	0	02	6.7
Mild	≤ 1	03	10
Moderate	2	19	63.3
Good	> 2	06	20

12. 56.7% of the patients of showed the reduction of more than 2cm waist circumference. The mean score was reduced from 97 to 94.53 with 12.21% of mean improvement with highly statically significance at the level of p<0.0001.

Table 12: Changes in waist circumference

Response	Changes in cm.	Patients	%
Nil	0	00	00
Mild	≤ 1	04	13.3
Moderate	2	09	30
Good	> 2	17	56.7

13. 30% of patients showed reduction of more than 2cm, 53.3% showed 2cm and 16.7% showed ≤1cm hip circumference. The mean score was reduced from 109.53 to 107.28 with 15.60% of mean improvement with highly statically significance at the level of p<0.0001.

Table 13: Changes in hip circumference

Response	Changes in cm.	Patients	%
Nil	0	00	00
Mild	≤ 1	05	16.7
Moderate	2	16	53.3
Good	> 2	09	30

14. There is no reduction more than 2cm of mid arm circumference.

Table 14: Changes in mid arm circumference

Response	Changes in cm.	Patients	%
Nil	0	07	23.3
Mild	≤ 1	13	43.4
Moderate	2	10	03.3
Good	> 2	0	0

15. There is no reduction more than 1.

Table 15: Changes in waist-hip ratio

Response	Changes	Patients	%
Nil	0	08	26.6
Mild	≤ 1	22	73.3
Moderate	2	00	0
Good	> 2	00	0

16. 46.7% patients showed mild reduction, 26.7% patients showed moderate while 10% patients showed good response. 2 patients showed no response. 3 patients showed increase in serum cholesterol level.

Table 16: Changes in total serum cholesterol

Response	Changes in mg/dl	Patients	%
Nil	0	2	6.6
Mild	0-5	14	46.7
Moderate	5-10	08	26.7
Good	> 10	03	10

17. 43.3% of the patients showed a moderate increase, 20% showed good while 16.7% showed mild increase in serum HDL. But 6 patients showed reduction in serum HDL level.

Table 17: Changes in serum HDL

Response	Changes in mg/dl	Patients	%
Mild	0-5	05	16.6
Moderate	5-10	13	43.3
Good	> 10	06	20

18. 56.6% patients showed moderate reduction, 23.3% showed mild and 6.6% showed good reduction in serum LDL level. But 4 patients showed increase in serum LDL level.

Table 18: Changes in serum LDL

Response	Changes in mg/dl	Patients	%
Mild	0-10	07	23.3
Moderate	10-20	17	56.7
Good	> 20	02	06.6

19. 63.3% of patient showed moderate reduction, 16.6% showed mild reduction and 3.3% showed good reduction in serum triglyceride. But 5 patients showed increase in serum triglyceride level.

Table 19: Changes in serum triglycerides

Response	Changes in mg/dl	Patients	%
Mild	≤ 10	19	63.3
Moderate	10-20	05	16.6
Good	≥ 21	01	03.3

Table 20: Statistics of subjective parameters

Subjective parameter	Mean BT	Mean AT	Mean diff.	Mean % improvement	S.D	S.E	"t" valve	"p" value	Remarks
Ayasa shwasa	1.96	1.26	0.70	35.59	0.59	0.10	6.43	<0.001	HSS
Chala sphik	2.20	1.16	1.03	46.97	0.55	0.10	1017	<0.001	HSS
Chala stana	1.93	1.33	0.60	31.03	0.56	0.10	5.83	<0.001	HSS
Chala udara	2.36	1.56	0.80	33.80	0.71	0.13	6.13	<0.001	HSS
Ati Kshuda	2.06	1.10	0.96	46.77	0.66	0.12	7.91	<0.001	HSS
Ati Pipasa	1.70	1.03	0.66	39.21	0.60	0.11	6.02	<0.001	HSS
Swedhadhikya	2.10	1.03	1.06	50.79	0.58	0.10	10.01	<0.001	HSS
Daurgandhya	2.03	1.03	1.00	49.18	0.64	0.11	8.51	<0.001	HSS

Table 21: Statistics of objective parameters

Objective parameter	Mean BT	Mean AT	Mean diff.	Mean % improvement	S.D	S.E	"t" valve	"p" value	Remarks
Weight	82.96	78.03	4.93	36.90	2.03	0.37	13.29	<0.001	HSS
BMI	31.20	29.34	1.86	36.90	0.75	0.13	13.44	<0.001	HSS
Chest Circum	95.26	93.23	2.03	25.93	0.97	0.17	11.44	<0.001	HSS
Waist Circum	97.00	94.53	2.46	12.21	0.89	0.16	15.01	<0.001	HSS
HipCircum	109.53	107.28	2.25	15.60	0.93	0.17	13.17	<0.001	HSS
Mid Arm Circum	31.03	30.11	0.91	29.23	0.68	0.12	7.34	<0.001	HSS
Waist-Hip Ratio	0.89	0.88	0.01	15.91	0.006	0.001	6.82	<0.001	HSS
Total Serum Cholesterol	157.4	152.57	4.83	76.56	6.41	1.17	4.12	<0.001	HSS
Serum Triglyceride	122.23	111.97	10.26	14.29	26.93	4.91	2.08	<0.046	SS
Serum HDL	45.06	51.3	6.23	63.07	7.39	1.35	4.61	<0.001	HSS
Serum LDL	91.66	80.8	10.86	11.70	10.82	1.97	5.50	<0.001	HSS

Table 22: Statistics of total parameters

Parameters	Mean BT	Mean AT	Mean diff.	Mean % improvement	S.D	S.E	"t" valve	"p" value	Remarks
Total Objective Parameters	864.26	830.06	34.20	56.38	32.9	6.02	5.68	<0.001	HSS
Total Subjective Parameters	16.36	9.53	6.83	41.75	7.6	0.32	21.22	<0.001	HSS
Total Parameters	880.63	839.39	41.03	49.06	33.26	6.07	6.75	<0.001	HSS

DISCUSSION

Discussion on subjective parameters

A total of eight subjective parameters were taken for the study. Most patients do not have significant complaints of subjective *lakshanas*. Because only patients with *avara sthola* were taken for the study as it was aimed at curative aspect. A few patients who complained of subjective *Lakshanas* have responded well in general. "*Krucchra vyavaya*" was not analyzed, as most of the patients were sensitive to reveal their sexual performance and their desire towards sex. Some of the parameters like *Ayase shwasa*, *Chalatwa of Sphik*, *Udara* and *Sthana*, *Swedadhikyata*, *Daurgandhyata*, *Anga shitilatha* responded mildly as the patients were mildly affected by these symptoms. This shows that *yavamalaka churna* is having significant efficacy in relieving associated features

On weight: Patients had decreased weight with an average of 4.95 ± 2.03 after completion of treatment. The maximum decrease was 9 kg. The t' value of 13.29 ($p<0.001$) indicates that the patients has responded significantly towards the reduction of weight.

On BMI: Maximum decrease of 3.07 with average decrease of 1.86 ± 0.75 is seen after completion of treatment with 't' value of 13.44 which shows high significance ($p<0.001$).

On lipid profile: Lipid profile was done for the subjects to assess the effect of drug on it. Lipid profile has shown response in reduction of triglycerides, LDL and total cholesterol, and an increase in HDL levels.

Total Serum Cholesterol: All the patients had decrease in cholesterol level except in three subjects where there was increase. Out of 30 patients 27 patients got decrease in their total cholesterol. Minimum decrease 0.00 mg/dl, Maximum decrease 19.00 mg/d. It has shown highly significant response of 't' value of 4.12 ($p<0.001$). The exact reason is not known for the increase in total cholesterol but the values taken before and after treatment were under normal limits and hence this change may be due to subjective physiological variation.

HDL: The 24 patients had shown increase in HDL levels while 6 patients have shown decrease in HDL level. The minimum increase is 2.00 mg/dl. The maximum increase is 20.00 mg/dl. Out of 30 patients 6 patients had shown decrease in HDL levels. The reason for decrease in HDL of these patients is not known. The increase in HDL level i.e. good cholesterol indicating the efficacy of drugs.

LDL: All patients had shown decrease in their LDL levels except 4 patients. The minimum decrease is 2.00 mg/dl. The maximum decrease is 23.00 mg/dl. There was decrease in LDL levels with an average of 10.86 ± 10.82 mg/dl.

Triglycerides: There was considerable variation in Triglycerides levels. All the patients had decrease in Triglycerides levels except 5 patients. Minimum decrease 1.0 mg/dl, Maximum decrease 149.0 mg/dl, Average decrease 10.26 ± 26.93 mg/dl

Discussion on anthropometric (human body measurements) changes

Reduction in body weight, B.M.I, Circumference, depends upon the proportion of fat. Fat is 1.5 times heavier than lean body mass and occupies more area in the body. So when the proportion of fat increases simultaneously body weight and body circumference also increases. When it reduces all these parameters also decrease. In the chapters of literary review it is already mentioned about the importance of anthropometric measurements. In brief, these measurements reflect the variation in the stored fat. And so the abdominal circumference, hip circumference and measurements of such other parts where fat is stored is helpful in assessing

the obesity. In the present study, there was decrease in various body measurements. The mean reduction in abdominal circumference is 0.8 ± 0.71 cm which is highly significant with p value of <0.001. There was similar reduction in the other anthropometric values as mentioned in the observation. Mild changes in these anthropometric values suggest that, the storage of fat under the skin was mildly decreased.

CONCLUSION

Medodhatu is *snigdha* and *guru* in nature while *Yava* is *Ruksha* and *Aguru* (*Laghu*) and *Amalaki* also *Ruksha* in nature especially *Tridoshahara* and *Medohara*. So these two *Dravyas* has opposite properties to *Medo dhatu*. Hence due to the concept of *Prakopana viparyayo hi dhatunam prashama karanam iti, yava* and *Amalaki* cause the *Hrasa* of *Medo dhatu*. The *Aushadha kala* as mentioned in the classics was advocated to treat the disease effectively because it causes *Lekhan* and *Krishkarana*. The diet and exercises are vital in maintaining *Madhyama sharira* and hence it constitutes part and parcel of obese individuals. These act as supportive therapy in the management of *Medoroga*. Internal usage of *Yavamalaka churna* has given significant results in reducing *Medoroga*. It is evident by the significant changes in the subjective and objective parameters documented before and after the treatment.

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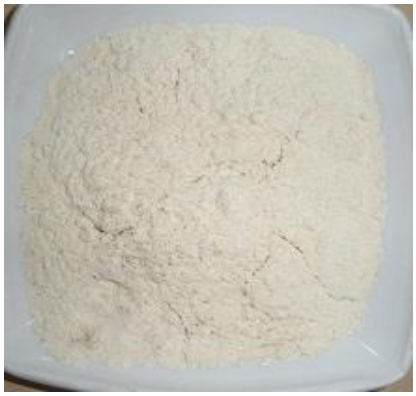
PHOTOGRAPHS

YAVA PLANTS

YAVA SEEDS



YAVA POWDER

AMALAKI PLANT WITH FRUITS

AMALAKI POWER