DYSLIPIDEMIA AND MEDO ROGA – A CRITICAL REVIEW

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ABSTRACT
The incidence of lifestyle diseases like hypertension, diabetes mellitus, dyslipidemia and overweight/obesity associated with cardiovascular diseases is high on the rise. Dyslipidemia is elevation of plasma cholesterol, triglycerides (TGs), or both, or a low high-density lipoprotein level that contributes to the development of atherosclerosis. The epidemic of cardiovascular disease (CVDs) is the most prevalent cause of death and disability in both developed as well as developing countries. In India, there has been an alarming increase in the prevalence of CVD over the past two decades so much so that accounts for 24% of all deaths among adults aged 25–69 years. The World Health Organization estimates that Dyslipidaemia is associated with more than half of global cases of ischemic heart disease and more than 4 million deaths per year. Ayurveda is recognized as foremost life science and describes ways to prevent and manage lifestyle disorders. The holistic approach of Ayurveda, treating the patient as a whole, meaning intervention targeted toward complete physical, psychological and spiritual well-being makes this science a wonderful option in lifestyle disorders. So here an attempt has been done to understand the dyslipidemia in ayurvedic perspective.

KEYWORDS: Dyslipidemia, Medo Roga.

INTRODUCTION
In the modern era, sedentary life-style and drastic changes in food pattern are leading cause of the diseases such as dyslipidemia, Type-II Diabetes Mellitus (DM), hypertension and obesity, which are closely linked with each other and often co-exist in individual making the syndrome, more complex and difficult to manage.
According to National Commission on Macroeconomics and Health, there would be around 62 million patients with the Coronary Artery Disease (CAD) by 2015 in India and of these 23 million would be patients younger than 40 years of age.\(^1\) The four leading causes of death globally in 2030 are projected to be Ischemic heart disease, cerebrovascular disease (stroke), HIV/AIDS and chronic obstructive pulmonary disease.\(^2\)

According to WHO survey done in 2002, almost \(1/5^{th}\) (80%) of global stroke events & about 56% of global heart disease are attributed to Dyslipidaemia. This is responsible for about 4.4 million death (7.9% of the total) & 2.8% of global disease burden.

During the past three decades, dyslipidemia as a risk factor for CVD has increased markedly in India. Dyslipidaemia alone currently affects approximately 10% of global population. For every 1% increase in cholesterol level there is 1-2 % increase in the incidence of CVD.

Dyslipidaemia is a disorder of lipoprotein metabolism, which can include overproduction or deficiency of lipoproteins or both. The disorder can manifest as an elevation of plasma cholesterol, TGs, or both, or a low high density lipoprotein level or all three together that contributes to the development of atherosclerosis. Dyslipidaemia may be related to other diseases (secondary Dyslipidaemias) or to the interaction between genetic predisposition and environmental factors. The management of Dyslipidaemia is directed at the identification of those at high risk of cardiovascular disease and the primary prevention and secondary prevention of cardiovascular disease by the management of all risk factors, including smoking, hypertension, diabetes and obesity.

The need to do a comprehensive review of this particular syndrome has arisen in view of the ever increasing incidence of this entity.

In Ayurveda there is no such term described like Dyslipidemia. Yet, the lipids, explained in modern sciences has close resemblance with Sneha Dravya in Ayurveda i.e. Meda and Vasa. Meda is the 4\(^{th}\) Dhatus out of seven, whose function is to provide Sneha to the body.

**Pramana of Medo Dhatu**

The total quantity of Meda is 2 Anjali. And that of Vasa is 3 Anjali and it may vary to some extent in different persons. Thus the total Medas content of the body enumerates to 5 Anjali; total measurable body elements are counted as 56.5 Anjali; thereby counting the Medas
content to be roughly $1/11^{th}$ of total body weight which is an accordance with the total amount of body fat ($1/12^{th}$ of body wt.) according to modern science which may vary in Medoraga.

**Table showing Comparison between the concept of Meda and Lipids.**

<table>
<thead>
<tr>
<th><strong>MEDA</strong></th>
<th><strong>LIPIDS</strong></th>
</tr>
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<tbody>
<tr>
<td>Ingestion of excessive Snigdha (Ghrita, Taila, Vasa &amp; Majja)(^3) cause Medovridhhi</td>
<td>Intake of high fat diet (ghee, oils, Marrow, butter etc.) increases body lipids</td>
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<tr>
<td>Dietary intake of excessive Madhura Dravya causes Medovridhhi(^4)</td>
<td>Increased consumption of carbohydrates (especially sucrose enhances cholesterol level).(^5)</td>
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<tr>
<td>Medo-Snigdhangata</td>
<td>Fat gives an oily appearance of the body.</td>
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<tr>
<td>Meda is the main factor which is affected (Dushya) in Medoroga and Prameha etc.</td>
<td>Obesity and diabetes are often associated with abnormal lipid level.</td>
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</table>

Dyslipidemia is mainly due to abnormal metabolism of Meda, though from the beginning of the digestive process Meda may formed from Ahara Rasa specialy which having the profuce quantity of Sneha. That is rightly said by Acharya Kanthadatta in his ‘Madhukosha’ commentary – ‘Snehat medo janayati.’\(^6\)

**Concept of Meda**

Two types of Meda (Fat) are described in Ayurveda.\(^7\)

1. *Baddha Meda* / *Poshya Medo Dhatu*

   The fat which is not mobile and is stored in the form of fat at various places (fat depots/omentum/muscles in the body).

2. *Abaddha Meda* / *Poshaka Medo Dhatu*

   The fat which is mobile and circulates in the body along with blood in the form of lipids (Cholesterol, Triglycerides, LDL, HDL & VLDL etc.).

Among these two, *Poshaka Medo Dhatu* is mobile in nature, which is circulated, in the whole body along with the Rasa- Rakta Dhatu, to give nutrition to *Poshya Medo Dhatu*. Second, *Poshya Medo Dhatu* is having immobile nature, which is stored in Medodharakala. The site of Medodharakala is Udara (abdomen) and Anuasthi (bones). Udara, Sphika (buttoks), Stana (breast tissue) are also depots of *Poshya Meda*.\(^8\) Medo Dhatu is also considered as a Sneha.
dominant Drava Dhatu which is having Guru (heavy), Snigdha (oiliness) properties and dominance of Prithvi (earth), Apa (water) and Teja (fire) Mahabhoota. As a result of Mamsagnipaka, it can be distinguished in the form of Sukshmabhaga (minute or nano portion), which is responsible for the further transformation of the Medo Dhatu.

According to Ayurveda, Nidana for Medo Dhatu Dushti is excessive intake of Shleshma Vardhak aahar- vihar and reduced exercise causes Agnidushti resulting in excessive formation of Sama Meda. Due to Avarana of Marga by the Sama Medas, Poshana of subsequent Dhatu in the body is hampered and there is Upachaya of Medodhatu. These are the references from classical literature bearing similarity to the aetiology, features and complications of dyslipidemia. Thus it presents as “Medovriddhi and Medoroga”.

Sthaulya, Medoroga and Medodosha have been described to be synonymous to each other. The term Medoroga was first used by Acharya Madhav to define obesity and related lipid complications. Literally it means a disease in which Medo- Dhatu is deranged. It is only one type of disease according to Ayurvedic texts, but Adhamalla has tried to distinguish between two types of Medoroga; 1) Adiposity (Obesity), including its clinical features (Sthaulya) & 2) Lipid Disorders where Meda acts as an etiological factor in the genesis of other Diseases (secondary).

Abnormal accumulation of Meda Dhatu in body is known as Medodushti. Medodushti includes several numbers of other Medovikara, which are collectively known as Medoroga. Acharya Charaka has described Medodosha under the title of Atisthaulya. Acharya Charaka mentioned Atisthaulya under Ashtuninditiya, which is actually Medopradoshaja Vikara. In nutshell, it can be stated that abnormal and unequal distribution/collection of Medo Dhatu in body seems to be known as Medodoshti / Medoroga. Acharya Dalhana has quoted three main etiological factors (Vishistaharavashat, Adrishtavashat, Medosavrita Margatvat) of Sthaulya which encompass all the causes leading to an increase in the Asthayi Medo Dhatu thereby leading to a state of Dyslipidaemia. Kapha and Meda Dhatu two are main Dosha-Dushya Ghataka in pathogenesis. Accumulation of Kapha & Meda leads to Srotovarodha causing trapping of Samana Vayu in Koshtha leading to Avarana to Samana Vayu. It leads to Jatharagni Sandhukshana. Increased Jatharagni leads to rapid digestion of ingested food & leaves the person craving for food. This vicious cycle continues resulting in Meda Atiupachaya.
Dalhana, commentator of Sushruta Samhita, has further clarified this concept & has discussed the phenomenon of conversion of Madhur rasa dravya into Sneha dravya leading to adiposity. Commenting on Su.Su. 15/37 in his ‘ Nibandha Sangraha’ commentary, he says if indulge in frequent consumption of Shleshmala ahara (Madhura, Guru, Sheet, Snigdha) without undertaking adequate physical activity & rather sleeps for a long time, his Annarasa remains Apakva & become Ama. This Ama is Madhura & Atisnigdha in character and is made available for conversion into Sneha (Meda) owing to its affinity to Meda. Such Amarasa does not provide nutrition to other Dhatu, as the increased Meda gets deposited in various microchannels & obstructs them.\[9\]

In Ayurveda also Meda is consider as prime dashya in context of different diseases like- Prameha, Medoroga and Sthaulya etc. In the Metabolic Syndrome the abnormal Meda, when deposited into subcutaneous tissue , it gives the clinical presentation of Obesity and similarly when that incompact Meda (Abadha) extracted to Basti (urinary system) it creates the manifestations of Prameha (D.M.) and when this Meda is unnaturally deposited in the arterial wall and increase the peripheral resistance (Dhamnipratichaya/arteriosclerosis), it is term to clinical manifestation like Hypertension and when these unnatural Meda present in the Rakta-vaha srotas (CVS) leads to increased level of unwanted fat level- Hypercholesterolemia.

Abaddha Meda Dushti mentioned in Prameha in Ayurveda, can be considered as Dyslipidaemia. It should be treated on the lines of management of Medoro and Prameha.

CONCLUSION
Dyslipidaemia is one of the major modifiable risk factor for diabetes mellitus, atherosclerotic diseases like coronary artery diseases, stroke etc. A precise reference of dyslipidaemia is not available in Ayurveda but it can be understood in terms of Bahu abaddha medas. It is a medo dushti predominant disorder. Being a Metabolic syndrome there lays a definite relation between pathophysiology of Hypertriglyceridemia with the agnivaigunya at different levels starting from jatharagni up to dhatwagni and kapha as pradhana dosha, rasa and meda dashya. Faulty dietary and lifestyle factors and unseen factors plays important role in the pathogenesis.

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4. *ibidem.


6. Shri Madhavakara: Madhava Nidanam (Uttarardha) with the Madhukosha Sanskrit commentary by Shrivijayarakshita and Shrikanthadatta and the Vidyotini Hindi commentary by Shri Sudarshana Shastri, revised & edited by Prof. Yadunandana Upadhyaya, reprint ed. Varanasi: Chaukhamba Prakashan, 2004; Chapter 34, verse 9, pp. 29.

