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PATHOGENIC DISRUPTION OF MEDOROGA (DYSLIPIDEMIA) BY RASONADI GUGGULU: A CLINICAL STUDY

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ABSTRACT

India is in grip of epidemic medoroga as Indian economy grows. The food we take everyday contribute to our well being but the temptation for many peoples to eat more and do less is causing the medoroga very rapidly. In present era, lifestyle modifications and use of more and more junk food with stressful life helping obesity tree to propagate. As per current data, almost one in five and over one in six women are obese. In some urban areas the rate is as high as 40%. This ill effect of health may be responsible for various other disorders like osteoarthritis, malnutrition, diabetes and dyslipidemia etc. Dyslipidemia mostly causes atherosclerosis which ultimately resulted as coronary artery disease. Medoroga is mainly imbalancing of agni because of various etiolgical factor. The etiological factors may be Aaharatmak, Viharatmak, Mansik and others like Bijaswabhava (Hereditary). In etiopatholoical state intake of more fatty diet (Snigdha and Guru Aahar) and sedentary life obstruct the microchannels (Srotodusti). It may leads to vitiation of vata dosha in Aamasya, which seems as increase in appetite and patient starts to take more diet. But this increase in agni is false (mithyagni) and more diets intake will obstruct more microchannels. Obstruction of microchannels will ultimately decrease the gastric enzyme secretion for digestion and decreases the transformation of energy (Dhatwagni mandhya). Continuous feeding from fatty food or Snigdha and Guru Aahar may build up the rock of adipose tissue or lipids in blood. In Ayurveda classics there is no such term like dyslipidemia is described but the property of such lipids is closely resemble with the properties of sneha dravya like medo dhatu in Ayurveda. There are various etiological factors like excessive food intake, day sleep, sedentary life style, excessive happy state of mind and hereditary involvement leads to medoroga (Dyslipidemia/Obesity). Guggulu (Gum of Cammiphora mukul) and Rasona (Garlic) are known hypolipidemic medicine. Rasonadi Guggulu, The combination of both with several other medicines and process as documented in Ayurveda literature are yet to be unknown. This study is to evaluate the action of Rasonadi Guggulu with special reference to Medoroga (Dyslipidemia/ Obesity).

KEYWORDS: Medoroga, Dyslipidemia, Obesity, Rasonadi Gugglu.

INTRODUCTION

Dyslipidemia is a disorder of Lipoprotein metabolism including Lipoprotein over production or deficiency. Dyslipidemia may be manifested by elevation of the total cholesterol, the bad low density lipoprotein (LDL) cholesterol and the Triglyceride concentration and a decrease in the good high density lipoprotein (HDL) cholesterol concentration in the blood. In dyslipidemia, circulating level of lipids or lipoprotein fraction are abnormal because of genetic or environmental condition that after the production, catabolism on clearance of plasma lipoprotein from the circulation1. Dyslipidedmia may be classified according to which liporoprotein level are abnormal, as in the Fredrickson classification system. According to NCEP ATPII guidelines[2] hyper lipidemia is defined as total cholesterol (TC)> 200 mg/dl and LDL cholesterol > 100 mg/dl, hyper triglyceridemia as TG> 150 mg/dl and HDL cholesterol (HDL-C) < 40 mg/dl[3] Hyperlipidemia is defined by presence of one or more than one abnormal serum lipid concentration. The dyslipidemia most clearly associated with increased risk of CAD is hypercholesterolemia particularly elevated plasma level of Cholesterol carried in LDL.

In Ayurvedic review, According to Acharya Charaka continuous intake of causative factors[3] aggravate kapha dosha and Medodhatu due to similar properties and this increased meda obstructs the srotas, because of this obstruction vata moving in kostha becomes hyperactive and stimulates agni. This agni digest the

food rapidly or vitiated or hyperactive vata absorbs it rapidly. So a person requires frequent and heavy food and if not available this increased vata and agni tender to produce severe complications. According to Acharya sushruta there are two stages of pathogenesis in sthoulya one is formation of meda from Madhura Ama Anna rasa, which is formed by excessive intake of causative factors and due to Atisnigdha Guna of this Ama rasa. There is formation of only meda dhatu at the cost of other Dhatus. Next is obstruction of srotas due to increase meda. According to Acharya Vagabhatta[4] The eliological factors which contain mainly kapha and meda sadharmi Ansha in excess produce kapha Bhuista Dosha Virddhi. That dosha Vridhi due to its very nature affects the agni and produce Agni Vikriti as a results the Ama goes directly to Medodhatu and mixed with Kapha at the tissue level and casues increase of meda dhatu.[5] Simultaneously the srotas will be blocked and the vata moving in the kostha causes increases of jatharagni which results excessive hunger, which in turn leads excessive intake and results medoroga.

MATERIALS AND METHODS
Selection of Patients
The study consisted of selection of 40 clinically diagnosed patients of medoroga. The study was conducted at OPD/IPD wing of PG Deptt. of Roga and Vikriti Vigyan, NIA, Jaipur. Patients were selected according to the following criteria:

Inclusive criteria
1. Patient aged between 20-60 years.
2. Patient having clinical sign and symptoms of medoroga as per classical ayurvedic literature.
3. Patient with abnormal lipid profile.
4. Body mass index should be >30

Exclusion criteria
1. Patient having the diabetes mellitus, malignant hypertension and other malignant disorder.
2. Patient having any hormonal disturbaces like hypothyroidism Iatrogenic
3. effect which may seems to medoroga.
4. Patient not complying with the direction of the physician

Plan of Study
40 patients were randomly selected for the trial and they were advised the rasonadi guggulu for 45 days in the dose of 500 mg TDS. The followup was after 25 and 45 days. They were asked to take the medicine with Luke warm water.

Total No. Patients	40
Medicine	Rasonadi Guggulu
Dose of Medicine	500 mg TDS
Anupaan	Luke Warm Water
Followup	After 25 and 45 Day
Total Duration	45 Days
Diet	As advised by Literature

Assessment Criteria
Both subjective and clinical parameters were employed for assessment of the impact of the treatment. In subjective criteria patients were specially asked for any changes of their feeling of well being either physically or mentally. In clinical criteria, all symptoms and laboratory investigations to be taken for the assessment of clinical improvement. The incidence of presenting features were worked out and the severity of the symptoms was rated in each case on the basis of symptom rating scale (Table no- 1).

Rasonadi Guggulu Description
Rasonadi guggulu having the properties of break the samprapati of modoroga and get back the situation of agni to normal. The drug 'Rasonadi guggulu' has mentioned in Rasa Tatra Sara Sangrah.[6] The components of this drug have properties of Medohara, Amapachak, Agnivarthaka, and vatashamak which are essential for samprapti vighatan of medoroga. (Table no- 2,3) Because of all these properties of this drug we had selected if for this experimental study.

OBSERVATIONS AND RESULTS
Among 40 patients of present study maximum incidence occurs in Age group of 41 to 50 years (45%) followed by 25% in 51 to 60 year of Age group. Maximum patients were male, Hindu and married respectively 65%, 97.5% and 95%. In present study data shows that maximum patient are in the occupation of business man (40%) and House wives (32.5%). It may be because of sedentary life style. In terms of educational status illiterate person were less prone to qualified persons the incidence of medoroga was 12.5%, 30%, 35% and 22.5% respectively in illiterate, secondary education, higher secondary and graduates in qualification. It may reveal that higher educated persons and hard working illiterate are healthier. In current study data also shows that maximum incidence of medoroga were seen in upper middle class (47.5%) sedentary jobs (65%) vegetarians (80%) and peoples who are living in urban residential places (95%) and sadharan desh (92.5%). Although incidence of medoroga w.s.r. to Dyslipidemia should seen in addicted patients but in this study maximum number of patient (60%) were found non-addected rather than those people who were addicted by smoking (27.5%) and Alcohole (12.5%). The data revealed that maximum No. of patients were of Madhyam Kostha (62.5) and Pitta-kaphaj Prakriti (57.5%) and 57.5% were having the samyak nidra. Among all the 40 patients 23 patients (57.5%), 18 patients (45%) were to Tamsik and Rajsik Prakriti respectively.

Observations revealed in present study shows more incidence of medoroga in Madhyam Sara (57.5%) Madhyam Samhanan (65%) and Madhyam Satva and

Satmya 40% and 65% respectively Maximum incidence of pravara jaran Shakti and Madhyama Abhyavahran shakti was seen in 13 and 18 patients of this study. In this pilot study we found that 65% cases were having Avara vyayam shakti and only 7.5% cases of pravara vyayam shakti. As discussed in literary concepts this disease usually occurs in heavy diet intakers the same theory proved after this study that maximum 35 patients were having the dietary habit of Abhyasan. In some continuation maximum 35% cases were more prone to madhura rasa but nobody was practicing tikta and kasaya rasa in daily routine.

The effect of life style is also seen in current study by knowing the incidence of family history. Family history of dyslipidemia and medoroga was absent 72.5% and 60% of cases respectively. The incidence of intake of dairy product shows that 30% and 27.5% cases were taking more curd and milk respectively. This shows that the concept of srotodusti described by Acharyas is significant. Among these 40 patients, 27 patients were commonly using vegetable oil as compare to 5 patients who are using 'Ghee' as a material for meal preparation. We could not find more effect of menstrual history in the current study because of 14 females patient 7 Patients were having regular menstrual cycle and 6 were menoposed. As we studied in present study we found that incdinece of kapha dosha dusti was more (85%) as compared to vata and pitta dosha dusti which was 57.5% and 47.5% respectively. The data also revealed that maximum srotodusti was seen in medovaha srotas (80%) followed 65% in Rasavaha srotas. (Table no-4).

The study shows that maximum improvement was seen in Alasya (51.56%), Angasad (47.76%) followed by Daurbalyata (46.25%) and Atinidra (45.45%). The symptoms associated as chala sphik udar stana and kricchavyavayta shows the least improvement (5.61%) and 14.81% respectively. Statistically Trishna Vriddhi, Daurgandhyata, Kriccha vyavayta, Kshudraswasa, shows the significant improvement but karpad daha and C.SU.S. shows the non significant in results. Rest 7 symptoms Kshudha vriddhi, Atinidra, Swedadhikya, Snigdha gatrata, Daurbulya, Alasya shows the marked improvement as Highly significant in result.

As we studied the lipid profile of Medoroga patients in current study we found that maximum recovery was seen in low density lipoprotein of patients as 24.99%. Although recovery in HDL least as 0.88% but it is quite good because HDL is good for health. As concerned with other lipid there is decrease in total cholesterol was 17.13% followed by triglycerides and VLDL 12.17%. This shows that medicine shows the efficient results in reference to lipid profiles this pilot study. As decrease in LDL and almost no change in HDL shows the good result in LDL, HDL ratio as 24.20%. Statistically the result shows in total cholesterol, Triglyceride LDL, VLDL and LDL/HDL ratio shows P value < 0.001 means highly significant and HDL as 0.0722 means non significant in results. (Table no- 5,6).

In present study the physical parameters were also studied as describe in synoptic notes. This concludes that there was good improvement seen in nape of neck as 2.26%. In other parameters like biceps, triceps circumfereation and waist recovery was seen as 1.39%, 1.83% and 1.19% respectively. The least recovery in physical parameter was seen in Hip circumference, BMI that is 0.99% and 0.75% respectively. Waist and hip circumference ratio shows only 0.10% recoveries after the trial.

Statistically the result shows in nape of neck was highly significant. In other parameters such as BMI, Biceps, Triceps circumference, waist and hip circumference shows the significant improvement but waist and hip ratio was non significant. (Table no-7,8).

In present era as the research advancement is going on, we also tried to find out the adverse effect of Rasonadi guggulu coarsely. In same reference we studied the SGPT, B.Urea S. creatinine before and after the trial but we could not find any anomalies in the dates after the trial show. It means this medicine did not any adverse effect broadly in this study of limited patient and limited duration. It doesn't mean this medicine have not any side effects for details study in this regard there is need to go for study with higher number of patient, long duration sophasticated research labs higher institutes of same concern.

Table- 1 SYMPTOM RATING SCALE
1. *CHALA SPHIK UDAR STHANA (Movement)*
- Absence of movement 0
- Movement visible on running 1
- Movement visible on fast walking 2
- Movement visible on normal gait 3
- Movement visible with breathing 4

2. ATINIDRA (excessive sleep)
- 6-8 hrs. Night sleep with no day sleep. 0
- More than 8hrs. Night sleep with no day sleep. 1
- More than 8hrs. Night sleep with 1hr. day sleep 2
- More than 8hrs. Night sleep with 2-3 hrs day sleep. 3
- More than 8hrs. Night sleep with more than 4hrs day sleep 4

3. SWEDADHYKYA Excessive sweating)
- Sweating after exercise / heavy work / hot season 0
- Sweating after moderate work 1

- Sweating after normal routine work   2
- Sweating after mild work 3
- Sweating even at rest or without any work   4

4. DAURGANDHYA (Foul smell)
- Absence of bad smell in the body.   0
- Occasional bad smell in the body removed after bath. 1
- Persistent bad smell in the body removed after bath & deodorant. 2
- Persistent bad smell in the body difficult to remove & frequent recurrences. 3
- Persistent bad smell in the body felt from long distance do not suppress and intolerable for pt. & for others. 4

5. DAURBALYA(weakness)
- Weakness during exercise & heavy work. 0
- Weakness during moderate work/exercise. 1
- Weakness during normal routine work 2
- Weakness during sitting posture or mild work. 3
- Weakness even at rest or without work. 4

6. KARPAD DAH (Burning feet and hand)
- Absence of symptom. 0
- Ocasionally present & mild. 1
- Present many of time & moderate. 2
- Present every time& severe. 3
- Present every time & not bearable. 4

SNIGDHGATRATA (Oily skin)
- Patient uses oily product on the skin frequently   0

in a day.
- Patient uses oily product on skin more than two   1

times a day.
- Patient uses oily product on skin 1-2 times a day. 2
- No any use of oily product for oleation of skin. 3
- Patient uses any type of product for removing 4

excessive oil of skin.

9. ALASYA(Laziness)
- Pt. do their routine work properly with 0

time management.
- Pt. do their routine work properly with 1
- no time management.
- Pt do their routine work properly but 2

some of work always remain pending.
- Pt don't do their routine work improperly 3

with much of pending work.
- Pt. don't do even their essential work. 4

10. KSHUDRASWASA (Breathlessness)
- Breathlessness during heavy exercise & work. 0
- Breathlessness during moderate exercise & work. 1
- Breathlessness during normal routine work. 2
- Breathlessness during mild work. 3
- Breathlessness even at resting condition. 4

11. ANGASAD (Fatigue)
- Pt. feels no fatigue in doing heard work. 0
- Pt. feels little fatigue in doing heard work. 1
- Pt. feels moderate fatigue in doing routine work. 2
- Pt. feels excessive fatigue in daily routine. 3
- Pt. feels excessive fatigue even in doing a little work. 4

12. KSHUDHAAVRIDDHI (Increase in Appetite)
- Pt. takes normal lunch & dinner or 2 times a day. 0
- Pt. takes heavy lunch & dinner. 1
- Pt. takes light breakfast, heavy lunch & dinner. 2
- Pt. takes heavy breakfast, lunch & dinner with supper 3
- Pt. takes heavy food more than 5 times a day. 4

13. PIPASAVRIDDHI (Increase in thrust)
- Pt. takes 2-3 ltrs. water in a day.   0
- Pt. takes 3-4 ltrs. water in a day.   1
- Pt. takes 5-6 ltrs. water in a day. 2
- Pt. takes 7-8 ltrs. water in a day. 3
- Pt. takes more than 8 ltrs. water in a day. 4

14. KRICHVYAVAYATA (Sexual Performance)
- Unimpaired libido and sexual performance. 0
- Decrease in libido but can perform sexual act. 1
- Decrease in libido but can perform with difficulty. 2
- Loss of libido & can not perform sexual act. 3

Table-2: Showing the contents of Rasonadi guggulu

S.n.	Drug	Latin name	Family	Part used	Ratio
1	Guggulu	Comiphora mukul	Burseraceae	Gum resin	1 part
2	Lasuna	Allium sativam	Lilliaceae	Bulb	½ part
3	Shunthi	Zingiber officinale	Zingiberaceae	Rhizome	¼ part
4	Pippali	Piper longum	Piperaceae	Fruit	¼ part
5	Maricha	Piper nigram	Piperaceae	Fruit	¼ part
6	Eranda	Riccinus communis	Euphorbiaceae	Seed pulp	¼ part
7	Rasna	Pluchea lanceolata	Compositae	Root	¼ part

Table No-3 Phrmacological profile of contents of Rasonadi guggulu

S. N.	Drug	Rasa	Guna	Virya	Vipaka	Prabhava	Dosha karma
1	Lasun	Katu	Tkshana, Sara	Ushna	Katu		Kapha-Vata shamak
2	Guggulu	Tikta, katu	Lagu, Ruksha	Ushna	Katu	Medohara	Kapha-Vata shamak
3	Shunthi	Katu	Laghu, snigdha	Ushna	Madhura	Triptighna	Kapha-Vata shamak
4	Pippali	Katu	Laghu Tiksna, Snigdha	Anush-nashita	Madhura		Kapha-Vata shamak
5	Maricha	Katu	Laghu Tikshna	Ushna	Katu		Kapha-Vata shamak
6	Eranda	Madhura	Snigdha, Tikshna, Sukshma	Ushna	Madhura		Kapha-Vata shamak
7	Rasana	Tikta	Guru	Usna	Katu		Kapha-Vata shamak

Table 4: Showing the Statistical analysis* of Clinical Recovery

Sr No.	Symptom	Mean ± SD	SE	P	Result
1	C.S.U.S.	0.1351 ±0.3466	0.05698	0.0625	NS
2	Kshudha vriddhi	0.5676 ± 0.5548	0.09121	0.001	HS
3	Trisha vriddhi	0.2703 ±0.6519	0.1072	0.0302	Significant
4	Ati Nidra	0.8108 ±0.811	0.1333	<0.001	HS
5	Swedadikya	0.5676 ±0.6888	0.1132	<0.001	HS
6	Daurgandhaya	0.2973 ±0.7018	0.1154	0.02	Significant
7	Daurbalya	1 ±0.7454	0.1225	<0.001	HS
8	Kriccha Vyavaya	0.2162 ±0.4793	0.0788	0.01	Significant
9	Kar Pad Daha	0.1622 ±0.5008	0.08232	<0.1	NS
10	Snigdha Gatrata	0.3243 ±0.5299	0.08711	<0.002	HS
11	Alasya	0.8919 ±0.8427	0.1385	<0.001	HS
12	Angasada	0.8649 ±0.6308	0.1037	<0.001	HS
13	Kshudra Swash	0.3243 ±0.626	0.1029	0.0104	Significant

Table 5: Showing the recovery in Lipid Profile

Sr.No.	Parameter	Mean BT	Mean AT	Subside	%
1.	T. Cholestrol	245.4054	202.9189	42.48649	17.13
2.	Trigycerides	216.5405	186.1622	30.37838	12.71
3.	VLDL	43.30811	37.23243	6.075676	12.71
4.	HDL	60.27027	59.7027	0.567568	0.88
5.	LDL	141.827	105.9838	35.84324	24.99
6.	LDL/HDL	2.372551	1.795057	0.577494	24.20

Table 6: Statistical Analysis* of Lipid Profile

Sr. No.	Mean± SD	SE	t value	P value	Result
TC	42.486±21.486	3.448	12.181	<.001	HS
TG	30.378±31.407	5.163	5.884	<.001	HS
HDL	0.5676±1.864	0.3064	1.852	0.0722	NS
LDL	35.843±21.104	3.47	10.331	<.001	HS
VLDL	6.076±6.281	1.033	5.884	<.001	HS
LDL/HDL	0.5775±0.3572	0.05873	9.834	<.001	HS

Table 7: Showing the recovery in Physical Parameters

Sr. No.	Parameter	Mean BT	Mean AT	Subside	Percentage
1.	BMI	32.42054	32.18324	0.237297	0.75
2.	Biceps	2.406757	2.369459	0.037297	1.39
3.	Triceps	3.112703	3.060541	0.052162	1.83
4.	Neck	3.109459	3.042703	0.066757	2.26
5.	Waist	102.9054	101.6162	1.289189	1.19
6.	Hip	108.2184	107.1081	1.11027	0.99
7.	W/H Ratio	0.951414	0.95	0.001414	0.10

Table 8: Statistical Analysis* of Physical Parameters

Sr No	Parameter	Mean± SD	SE	t value	P value	Result
1.	BMI	0.2373±0.5559	0.09139	2.597	0.0136	Significant
2.	Biceps	0.373±0.1117	0.01836	2.032	0.0496	Significant
3.	Triceps	0.05216±0.1179	0.01939	2.691	0.0107	Significant
4.	Neck	0.06676±0.07269	0.01195	5.586	<.001	HS
5.	Waist	1.289±3.237	0.5322	2.422	0.0206	Significant
6.	Hip	1.11±3.3	0.5426	2.046	0.048	Significant
7.	W/H Ratio	0.001414±0.04065	0.006682	0.2116	0.8336	NS

CONCLUSION

Meda described in Ayurveda and lipids in modern science are same terminology. Poshak Meda dhatu can be correlated with serum lipids and vitiated state of Poshak meda dhatu can be considered as Dyslipidemia. Excessive and continuous intake of Kapha and Meda aggravating diet, mental and physical activity vitiate the Jatharagni and Medodhatwagni. Vitiated agni leads to formation of Ama which is responsible for medoraga (dyslipidemia). Srotosodhak and Agni Dipaka chikitsa is helpful for breakdown of pathogenesis.

Rasonadi Guggulu is 31.76% effective in the symptoms of medoroga. The drug Rasonadi Guggulu is maximum effective in LDL as 24.99% and least effective in 12.71% in triglycerides and VLDL. Total cholesterol shows the decrease in 17.13% the drug shows almost nil effect (0.88%) on HDL. Rasonadi Guggulu shows the mild recovery (0.10 to 2.26%) in physical parameters.

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