



## AYURVEDIC MANAGEMENT OF DYSLIPIDEMIA – A CONCEPTUAL ANALYSIS

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## ABSTRACT

Dyslipidemia is among the most common lifestyle disorders characterised by a derangement in lipoprotein metabolism, which can lead to excessive production or deficiency of lipoproteins or both. Increased levels of atherogenic lipoproteins contribute to the occurrence of atherosclerosis, which in turn leads to coronary artery disease (CAD), cerebrovascular accidents (CVA), peripheral vascular diseases (PVD), etc. Dyslipidemia typically does not present with symptoms and often goes unnoticed until complications arise, such as myocardial infarction, triggered by the development of early atherosclerosis. In Ayurveda, lipid disorders are correlated with *Medapradoshaja vikara* (diseases due to vitiated fat) Conditions like *Medoroga* (lipid disorders) *Sthoulya* (obesity), *Shonita Abhishyanda* (increased sliminess and heaviness of blood) etc. are caused due to *Dushti* (vitiation) of *Medodhatu* (fat tissue) Therefore; these conditions share similarities in their management approaches also. Ayurvedic strategies for addressing *Medoroga* involve treatments such as *Rukshana* (drying), *Udvaartana* (dry powder massage), *Ruksha-ushna basti* (dry and hot medicated enema), *Virechana* (purgation), and oral medications like *Guggulu* (*Commiphora mukul*), *Shilajithu* (*Asphaltum*), *Guduchi* (*Tinospora cordifolia*) etc. Contemporary science advises different classes of medications for the management of dyslipidemia. Most of the medications are reported to have adverse effects. Hence it is essential to find some safe and effective lines of management. This can be achieved through Ayurvedic therapeutic procedures as well as oral medications.

**Keywords:** *Basti*, Dyslipidemia, *Medoroga*, *Virechana*

## INTRODUCTION

Cholesterol functions as a building block to produce different membranes in the body. It maintains the integrity and fluidity of cell membranes and acts as precursor for the synthesis of various hormones, bile acids and vitamin D.<sup>[1]</sup> Animal sources including egg yolk, shrimp, beef, and pork, poultry, cheese and butter are the main dietary (exogenous) sources of cholesterol. Endogenous cholesterol is synthesized in the liver or extra-hepatic tissue.<sup>[2]</sup> As cholesterol is insoluble in plasma, they are transported in the form of lipoproteins.

Dyslipidemia refers to an abnormality in the metabolism of lipoproteins, involving either excessive production or deficiency, or both. This condition may be characterized by elevated levels of plasma cholesterol, triglycerides, or both, or a reduced concentration of high-density lipoprotein, all of which contribute to the development of atherosclerosis.<sup>[3]</sup> Common manifestations of dyslipidemia include elevated levels of low-density lipoprotein (LDL) cholesterol, increased triglyceride levels, and decreased levels of high-density lipoprotein (HDL). Elevated LDL cholesterol can result in the accumulation of fatty plaques in blood vessels, ultimately leading to atherosclerosis and increasing the risk of CAD, CVA and PAD.<sup>[4]</sup>

Dyslipidemia is considered under the umbrella term *Santarpanajanya vikara* (diseases due to over-nourishment) in Ayurveda. Conditions like *Medoroga*, *Sthoulya*, *Shonita Abhishyanda* are caused due to *Santarpana nidana*. These conditions share similarity in their pathophysiology and management also. *Apatarpana chikitsa* (emaciating therapy) is the main treatment for *Santarpanajanya vikara*.

### OBJECTIVES

To collect and evaluate textual references supporting the management of dyslipidemia in Ayurveda.

### MATERIALS AND METHODS

An effort was made to collect various references about management of *Santarpanajanya vikara*, *Medoroga* and *Sthoulya* with special reference to dyslipidemia.

### *Santarpanajanya Vikara*

Ayurveda basically classifies diseases based on their primary etiology into two; *Santarpanajanya vikara* and *Apatarpanajanya vikara* (diseased due to under-nourishment). Lipid disorders can be considered under *Santarpanajanya vikara* based on the nature of its etiological factors. Routine intake of diet having properties like *Snigdha* (unctuous), *Madhura* (sweet), *Guru* (heavy), *Picchila* (slimy) and food articles like *Navanna* (freshly harvested rice), *Navamadya* (freshly prepared alcohol), *Anupa-Varija Mamsa* (meat of animals from marshy lands or aquatic foods), *Goudika-Paishtika anna* (meal prepared out of jiggery and flour) in excessive quantity are over nourishing in nature. Physical factors like *Cheshtadwesa* (lack of physical activities), *Divaswapna* (day sleep), *Shayya-Asana sukha* (sedentary lifestyle) are also contribute to *Medoroga* by non-utilization of the fat in the body.<sup>[5]</sup> *Apatarpana* or *Langhana* is the line of management for *Santarpanajanya vikara*. This includes *Shodhana chikitsa* (purification therapy) like *Vamana* (emesis), *Virechana*, *Raktamokshana* (blood-letting therapy) and *Shamana chikitsa* (pacifying medications) with drugs having *Ruksha-Laghu-Teekshna-Ushna* (dry-light-sharp-hot) properties.<sup>[6]</sup>

### *Medovaha srotodushti – Nidana, Lakshana*

*Medo dhatu* exists in two forms: *Asthayi* (circulating) and *Sthayi medo dhatu* (stable). *Asthayi medas* refers to the nourishing aspect of *Medo dhatu*, while *Sthayi medas* is the substantial or storage form of *Medo dhatu*. *Poshaka medodhatu* (nourishing part), which is *Asthayi medas*, circulates throughout the body via the *Medovaha srotas* (channels of lipid), providing nourishment to the *Poshya medodhatu* (stable fat). *Poshya medodhatu* is situated in various locations such as *Udara* (abdomen), *Anvasthi* (flanks), *Sphik* (hips), *Sthana* (breasts), etc. Additionally, it is present in the form of *Vasa* (fat) in the *Mamsa* (muscles).<sup>[7]</sup> *Medovaha srotomula* (origin of channels) is *Vrukka* (kidneys) and *Vapavahana* (omentum) according to Charaka.<sup>[8]</sup> *Vapavahana* is the fat deposited around abdomen. Sushruta adds

*Kati* as *Srotomula* and omits *Vapavahana*.<sup>[9]</sup> *Avyayama* (lack of physical exercise), *Divaswapna* (day sleep), *Atimedya bhakshana* (excessive fat intake) and *Ati varuni sevana* (excessive alcohol intake) etc. are enlisted to be the causes for vitiation of *Medovaha srotas*.<sup>[10]</sup> *Medovaha srotodushti lakshanas* (symptoms) are explained as *Meda pradoshaja vikara* which includes *Ashta sthoulya dosha* (eight complications of obesity) and *Prameha purvarupa*. (prodromal symptoms of diabetes)<sup>[11]</sup>

### Chikitsa

*Karshya* (emaciation) is said to be easy to manage on comparing with *Sthoulya*. This is because of the seldom applicability of *Brimhana* (nourishing therapy) and *Langhana chikitsa* (emaciating therapy) in *Sthoulya*. If *Brimhana chikitsa* is done, it will lead to excessive production of *Meda* and if *Langhana* is advocated it will increase *Vata* (vatadosha) and *Agni* (digestive fire) and thus increasing the appetite. As a result of this, the person consumes more food which will contribute to the increase in *Meda*.<sup>[12]</sup> Hence for the management of *Medoroga*, “*guru cha atarpana*” method is adopted. Food and medications which is *Guru* (heavy) in nature, but *Atarpana* (non-nourishing) are advised. *Guru guna* will satisfy the increased *Agni* and *Atarpana guna* will reduce *Meda*. *Madhu* (Honey) is one such drug satisfying both criteria.<sup>[13]</sup>

Lifestyle modifications including diet and physical exercises are given primary importance in the management of lipid disorders by Ayurveda and modern science also. Foods and drinks which are *Vata-Kapha-Medohara* (pacifying *Vata-Kapha-Meda*) in nature are advised for the management of *Medoroga*. Treatment procedures like *Basti* (medicated enema) and *Udvardhana* which are *Ruksha*, *Ushna* and *Teekshna* in nature are also advised. Herbs like *Guduchi*, *Bhadramusta* (*Cyperus rotundus* Linn.), *Triphala* (*Emblica officinalis*, *Terminalia bellerica* and *Terminalia chebula*), *Vidanga* (*Embelia ribes*), *Nagara* (*Zingiber officinale*) etc. are said to be effective in pacifying the excessive *Meda*. Minerals like *Kalalauharaja* (Iron) and *Shilajithu* (Asphaltum) are advised and widely used. *Prajagara* (alert-

ness at night), *Vyavaya* (sexual intercourse), *Vyayama* (physical exercise) and *Chintana* (indulgence in thoughts) are the non-pharmacological measures explained in this context.<sup>[14]</sup>

*Sthoulya* and *Karshya* are explained as *Rasa nimittaja vyadhi* (diseases due to vitiated *Rasadhatu*). This is because of the involvement of *Agni*, *Ahara rasa* (digested food) and *Ama* (undigested food) in the pathology. While explaining the management, prime importance is given to *Nidana parivarjana* (avoiding exposure to etiological factors). *Pramathi dravya* (drugs that clear channels) are the drugs that act at *Chaya avastha* (stage of accumulation) of *Dosha* before the clear-cut manifestation of disease. It is the action in which, specific potency of drugs helps in the removal of accumulated *Dosha* from the channels. Drugs like *Maricha* (*Piper nigrum*) and *Vacha* (*Acorus calamus*) are known for this action and these have efficacy in the management of dyslipidemia.<sup>[15]</sup> Once the disease is set in, then the usage of *Shilajithu*, *Guggulu*, *Gomutra* (cow's urine), *Triphala*, *Lauharaja*, *Rasanjana* (yellowish semisolid extract obtained from decoction of *Berberis aristata*), *Madhu* (honey), *Yava* (barley), *Mudga* (green gram), *Koradushaka* (kodo millet), *Shyamaka* (barnyard millet), *Uddalaka* (forest variety of kodo millet) etc. are mentioned for the management. These drugs possess properties like *Virukshana* (drying), *Chedana* (separating) etc. *Vyayama* (physical exercise) and *Lekhana basti* (scraping type of medicated enema) are also mentioned.<sup>[16]</sup>

### Shodhana and Shamana chikitsa in dyslipidemia

Among *Shodhana karma*, *Basti* and *Virechana* are frequently advised for the management of lipid disorders. Proper administration of *Virechana* will yield *Srotovishudhi* (clearance of *Srotas*), *Laghutwa* (lightness of body) without hampering the normal functioning of *Agni*.<sup>[17]</sup> *Basti* is said to be effective in relieving the *Dosha* located all over body and provides stability to the body.<sup>[18]</sup> *Vamana* is indicated for excessive *Kapha dosha* located in *Urdhwa Amashaya* (upper stomach) but in dyslipidemia, *Dosha* are present all over the body for which

*Virechana* or *Basti* may be effective. *Virechana* is advised after *Purvakarma* (preparatory therapy) like *Deepana-Pachana* (carminative and digestive) and *Snehapana* (medicated ghee intake). After *Virechana*, proper *Samsarjana krama* (diet after purificatory therapy) needs to be followed based on the type of *Shudhi* (degree of purification). *Vaitarana basti*, *Lekhana basti*, *Kshara basti* (types of *Shodhana basti* using cow's urine) etc. are some common *Basti prayoga* used in the management of lipid disorders. Comparing *Virechana* and *Basti*, *Virechana* seems to be more beneficial in managing dyslipidemia. *Virechana* is the best treatment for *Rakta dhatu* (blood) As blood lipid level is increased in dyslipidemia, *Virechana* probably has more effect. Whereas in the management of obesity, *Basti karma* may have more effect as *Basti* is the best treatment for *Vishwak sthitha* (situated all over the body) *Dosha harana*.

Among *Shamana* formulations *Kashaya* (decoctions), *Guggulu* (formulations with *Commiphora mukul*), *Lauha kalpanas* (formulations with iron) are used widely in the management of dyslipidemia. *Asanadi kashaya*, *Varunadi kashaya*, *Navaka guggulu*, *Amrita guggulu*, *Vidangadi lauha*, *Trayushanadi lauha* etc. are some formulations indicated in the management of *Medoroga*. As *Lauha* has affinity towards blood, *Lauha kalpanas* may have upper hand in managing dyslipidemia on comparing with other formulations.

### Role of specific Karma in dyslipidemia

#### **Langhana**

*Langhana* is the treatment which brings *Laghutwa* (lightness) to the body. As *Ati medovridhi* increases *Gourava* in the body, it can be relieved by *Langhana*.<sup>[19]</sup> *Langhana* is the main line of management for *Ama*. *Madhura praya ama annarasa* (undigested food with predominance of sweetness) is formed in the pathogenesis of *Medoroga* which in turn increases the *Snehabhava* in the body and thus increasing *Meda*.<sup>[20]</sup> *Langhana*, by digesting this *Ama* facilitates the formation of normal *Ahararasa* and prevents excessive productions of *Meda*.

#### **Rukshana**

The action and benefits of *Rukshana* are similar to that of *Langhana* but it additionally produces *Rukshata* (dryness), *Kharatwa* (roughness) and *Vaishadya* (clearness) in the body. *Udvardana* is a type of *Rukshana* which is indicated specifically for *Medoroga*. It pacifies *Kapha*, liquefies *Meda* and provides stability and firmness to the body.<sup>[21]</sup>

#### **Chedana**

The action by which *Dosha* adhered to the channels are removed from its root is known as *Chedana*.<sup>[22]</sup> In dyslipidemia, there is an increase in the *Meda* in *Rasa* and *Raktavaha srotas*. *Chedana dravya* like *Kshara* (alkalies), *Maricha* and *Shilajithu* are helpful in removal of excessive lipid from the blood.

#### **Lekhana**

The action which dries up and scrapes the abnormally deposited tissues or waste products in the body is known as *Lekhana*. *Kshoudra* (honey), *Ushnajala* (hot water), *Vacha* and *Yava* are best among *Lekhana dravya*.<sup>[23]</sup> Charaka enlists ten drugs with *Lekhana* properties such as *Musta* (*Cyperus rotundus*), *Kushta* (*Saussurea lappa*), *Haridra* (*Curcuma longa*), *Daruharidra* (*Berberis aristata*), *Vacha* (*Acorus calamus*), *Ativisha* (*Aconitum heterophyllum*), *Katuka* (*Picrorhiza kurroa*), *Chitraka* (*Plumbago zeylanica*), *Chirabilva* (*Holoptelia integrifolia*), *Haimavati* (*Acorus gramineus*)<sup>[24]</sup> In dyslipidemia, *Lekhana dravya* can be used in the form of various formulations as well as in the form of *Basti*. Randomized controlled studies in using *Lekhana basti* has shown promising results both in clinical symptoms as well as in lipid parameters of patients of hyperlipidemia.<sup>[25]</sup>

### Comparison between conventional and Ayurvedic management of dyslipidemia

In the treatment of lipid disorders, Ayurveda emphasize on following *Pathya* (beneficial) and *Apathya* (avoidable) measures. The management of *Medoroga* involves recommendations such as consumption of foods and drinks that pacify *Kapha*, *Meda*, and *Vata* along with engaging in activities like exercise and fasting. These measures not only serve as a treatment but can also function preventively. Modern medicine aligns with these principles by suggesting



non-pharmacological interventions, including lifestyle changes, dietary modifications, and physical exercise. Charaka explains "*Guru cha atarpanam*" as the primary approach for managing *Medoroga*, involving the consumption of substances with heavy and non-nourishing properties. This concept can be likened to the modern approach of a low-fat, low-carbohydrate, high-protein diet recommended as non-pharmacological management of dyslipidemia.<sup>[26]</sup> Physical exercise is also given much importance in non-pharmacological management of dyslipidemia. This is aimed at burning the excessive lipids and utilizing it for energy production. *Vyayama*, *Vyavaya*, *Jagarana* etc. are some *Adrvyabhuta chikitsa* (drugless therapies) explained in the management of *Medoroga*. The purpose of these measures is to increase the *Dhatwagni* (tissue metabolism) and to do the *Pachana* of *Dhatugata Ama*. Hence by following these *Vihara*, *Ama pachana* can be attained at *Medo dhatu* level, excessive *Meda* can be removed, and further accumulation of *Meda* can be prevented too.

*Virukshana* and *Chedana* are two approaches in the management of *Medoroga*. *Virukshana* is aimed at *Medoharana*, addressing the reduction of excessive fat, while *Chedana* focuses on *Srotoshodhana* (cleansing the channels). Both therapies are essential for eliminating surplus lipid and regulating normal lipid metabolism. In modern medicine, statins, such as HMG-CoA inhibitors, are recommended as the primary treatment for dyslipidemia. Statins reduce cholesterol synthesis, upregulating the number and activity of LDL receptors, leading to the removal of circulating LDL, IDL, and VLDL cholesterol. Fibrates are another class of drugs that enhance the catabolism of plasma lipoproteins.<sup>[27]</sup> The concept of *Virukshana* or *Medoharana* aligns with the catabolism of lipoproteins, enabling the removal of excess circulating lipoproteins. The stimulation of LDL receptors, resulting in the removal of LDL, IDL, and VLDL, corresponds to the *Chedana* and *Srotoshodhana* processes. A balanced interplay between these functions is crucial for maintaining normal lipoprotein levels in the blood. Additionally, thera-

peutic substances like *Guggulu*, *Shilajithu*, *Lauha bhasma*, *Triphala*, *Kshara*, and other *Shamana oushadhis* prove useful in the effective management of dyslipidemia.

## DISCUSSION

Lipids are essential nutrients for the human body as they perform different bodily functions. Various types of lipids and lipoproteins have their own normal limit which needs to be maintained in order to carry out their respective functions. Any level more or less than the normal limit leads to conditions collectively known as dyslipidemia. Dyslipidemia generally does not produce any clinical symptoms and remains undiagnosed until any complications occur. Increased level of atherogenic lipoproteins leads to the formation of atherosclerosis in arteries which in turn leads to complications like CVA, CVD, and PAD etc. Management of dyslipidemia is mainly intended at reducing the production of cholesterol and catabolism of excessive cholesterol. Ayurveda and contemporary science possess similarity in the management of dyslipidemia. Primary importance is given to non-pharmacological management in both sciences. Dietary modifications, physical exercise, avoidance of exposure to etiological factors are given importance in this regard. Ayurvedic treatments aim at correcting the *Agni* and thus promoting the optimum production of *Medodhatu* and removal of excessive *Meda*. For these purposes various *Shamana* and *Shodhana* measures are explained. Good number of herbal and mineral formulations is mentioned under *Medoroga chikitsa* which have significant role in managing dyslipidemia.

## CONCLUSION

Ayurvedic treatment modalities have important role in providing safe and effective management for dyslipidemia. Various dosage forms and formulations are explained under *Medoroga chikitsa* which are beneficial in managing dyslipidemia. Selection of ideal medicine among them should be done based on the lipid levels, clinical symptoms, risks of complications, built and nutritional status of the patient.

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