A DOUBLE BLIND RANDOMIZED DRUG CONTROL TRIAL IN THE MANAGEMENT OF MEDOROGA WITH HYPERLIPIDEMIA – SHADUSHAN GUGGULU *VERSUS MUSTADI GHANAVATI"*

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ABSTRACT

Twenty first century advancement leads to sedentary life style of people in turns leads to variable non communicable diseases. The risk of various diseases like coronary artery disease, cardiovascular diseases (CVDs), hypertension, hyperlipidemia, diabetes mellitus, osteoarthritis, atherosclerosis and various types of cancers increases many times in association with obesity. In present era, the incidence of obesity is increasing day by day due to lack of physical activities ,consuming excess calorie from high fat food and doing little or no physical activity, emotional stress etc that lead to obesity and in turn Hyperlipidemia. A number of herbal, mineral and herbo-mineral medicines are described in various ancient text of *Ayurveda* for treating *Medoroga.* Among these we have chosen *Shadushan Guggulu* described in *Bharat Bhaishajya Ratanakar* which is having ingredients like *Pipali, Pipalimula, Chavya, Chitraka, Sunthi, Marich, Shudha Guggulu (Purana)* and Go*ghrit.* Because of their *Kaphaghna* and *Medohara* properties mentioned in literature *(B. B. R. part 5 Shakaradiguggulu Prakarana / 7750)* drug is selected. Taking all above view in consideration it was thought in mind to evaluate the effective medicine and to achieve goal of treatment in *Medoroga having Hyperlipidemia by Ayurvedic* management as described earlier.

KEYWORDS: Hyperlipidemia, Medoroga, Obesity.

INTRODUCTION

Twenty first century advancement leads to sedentary life style of people in turns leads to variable non communicable diseases. The risk of various diseases like coronary artery disease, cardiovascular diseases (CVDs), hypertension, hyperlipidemia, diabetes mellitus, osteoarthritis, atherosclerosis and various types of cancers increases many times in association with obesity. In present era, the incidence of obesity is increasing day by day due to lack of physical activities ,consuming excess calorie from high fat food and doing little or no physical activity, emotional stress etc that lead to obesity and in turn Hyperlipidemia.

Direct reference is not mentioned in any of the *Ayurvedic* texts regarding Hyperlipidemia. *Charak* described *Medoroga* in the list of eight most unwanted diseases (Ch.Su 21). It is also describe in *Santarpanajanita Roga* (Ch.Su 23). The word *Atisthaulya* mentioned in this context. In general Hyperlipidemia can be considered under the title of '*Medoroga*' which is mentioned in '*AshtaNinditiya Roga*' as "*SthaulyaRoga*". According to *Charaka* in case of fatty person, other *Dhatu* doesn't grow to the extent (Ch.Su.21/4). The relation of Hyperlipidemia and Obesity is already established by M. Nandkarni in her PG thesis. Hyperlipidemia or dyslipidemia is the term which denote raised serum total cholesterol level or Triglyceride or low density lipoprotein cholesterol or both. *Ayurvedic* medicines are having multi targeted action and with minimal side effects. A number of herbal, mineral and herbo-mineral medicines are described in various ancient text of *Ayurveda* for treating *Medoroga.* Among these we have chosen *Shadushan Guggulu* described in *Bharat Bhaishajya Ratanakar* which is having ingredients like *Pipali, Pipalimula, Chavya, Chitraka, Sunthi, Marich, Shudha Guggulu (Purana)* and Go*ghrit.* Because of their *Kaphaghna* and *Medohara* properties mentioned in literature *(B. B. R. part 5 Shakaradiguggulu Prakarana / 7750)* drug is selected. Taking all above view in consideration it was thought in mind to evaluate the effective medicine and to achieve goal of treatment in *Medoroga having Hyperlipidemia by Ayurvedic* management as described earlier. To evaluate effect of drug and to compare their results double blind method was used in randomly selected 60 patients of *Medoroga* computer generate list of patients was used for that purpose. The drug were prepared in well known pharmacy and they were labelled as drug in Group A and Drug in Group B. Drugs prepared were looking same in presentation. The detailed of Drugs was sealed by concerned company manger in envelope and was handed over to HOD of the department. After complete analysis the envelope was opened in presence of guide, teachers of department and HOD of department.

AIMS AND OBJECTIVES

AIMS

To study effect of *Shadushan Guggulu* on the management of Medoroga with Hyperlipidemia and to compare its result with that of *Mustadi Ghanavati*.

OBJECTIVES

Primary

1. To assess the clinical efficacy of *Shadushan Guggulu* on different parameters of *Medoroga* with Hyperlipidemia.

2. To compare the clinical efficacy of *Shadushan Guggulu* with that of *Mustadi Ghanavati*.

Secondary

To study pathogenesis of *Medoroga* with Hyperlipidemia according to *Ayurveda* and Modern classics.

Study Design: Double Blind study.

Ethical Clearance: Clearance from Ethical committee of our College Was obtained before beginning of research work.

Place of Work: Patients coming to OPD & IPD of *Kayachikitsa* Department.

Table No-1: Table Showing Managements of Groups.

Particulars	GROUP A	GROUP B
DRUG	The group A drug	The group B drug
DOSE	2 tablets of 500mg	2 tablets of 500mg
ANUPANA	Lukewarm water	Lukewarm water
FREQUENCY	Thrice a day *Abhaktakal*	Thrice a day *Abhaktakal*
DURATION	3 Months	3Months

Inclusion Criteria

1) Patients fulfilling diagnostic criteria of NCEP and signs and symptoms of *Medoroga.*

2) Patients of either sex irrespective of religion between 30-60 years.

3) Patient willing and able to participate in the study.

EXCLUSION CRITERIA

1) Patients not willing for trial.

2) Patients having BMI less than 23.

3) Patients having complication such as cardiovascular disorder.

4) Patients having other systemic complications like malignancies or having hepatic/renal problems.

5) Patients having poorly controlled blood pressure >160/100 mmHg.

6) Patients on prolonged medication (>6weeks) with corticosteroids, or any other drugs that may have an influence on the outcome of the study.

7) Patients who are currently participating in any other clinical trials (since last 6months).

8) Patients having serious cardiac disorders like myocardial infarction (MI), cardiac failure etc.

9) Patients having a history of untreated thyroid disorder.

10) Pregnant females and lactating mothers.

DIAGNOSTIC CRITERIA

It was mainly based on the specially prepared pro-forma, including all clinical signs and symptoms of the disease in which detailed history were taken and physical examination was done.Patients were diagnosed.

As per National Cholesterol Education Program (NCEP) Guidelines

1. Serum Cholesterol (201 mg/dl or more)

2. Serum Triglycerides (151 mg/dl or more)

3. Serum LDL (131 mg/dl or more)

4. Serum VLDL (41 mg/dl or more)

Any one or more of the above criteria along with BMI >23 was selected.

5. Standard height–weight chart were included.

6. The value of BMI was used (>23)

7. Waist and Hip circumference

8. Waist /Hip ratio

9. Also signs and symptoms of Medoroga mentioned in the classics were considered for the diagnosis   which is listed in a specially designed Performa for the assessments.

The symptoms are.

Sr. no	Symptoms
1.	*Chala Sphika Udar*
2.	*Alasya / Utsahahani*
3.	*Kshudra Svasa/ Ayasena Svasa*
4.	*Daurbalya(Alpa Vyayama)*

5.	*Nidradhikya*
6.	*Swedadhikya*
7.	*Daurgandhya*
8.	*Snigdhata*
9.	*Ati Pipasa*
10.	*Ati Kshuda*
11.	*Anga Gaurava*
12.	*Sandhi Shoola*
13.	*Gatra Sada*

INVESTIGATIONS

1) Routine blood and urine investigations were done before treatment to rule out any other co-morbidities or complications.

2) Blood sugar before treatment was done.

3) Lipid Profile before and after treatment.

CRITERIA FOR ASSESSMENT

The patients were examined at each follow up and scoring pattern and objective signs was recorded to assess any changes present in the patients. After completion of three months of treatment, the efficacy of the therapy was assessed on the basis of the following subjective as well as objective criteria.

1. OBJECTIVE

It was assessed as per given in diagnostic criteria and a specialized scoring pattern was devised, lipid profile was given a total score of 100, with each of the parameters of the lipid profile i.e. serum cholesterol, serum triglycerides, serum HDL, serum LDL, serum VLDL given a score of 20 the range of lipid profile was decided as per the American Journal of Lifestyle and accordingly the scoring pattern was set.

1) Serum cholesterol

Serum cholesterol	Score
>240 mg/dl	0
200-239 mg/dl	10
<200 mg/dl	20

2) Serum Triglyceride

Serum Triglyceride	Score
<150 mg/dl	0
150-199 mg/dl	5
200-499 mg/dl	10
>500 mg/dl	20

3) Serum HDL

Serum HDL	Score
<40 mg/dl	0
40-60mg/dl	10
>60 mg/dl	20

4) Serum LDL

Serum LDL	Score
>190 lmg/dl	0
160-189mg/dl	5
130-159mg/dl	10
<130 mg/d	20

5) Serum VLDL

Serum VLDL	Score
>120 mg/dl	0
80-120 mg/dl	5
40-80 mg/dl	10
<40 mg/dl	20

2. Subjective

There are no available signs and symptoms of Hyperlipidemia mentioned directly in any of the modern texts, where as the majority of the patients presented with complaints associated with *Medorog*a. Hence the signs and symptoms of *Medoroga* are used.

Gradation of symptoms

1. *Chala Sphika Udar*

Absence of *Chalatva*	0
Little visible movement (in the areas) after fast movement	1
Little visible movement (in the areas)even after moderate movement	2
Little visible movement (in the areas)even after moderate movement	3
movement (in the areas) even after changing posture	4

2. *Alasya / Utsahahani*

No *Alasya* doing work satisfactorily with proper vigor in time	0
Doing work satisfactorily with late initiation	1
Doing work unsatisfactorily under mental pressure and takes time	2
Not starting any work on his own responsibility and doing little work	3
Not starting any work on his own responsibility and doing very slowly	4
Does not take any initiation and does not want to work even after pressure	5

3. *Kshudra Svasa / Ayasena Svasa.*

Dyspnoea after heavy work (movement) but relieved soon and up to tolerance	0
Dyspnoea after moderate work but relieved later and up to tolerance	1
Dyspnoea after little work but relieved later and up to tolerance	2
Dyspnoea after little work but relieved later and beyond tolerance	3
Dyspnoea in resting condition	4

4. *Daurbalya (Alpa Vyayama)*

Can do routine exercise	0
Can do moderate exercise without difficulty	1
Can do only mild exercise	2
Can do mild exercise with difficulty	3
Cannot do even mild exercise	4

5. *Nidradhikya*

Normal sleep 6-7 hrs per day	0
Sleep up to 8 hrs per day with *Angagaurava*	1
Sleep up to 8 hrs per day with *Angagaurava* and *Jrimbha*	2
Sleep up to 10 hrs per day with *Tandra*	3
Sleep more than 10 hrs per day with *Tandra* and *Klama*	4

6. *Swedadhikya*

Sweating after heavy work and fast movement or in very hot season	0
Profuse sweating after moderate work and movement	1
Sweating after little work and movement	2
Profuse sweating after little work and movement	3
Sweating even at rest or in cold season	4

7. *Daurgandhya*

Absence of body odour	0
Occasional body odour removed after bathing	1
Persistent body odour limited to closed areas difficult to suppress with deodorants	2
Persistent body odour limited felt from long distance not suppressed withdeodorants	3
Persistent body odour limited felt from long distance not tolerated evenby patient himself	4

8. *Snigdhangata*

Normal Snigdhata (body luster)	0
Oily luster of the body in summer season	1
Oily luster of the body in dry season	2
Excessive oily luster of the body even in dry season which is removed with difficulty	3
Persistent and profuse stickiness all over the body	4

9. *Ati Pipasa*

Normal thirst	0
Upto 1 liter excess intake of water	1
1 to 2 liter excess intake of water	2
2 to 3 liter excess intake of water	3
More than 3 liter excess intake of water	4

10. *Ati Kshudha*

Ati *Kshudha* is decided on the basis of *Ruchi, Abhyavaharana Shakti* and *Jarana Shakti.*

Ruchi

Totally unwilling for food	0
Unwilling for food but can take meal	1
Willing towards only most liking food and not to other foods	2
Willing towards only one among Katu/ Amla /Madhura food stuffs	3
Willing towards some specific Ahara or Rasavishesha	4
Equally willing towards all Bhojya Padartha	5

Abhyavaharana Shakti

Person not at all taking food	0
Person taking food in less quantity once a day	1
Person taking food in less quantity twice a day	2
Person taking food in moderate quantity twice a day	3
Person taking food in normal quantity twice a day	4
Person taking food in excessive quantity twice or thrice a day	5

Jarana Shakti

Presence of one symptom after 6 hrs	0
Presence of two symptoms after 6 hrs	1
Presence of three symptoms after 5 hrs	2
Presence of four symptoms after 5 hrs	3
Presence of all symptoms after 4 hrs	4
Presence of all symptoms within 4 hrs	5

Graded according to the symptoms of *Jirna Ahara Lakshana* (*Madhava Nidan* 6/24).

11. *Anga Gaurava* **(Heaviness of body)**

No heaviness in the body	0
Feels heaviness in the body but it does not hamper routine work	1
Feels heaviness in the body which hampers daily routine work	2
Feels heaviness in the body which hampers movement of the body	3
Feels heaviness in the body along with flabbiness which causes great distress to the person	4

12. *Sandhishula*

No Sandhishula	0
Mild pain due to excessive walking	1
Moderate pain due to moderate walking relieved later and up to tolerance	2
Severe pain due to mild walking relieved later and beyond tolerance	3
Pain at time of rest even	4

13. *Gatra Sada*

Symptoms	Gradation
No fatigue	0
Little fatigue in doing hard work	1
Moderate fatigue in doing routine work	2
Excessive fatigue in doing routine work	3
Excessive fatigue even in doing little work	4

OBSERVATION AND RESULTS

In this study 60 patients of *Medoroga* with Hyperlipidemia were studied. After completion of therapy all values of investigation and examinations were recorded and it was termed as after treatment values.

All observation was statistically analyzed and results obtained are presented below.

Table no-2: Table Showing Distribution of Patient in Each Group of Medoroga with Hyperlipidemia.

Group	Group A	Group B	Total
Number of patient in beginning	32	32	64
Patients Dropped out	2	2	4
Patient remain till the end of trial	30	30	60

Table No. 3: Showing Percentage of Relief (Subjective Criteria) in Each Symptom of 60 Patients.

Sr. No	Symptoms	Group A				Group B			
		BT	AT	Diff	% of Relief	BT	AT	Diff	%of Relief
	Subjective Criteria								
1.	*Kshudra Svasa*	76	30	46	**61%**	90	17	73	**81.11%**
2.	*Sandhishula*	85	31	54	**63.52%**	85	15	70	**82.4%**
3.	*Gatrasada*	86	38	48	**55.81%**	83	12	71	**85.54%**
4.	*Daurgandhya*	65	30	35	**53.8%**	68	12	56	**82.35%**
5.	*Swedadhikya*	76	28	48	**63.15%**	65	6	59	**90.8%**
6.	*Atipipasa*	99	46	53	**53.33%**	87	6	81	**93.1%**
7.	*Snigdhangata*	76	27	49	**64.47%**	85	8	77	**91%**
8.	*Daurbalya*	86	35	51	**59.3%**	78	12	66	**84.6%**
9.	*Alasya*	94	43	51	**54%**	79	13	66	**84%**

10.	*Abhyavaharana Shakti*	127	78	49	**38.58%**	123	66	57	**46%**
11.	*Chala Sphika udar*	74	37	37	**50%**	61	25	36	**59%**
12.	*Jaran Shakti*	119	59	60	**50.42%**	120	58	62	**52%**
13.	*Anga Gaurava*	92	35	57	**61.9%**	81	11	70	**86%**
14.	*Nidradhikya*	105	33	72	**68.5%**	85	12	73	**85.9%**

Table No. 4: Table Showing Effect of Therapy On Physical Parameters of 60 Patients of *Medoroga* By Paired t test.

Sr No.	Physical Parameter in respective unit	Group	Mean ± SD BT	Mean± SD AT	Diff. of Mean ± SD	SEd	't'	P
1	Weight in Kg	GA	76.3±5.60	72.8±6.33	3.5±1.27	0.23	14.97	<0.001
		GB	72.06±7.2	65.46±7.33	6.6±1.45	0.26	24.88	<0.001
2	BMI in kg/m2	GA	30.22±2.23	28.82±2.37	1.4±0.56	0.10	13.61	<0.001
		GB	28.62±2.50	25.97±2.45	2.65±0.70	0.12	20.67	<0.001
3	W:H Ratio	GA	0.97±0.01	0.96±0.01	0.0013±0.003	0.00058	2.282	<0.001
		GB	0.97±0.01	0.96±0.01	0.0033±0.004	0.00089	3.688	<0.0001

Table no 5: Table Showing Effect of Therapy On Hematological, Parameters of 60 Patients of *Medoroga*.

Sr. No.	Hematological Parameter in respective unit	Group	Mean ± SD BT	Mean ± SD AT	Diff. of Mean ± SD	SEd	't'	P
1.	Total cholesterol in mg/dl	GA	219±32.75	182±30.31	37.1	5.64	6.57	<0.001
		GB	247±32.10	193±10.68	53.36	4.89	10.89	<0.001
2.	HDL in mg/dl	GA	41.32±3.57	43.94±3.41	-2.626	0.79	-3.28	<0.001
		GB	42.46±4.14	42.83±1.66	-0.366	0.70	-0.52	>0.01
3.	VLDL in mg/dl	GA	41.28±14.28	33.57±11.75	7.71	1.57	4.91	<0.001
		GB	48.63±9.05	37.1±6.24	11.533	1.11	10.37	<0.001
4.	Triglyceride in mg/dl	GA	209.8±71.77	168.3±58.38	41.5	7.56	7.56	<0.001
		GB	263.16±52.18	184.8±30.86	78.36	5.81	5.81	<0.001
5.	LDL in mg/dl	GA	136.93±28.85	105.36±25.25	31.57	4.76	4.76	<0.001
		GB	146.86±19.35	111±11.87	35.86	2.93	2.93	<0.001

Probable action of Shadushan Guggulu: All the ingredients of '*Shadushan Guggulu'* are *Katu, Tiktarasatmak* and *Ushnaviryatmak*. The combined effect of drug on Medaroga may be *Lekhan, Vata-Kapha Shaman, Deepana, Pachana* especially on *Meda Dhatwagni*.

Table no 6: Showing Total effect of therapy in 60 patients of *Medoroga* with Hyperlipidemia.

Sr. no	Effect of therapy	No. of patients			Percentage %		
		GA	GB	Total	GA	GB	Total
1	Complete remission 100%	00	00	00	00	00	00%
2	Marked improved>75%	00	00	00	00	00	00%
3	Moderate improved (50-75%)	01	12	13	3.33	40	21.66%
4	Mild improved (25-50%)	29	18	47	96.66	60	78.33%
5	Unchanged < 25%	00	00	00	00	00	00%
6	L.A.M.A	02	02	04	6.66%	6.66%	13.32%

DISCUSSION

Medoroga is a well-recognized disease from the *Samhita* period. *Acharaya Charak* described *Medoroga* in the list of eight most unwanted diseases (Ch.Su 21) and also described it in *Santarpajanit Roga* (Ch.Su 23). As per *Charaka* in case of *Medasvi Purusha*, other *Dhatu* are not nourished properly.

In spite of so many works done on this disease the number is still increasing hence it was thought in the mind that *Ayurveda ma*y contribute in the management of this disease.

A number of herbal, mineral and herbo-mineral medicines are described in various ancient text of *Ayurveda* for treating *Medoroga.* Among these we select *Shadushan Guggulu* described in *Bharat Bhaishajya Ratanakar* which is having ingredients like *Pipali, Pipalimula, Chavya, Chitraka, Sunthi, Marich, Shudha Guggul(Puran)* and Go*ghrit* because of their *Kaphaghna* and *Medohara* properties mentioned in literature *(B. B. R. part 5 Shakaradiguggul Prakaran / 7750)* drug is selected. Taking all above view in consideration it was thought in mind to evaluate the effective medicine and to achieve goal of treatment in *Medoroga having Hyperlipidemia* as well as its effect on *Dosha* involved in it *by* Ayurvedic management as described earlier. *Shadushan Guggulu* was administered in dose of 2 tablets three times a day before meals per day with lukewarm water for a period of 03 months and its effects were compared with that of the 30 patients treated in another group of *Mustadi Ghanavati*.

CONCLUSION

In this study *Shadushan Guggulu* and *Mustadi Ghanavati* was prescribed only for 3 months. Response to all the symptoms of *Medoroga*, weight, BMI, W:H ratio, lipid profile was seen in both A and B Groups. It is observed that reduction in weight, BMI, total cholesterol,

triglycerides, HDL, LDL, VLDL and all Subjective parameter of *Medoroga* except *Ruchi, Chala Sphik Udar* were more in Group B drug than in Group A drug. And after completion of study sealed envelope was opened and it was found that drug in group A was *Mustadi Ghanavati* and in group B was *Shadushan Guggulu* and result obtain from *Shadushan Guggulu* was significant as compare to *Mustadi Ghanavati*.

ACKNOWLEDGEMENT

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