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A Review on Role of *Shaman Chikitsa* in the *Medoroga* w.s.r to Dyslipidemia

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Review Article

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ABSTRACT

Background: *Medoroga* is a condition in which there is an excessive accumulation of *Meda Dhatu* in the body. Accumulation of *Medo Dhatu* in different parts of the body causes blockage of *Strotsa* which ultimately leads to poor nourishment of other *Dhathus*. Lack of exercise and *Kaphavardhak Ahar Viharar* are the two main causes of *Medoroga*. In modern times, the way of life has changed drastically to quick nourishments and inactive tendencies throughout the world. Because of these factors, the accumulation of *Meda Dhatu* happens immensely. In Ayurveda, dyslipidemia is considered under *Medoroga*. Dyslipidemia is an emerging serious health abnormality associated with co-morbidities including CVD that continues to be the leading cause of death worldwide. It is characterized by an increase in cholesterol, triglycerides, LDL levels, and a decrease in HDL levels.
Aim and Objectives: This review are conducted with the aim to study the various formulations and drugs described for *Medoroga* (Dyslipidemia) as *Shaman Chikitsa* in Ayurveda.
Materials and Methods: The classical texts of Ayurveda and modern medicine, Journals, and Research articles from Google Scholar, Pubmed, etc were selected for the study.
Observations and Discussion: The research studies conducted on guggul formulations, *Arogyavardhinivati*, *Triphala*, *Trikatu*, *Arjun*, and *Yava* showed significant improvement in lipid levels which may be due to their *Katu*, *Kashaya Rasa*, *Ushna*, *Teekshna Guna* and *Lekhana*, *Deepana*, *Pachana* properties that help in reducing aggravated *Kapha* and *Meda*.
Conclusion: Dyslipidemia can be effectively managed with various formulations given in Ayurveda.

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1. INTRODUCTION

India is undergoing a major epidemiological change as a consequence of elevated population, economic wealth, and modernization [1]. however, non-communicable diseases such as cerebrovascular, coronary, and peripheral artery disorders have shown its hike in the present era. When unhealthy lifestyles such as tobacco chewing and smoking, improper dietary habits, and sedentary lifestyles become more prevalent [2]. Noncommunicable illnesses have become the primary cause of death in India's rural communities [3]. *Medoroga* (dyslipidemia) is a single contributory factor in the development of several lifestyle disorders. It is defined by an elevation of serum levels of triglycerides, cholesterol, fat phospholipids. Lipids are naturally occurring substances that make up the structural framework of cell membranes. *Snehatwa* (lubricity) is the usual attribute of lipids [4]. *Meda Dhatu*, *Vasa,* and *Majja* have *Snigdha* (unctuous) property which can be similar to lipids. When lipids are in a healthy state, it performs its proper functions in the body like giving insulation to body parts, providing strength and energy, growth of body cells, and absorption of nutrients like fat soluble vitamins. Abnormal levels of *Snigdha Dhatu* lead to aggravation of *Rasagata Sneha*, causing *Medodhatu Dushti* (Dyslipidaemia) [5]. In many ancient literatures, *Medoroga* is described in details. Some of the etiological factors include a bad lifestyle plan, lack of physical activity, taking advantage of day sleep, and following a *Kapha*-inducing diet and carbohydrate food choices. An overabundance of *Kapha* and *Meda Sadharmi Ansha* (similar qualities) are the etiological factors, resulting in *Kapha* dominance Dosha *Virddhi* [6], which leads to *Mandagni* (diminished digestive fire). As a result, there is the formation of *Ama* that travels directly to *Medodhatu*, and along with *Kapha*, it causes *Vriddhi* of *Apachita Meda*. It causes *Srotasavrodha*, which obstructs the path of dosha, thus *Vayu* comes into the *koshtha* causing enhancement of *jatharagni* (an excessive increase of digestive fire), which induces food cravings and overeating, ultimately leading to *Medoroga*[7] ."Infections and complexities that occur in *Medoroga* patients are more difficult to treat than those that occur in people who do not have *Medoroga* "[8]. The disease dyslipidemia is not mentioned in Ayurveda. None the less, it can be linked to *Medoroga* based on its description. Hyperlipidemia and hyperlipoproteinemia are two types of dyslipidemia characterized by unusually high levels of lipoproteins in the blood [9]. Phospholipids, cholesterol, cholesterol esters, and triglycerides are all included in these lipids. There are five classes of lipoproteins namely- “High-Density- lipoprotein, Low- Density-lipoprotein, Intermediate-Density-lipoprotein, Very-low-Density-lipoprotein, and chylomicrons based on Density. Dyslipidemia is one of the major problems, defined by elevated levels of serum total cholesterol, LDL, or triglycerides, or both LDL and triglycerides, as well as a decrease in HDL, which contributes to atherosclerosis [10]. Dyslipidaemia is a multifactorial disorder mainly lifestyle and inherited factors are responsible for its causation.For Cardio-vascular Disorders Atherosclerosis is considered as a main risk factor [11]. According to the ICMR-INDIAN study, hypercholesterolemia was prevalent in 13.9 percent of the population, hypertriglyceridemia was prevalent in 29.5 percent, low HDL-C was prevalent in 72.3 percent, and high LDL-C levels were prevalent in 11.8 percent. Thus the aim of the study is to review and discuss the role of *Shaman Chikitsa* in *Medoroga* w.s.r to dyslipidemia.

1.1 Aim and Objectives

This review is conducted with the aim to study the various formulations and drugs described for *Medoroga* (Dyslipidemia) as *Shaman Chikitsa* in Ayurveda.

2. MATERIALS AND METHODS

The classical texts of Ayurveda and modern medicine, Journals, and Research articles from Google Scholar, Pubmed, etc were searched from Google scholar, PubMed and Research gate by keywords between the time period of 2010 to 2020. All research studies in which only Shamana chikitsa is given were randomly collected and included in this review.

3. OBSERVATIONS AND RESULTS

Table 1. Research studies conducted on *Medoroga* (Dyslipidemia)

SN	Author and Journal	Title of study	Grouping	Results
1.	Kumar, et al.AYU Apr- Vol 33 Issue 2, Year Jun 2012	"Safety and efficacy evaluation of Ayurvedic treatment (*Arjuna* powder and *Arogyavardhini Vati*) in dyslipidemia patients: A pilot prospective cohort clinical study".	**Single Gr.(n=108)** - *Arjuna* powder (5 g, twice a day) for3 weeks then *Arogyavardhini Vati* (500 mg, twice a day) for 4 weeks.	*Arjuna* powder and *Arogyavardhini Vati* showed a significant reduction in lipid levels of total cholesterol, S.Triglicerides, SerumLDL., and rise in S.HDL level after completion of treatment. They concluded that it is safe and effective for dyslipidemia.
2.	Shivam G. Joshi et al AYU, Vol 35 Issue 2, the Year2014	"A comparative clinical study of *Asanadi Ghanavati* and *Gomutra Haritaki* in *Kapha Medo Margavarana* (dyslipidemia)"	**Gr. A (n= 30)-** *Tab. Asanadi Ghanavati* 1 gm, three times per day Anupana- lukewarm water before a meal **Gr. B (n=30)-** Tab. *Gomutra Haritaki* 1 gm, three times per day Anupana- lukewarm water before a meal Duration -8 wks.	Both groups showed a significant decrease in serum cholesterol, Serum Triglyceride, Serum Low-Density Lipoprotein, Serum Very Low-Density Lipoprotein, and an increase in Serum High-Density Lipoprotein. In the group, A moderate improvement was observed in14.81% and mild improvement in 70.37% of patients. In group B moderate improvement was observed in 3.70 %, and mild improvement in 74.07% of patients. In comparison, group B treated with *Gomutra Haritaki* was more effective in preventative and treatment of dyslipidemia.
3.	DR. SANDEEP SINGH ET; ALL IAMJ: 4(05); April;- 2016	"A Clinical Study On Hyperlipidemia With *Medohar Guggulu* And *Lekhaniya* Mahakashaya"	**Single Gr. (n=45)-** *Trikatu Churna* 5gm BID 30 minutes before food with *Ushnodaka* for 3 days then *Lekhaniya Mahakashaya* (30ml BID) with water before food and *Medhohara Guggulu* (250 mg BID) with lukewarm water after food for 60 days.	*Medohara* Guggulu and *Lekhaniya Mahakashaya* showed significant in reduction of Total Cholesterol was reduced to 9.56% LDL was reduced to 16.69%, HDL was increased to 4.55%. *Medora Guggulu* and *Lekhaniya Mahakashaya* plays a good role in the management of Hyperlipidemia. No adverse effects were found during and after the study.

SN	Author and Journal	Title of study	Grouping	Results
4.	Bilyan et al. World J. of Pharm. Res. 5 (4), 1570-1580 Year 2016.	"Clinical Study On The Efficacy And Safety Of *Tryushnadi Guggulu* In *Medoroga* With Special Reference To Dyslipidemia"	**Single Gr. (n=45)-** *Tryushnadi Guggulu* 1gm two times a day Anupan- lukewarm water after food for 60 days.	*Tryushnadi Guggulu* showed statistically highly significant results in all subjective as well as objective parameters.
5.	Kuchewar V., IJRAP, 8 (3), 2017	"Efficacy And Safety Study of *Triphala* In Patients of Dyslipidemia: A Pilot Project"	**Single Gr.(n=20)-** *Triphala Churna* 5 gm twice a day for 30 days.	The levels of lipids and body weight both changed significantly. Bowel habits had improved. There was no evidence of any negative side effects. To reduce lipid levels, *Triphala Churna* might be a better choice.
6.	Sarada Ota et al Journal of Research in Ayurvedic Sciences, VOL.2(1)12-19, Jan-Mar. 2018;	"Evaluation of *Vyoshadi Guggulu* and *Haritaki Churna* in the Management of Dyslipidemia: A Multicenter Prospective Clinical Study"	**Single Gr. (n=146)-** *Vyoshadi Guggulu 1gm thrice a day Anupan* - lukewarm water after meal and *Haritaki Churna*-3 gm two times a day Duration- 12 wks follow-up - 2 weeks with no any medication	*Vyoshadi Guggulu* and *Haritaki Churna* showed significant improvement in objective parameters like serum lipid levels. Thus both above mentioned formulations are useful in the improvement of serum lipid levels without any side effects.
7.	Janhavi et al European Journal of Biomedical AND Pharmaceutical Sciences Volume: 5 Issue: 6 907-910,Year 2018)	"Clinical Study In The Management Of *Medoroga* W.S.R. To Dyslipidemia With *Artharaksha Ghanavati*"	**Single Gr.(n=30)-** *Artharaksha Ghanavati* was 3tab (500mg each) b.i.d before food with *Ushanajala for* 8 weeks	Total Cholesterol was reduced to 6.56% LDL was reduced to 14.69%, HDL was increased to 1.55%. which can be achieved by *Deepana*, *Pachana*, and *Lekhana* property and hypolipidemic action of *Artharaksha Ghanavati*. The *Medoroga* Score and lipid profile is assessed which are markedly reduced. The trial drug *Artharaksha Ghanavati* has beneficial effects on *Medoroga* w.s.r. to Dyslipidemia
8.	Vijay Chaudhary et al AYUSHDHARA, January -,Vol 7, Issue 1, February 2020	"Ayurvedic Management Of Dyslipidemia W.S.R To *Medo Roga*: A Clinical Trial"	**Gr. A (n=15)-** *Dashang Guggul* 1.5g thrice a day with *Triphaladi Kwatha* 50ml twice a day after meals for 60 days. **Gr. B (n=15)-**	Group A showed a marked reduction in body weight, BMI, skin fold thickness, and clinical features The improvement was highly significant, while atorvastatin, was found to be more successful in enhancing

SN	Author and Journal	Title of study	Grouping	Results
			Tablet atorvastatin 10mg once a day for 60 days.	altered blood cholesterol. Group A drugs have no any adverse drug reaction hence safely given for longer period. From this they stated that in combination both formulations can be effective in improving blood lipid levels.
9.	Tejas Kakade et.al.,IJAM, 11 (2),265-270, July 2020	"Study in the Effect of *Yavavati* in the Management of Dyslipidemia"	**Single Gr. (n=30)-** *Yavavati* 3tab.b.i.d before food intake with *Koshnajal* for 30 days.	*Yavavati* found to be significant in reduction of BMI, total cholesterol, S.Triglicerides, S.LDL. and rise in HDL level which may be due to its, *lekhana*, and *Apatarpana* action.
10.	Anjli Sharma etal.AYUSHDHARA, September -, Vol 7, Issue 5 October 2020	"A comparative clinical efficacy study of *Triphala kwath* and *Trikatu* capsules in the management of *Medoroga* w.s.r to dyslipidemia"	**Gr. A (n=20)-** *Trikatu* capsules 500mg B.D with water for 8 weeks. **Gr. B (n=20)-** *Triphala kwath* 20ml twice a day, Anupana- Honey Capsule *Trikatu* 500mg twice a day Anupana- water Duration-for 8 weeks.	Group B is better than group A in the improvement of serum lipid levels with significant benefits in subjective and objective parameters without any side effects.

4. DISCUSSION

Dyslipidemia is a lifestyle disorder that is becoming more common and offers a serious health risk because it has no symptoms but can lead to fatal complications. Dyslipidemia, according to current thinking, is a disorder of lipoprotein metabolism, with the liver serving as the mainstay. As previously indicated, *Dhamani Pratichaya* is a form of *Santarpanjanya*. *Apatarpana* is included in the *Samanya Chikitsa*. The *Shonitabhishyandana* is followed by *Dhamanipratichaya* and *Margavarana* [12]. *Aama Pachan* and boosting *Agni* are the fundamental concepts for treating dyslipidemia. Ayurveda focuses on and related Dosha vitiation as the fundamental cause of disease. The major goal of treating *Medoroga* is to break the pathogenesis, which includes *Nidana Parivarjana*, restoration of *Medodhatv agni* to its normal state, balancing vitiated *Doshas*, i.e. *Kapha* and *Vata*, and correcting vitiated *Medovahasrota* & *Medodhatu* [13]. *Aptarpana Chikitsa* mainly includes *Lekhana* and *Karshana* of aggravated *Meda Dhatu.* Drugs having *Deepana, Pachana, Lekhana,* and *apatarpana properties* are mainly indicated in *the management of Medoroga.*

Character of the *Asanadi Ghanavati* has *Tikta*, *Kashaya* rasa, and *Katu Vipaka* which helps in reducing *RaktagataKleda* and *Meda*. Thus, it reduces *Medoshaithilya*. *Asanadi Ghanavati* most likely works at the *Medodhatwagni* level. *Asana*, one of the ingredients of *Asanadi Ghanavati*, has anti-hyperlipidemic effects [14]. *Gomutra Haritaki* has *Katu, Rasa*, *Ushna Virya Doshanuloman*, *Dipana Pachana*, *Sroto Vibandhan Ahara*, *Pramehahara*, and *HridayaurahPralepahar*, properties which reduce *Sama Sleshma* and *Apachita Medo Dhatu* by increasing *Jatharagni* through *Amapachana*. *Haritaki* possesses anti-hyperlipidemic, anti-oxidant, cytoprotective, diabetic, cardioprotective, and hepatoprotective properties [15]. At the level of the colon and liver, *Gomutra Haritaki* helps the physiological digestive process. It also plays a role in lipid metabolism. It corrects the lipid metabolism and helps in balancing the lipid

levels. *Gomutra* (bio enhancer) by its properties helps in maintaining serum lipid levels. Overall, *Gomutra Haritaki* has cardioprotective and hepatoprotective properties [16], as well as promoting proper digestion.

Terminalia *Arjuna* acts on atherosclerosis. It has *Lekhana* property so it does *Karshan* of *Meda* in *Dhamni*[17,18,19]. *Kutki* (*Picrorhizakurroa*) is the main ingredient of *Arogyavardhinivati*[20] which has *Lekhana*, *Medohara*, *Deepana*, *Pachana* properties. It mainly acts of liver metabolism and also has choleretic effects. Other ingredients like *Triphala*, *Trikatu* helps in correcting deranged *Agni* and reduces excess *Meda* thus breaking *Samprapti* of *Medaroga*[21].

In *Medohara Guggulu*, *Suddha Guggulu* comprises of greater portion and other ingredients include *Sunthi*, *Pippali*, *Marich*, *Chitraka*, *Haritaki*, *Vibhitaki*, *Amalaki*, *Musta*, *Vaividanga*. It has *Katu Rasa*, *Laghu Ruksha Guna*, *Ushna Veerya*, *Katuvipaka*, and hence it acts as *Kapha Vata Shamaka*, *Deepana*, *Paachana*, *Kleda-Meda Shoshaka*, *Srotovishodhaka* and *Lekhana*. As a result of all of these features, it aids in the removal of excess *Meda* and *Kapha*, as well as the breaking pathology of the disease.

Tryushnadi Guggulu contains the greatest quantity of *Guggulu* and it has *Medo-Vatahara Prabhava*[22]. Acharya *Sushruta* directly quoted the property of *Lekhana*[23]. In this formulation, all 8 ingredients have dominance of *Katu Rasa*, whereas three *Dravyas* have dominance of *Kashaya* and *Tikta Rasa*. *Tikta*, *Kashaya*, *katu Rasa* have the ability to pacify *Kapha Dosha*. *Katu* Rasa performs the functioning of *Agni Deepana* and *Mamsavilekhanam*, which helps to regulate the *Jatharagni* and thus corrects digestion producing proper *Ahar Rasa*, which then provides qualitative nourishment to the succeeding *Dhatus*. This also corrects *Dhatvagnimandya* and thereby helps in the removal of *Abaddha Mamsa-Medo Dhatus* from the body. *Tikta Rasa* possesses the qualities like *Deepana*, *Pachana*, *Kleda-Meda Shoshaka*, *Srotovishodhaka*, and *Lekhana* which help to break the pathophysiology of *Medoroga*. *Kashaya Rasa* possesses *Sharira-Kleda Shoshana* property which helps in reducing excessive *kleda* from the body. Thus, all the major *Rasas* in this formulation aids in the breaking of the disease formation process. In addition, the *Tryushnadi Guggulu* has *Laghu*, *Ruksha*, and *Tikshna Guna*, which aids in *Kapha-Meda Shamana* property and *Kleda-medashoshana*. *Guggulu* has *Sukshma* property which helps in *Bhedana* of Avarana of *Samana Vayu* (breaking the covering of *SamanVayu*). Due to all these properties, *Tryushnadi Guggulu* can be used as an effective and safe medicine for the management of Dyslipidaemia.

Triphala Churna contains *Amalaki*, *Haritaki,* and *Vibhitaki* in equal proportion. *Amalaki* (*EmblicaOfficinalisL*.) has the ability to reduce fat and cholesterol absorption [24]. *Haritaki* (*Terminaliachebula*) can reduce triglycerides and LDL levels [25]. *Amalaki* helps in digestion, liver function, and hepatoprotection [26]. *Triphala* has rejuvenating and balancing effects on *Vata*, *Pitta*, and *Kapha*.

Artharaksha Ghanavati contains *Haritaki*, *Vacha*, *Rasna*, *Pippali*, *Shunti*, Shati, and *Pushkarmool*. These drugs possess *Katu*, *Tikta*, *Kashaya Rasa*, *Ushna*, *Ruksha*, *Kaphahara*, *Medohara*, *Raktashodhakand Snigdha* properties which causes *Kapha Vata Shamana*. [27] .*Guggulu* due to its *Lekhana* property used to reduce fat and to treat inflammation, arthritis, atherosclerosis, obesity, and hyperlipidemia [28].

Yava is *Kashaya, Ruksha,* and *lekhana* properties. It is useful in *Medoroga* because it has *Kapha Pitta Shamak*, *Lekhana*, *Agnivardhak*, and *Medohar* properties [29]. *Yava* has Agnivardhak property which aids in the correction of *Agnimandya*, key factor in disease production. *Kapha*, *Medahar* property of *Yava* helps in the reduction of exacerbated *Kapha* and *Meda* and *Lekhana* property causes scraping and removal of excessive *Meda*, thus helps in clearing obstructed channels. The scraping action (*Lekhana*) of *Yava* removes *Meda* Accumulated in the walls of Dhamani.

Trikatu diminishes *Medodhatu*due to *Katu*, *TiktaRasa*, and *Katuvipaka*. *Rukshana, Lekhana Karshana*, *Deepana*, *Pachana* and *Shoshana* properties helps in breaking pathogenesis [30]. These pharmacological effects are due to chemical constituent's like piperine, which aids in the improvement of *Jatharagni* function by promoting the digestive enzymes and enhancing their action in the gastrointestinal tract (digestive fire). Correction of *Jatharagni* aids in improving overall metabolism. *Lekhana* property help in reducing excessive accumulated *Kapha* and *Meda*. In a nutshell, *Trikatu* reduces lipid deposition and hence aids in the cleaning of obstructed channels [31].

In the above studies, all the drugs mentioned having *Kashaya Katu Rasa*, *Ruksha Guna*, *Ushnavirya*, *Kaphamedahar*, *Lekhana*, *Deepana*, and Pachana properties. All these properties help in correcting diminished *Agni*, balancing *Kaphavata Dosha*, and removing accumulated *Meda* thus clearing the obstructions from *Stratos*. Hence these drugs can be used effectively in the management of *Medoroga* (Dyslipidemia).

Most of the above mentioned studies are single arm so it can be conducted by taking standard control to prove the efficacy of these formulations. In most of the studies, lukewarm water is used as *Anupana* only in one study *Triphala Kwatha* is used as *Anupana* which gives good results. Also in the above studies the duration of study ranging between 30 days to 60 days. The sample size in the above reviewed articles was ranges between 20 to 149. In the above studies assessment of improvement was done by measuring values of objective criteria like BMI, serum lipid levels, and subjective criteria mentioned in Ayurveda. In all the above clinical trials significant improvement was observed after treatment.

Guggulu has been described as the best *Dravya* for obesity and dyslipidemia, but *Bhavprakash* quotes that *Guggulu* cannot be prescribed for a longer duration as it can lead to impotency and gastric irritation. SO other herbal drugs mentioned in *Lekhaniya Mahakashaya* having the same properties mentioned in the above studies can be used for a longer duration.

5. CONCLUSION

From the above review it can be concluded that various *Guggul* preparations, herbomineral and herbal formulations having *Kaphamedahar*, *Deepan*, *Pachana,* and *Lekhana* properties can be effectively used in the management of *Medoroga* (Dyslipidemia). All these drugs help in reducing BMI and correcting blood lipid levels. Hence it is recommended to conduct randomized control trials on a large sample size to prove the efficacy of Ayurveda drugs in the management of *Medoroga* (Dyslipidemia).

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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