wjpmr, 2024, 10(8), 93-95

SJIF Impact Factor: 6.842

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.wjpmr.com

Review Article

ISSN 2455-3301

WJPMR

CONCEPT OF LIPIDS IN AYURVEDA – VIS – A- VIS MEDODHATU

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Article Received on 09/06/2024 **Article Revised on 29/06/2024** **Article Accepted on 19/07/2024**

ABSTRACT

The human body is made up of seven different tissue kinds, or *Dhatu*. One of the *Dhatus* that is essential to preserving *Snehatwa* (lubricity) is Meda. In contemporary science, it can be connected to lipids. Lipids and certain elements found in the human body, such as *Majja* and *Vasa*, are similar. *Medo Dhatu* is significant because it contributes to the development of several metabolic illnesses, such as obesity and diabetes mellitus, which are *Ayurvedic* conditions known as *Sthaulya* and *Prameha*, which are brought on by an excess of *Meda*. In the context of hyperlipidaemia, the current work conceptually attempts to link lipids with *Meda Dhatu* using *Ayurvedic* terminology. Abnormally high blood levels of any or all lipids and/or lipoproteins are known as hyperlipidemia. Based on empirical evidence, it appears that increased lipid utilization prioritizes obesity and hyperlipidemia. Numerous tissues in our body, including *Meda Dhatu*, *Vasa*, and *Majja Dhatu*, are high in lipids. *Meda Dathu* is one of the most crucial lipids mentioned above since it plays a major part in the development of numerous metabolic illnesses, including hyperlipidemia.

KEYWORDS: *Meda*, Lipid, *Medadhatu*, *Ayurveda*, Hyperlipidemia.

INTRODUCTION

The universe is made up of five fundamental elements known as *Panchamahabhuta* viz *Akash*, *Vayu*, *Agni*, *Jala*, *and Prithvi*, in accordance with *Ayurvedic* teachings.[1] A cell is a structural and functional unit of a living organism that is made up of proteins, lipids, carbohydrates, water, and various minerals, according to modern science.[2] Comparably, in *Ayurveda*, the structural and functional unit of the living organism is called *Dosha*, *Dhatu*, and *Mala*, and it is made up of *Panchamahabhuta*.[3] Numerous bodily tissues have high lipid contents. Lipid's primary biological roles include energy storage, signalling, and serving as structural elements of cell membranes. A class of naturally occurring compounds known as lipids comprises fats, waxes, sterols, fat-soluble vitamins, and other substances. The commonality across all these substances is *Snehatwa*, or oiliness or lubricity. Lipids and the *Meda Dhatu*, *Vasa*, and *Majja Dhatu* may be connected. While they share *Snehatwa*, their locations and purposes are different. When the *Sneha* is healthy, it contributes to the body's voluptuousness and corpulence; but, when it is unhealthy, an illness known as *Medo Dushti* (Hyperlipidemia) or *Ras - Raktagat Snehavridhi* can arise.

Concept of *meda*

The majority of *Meda* is found in *Udara*, although some of it is also found in *Mansa* and Brihat *Asthi*. If Meda is found inside *Anu Asthi* (little bones), it is called *Sarakta Meda*; if it is found inside Sthula *Asthi* (big bones), it is called *Majja*. The pure form of Meda, known as Vasa, is found within the *Mansa (Peshi*).[4] As a result, all lipid types can be connected to Meda, Vasa, and *Majja*. However, Medo Dhatu is more significant than the others since it causes hyperlipidemia, or *Medoroga*, and other metabolic diseases.

Synonyms of *meda*

Mamsaja and Mamsatej: *Medo Dhatu* is derived from *Mamsa Dhatu* through digestion. Hence, it is referred to as *Mamsaja* or *Mamsatej*.
Asthikruta: Since bones are formed from Meda, it is called *Asthikruta*.
Vasa and Vapa: The fatty substance present in muscle tissue is called *Vasa*, and when it accumulates in the abdomen, it is termed *Vapa*.
Majja: The oily substance found within the bones is known as *Majja*.
Goda: The oily content within the brain is termed *Goda* or *Mastulunga*.

Sthana* and *Swarupa* of *medo dhatu

There are two types of *Medo Dhatu, Poshaka* and *Poshya. Poshaka Medo Dhatu* is mobile and circulates throughout the body along with Rasa-Rakta Dhatu to provide nourishment to *Poshya Medo Dhatu*. This circulation of lipids and cholesterol with the blood can be visualized using various imaging techniques.

Poshya Medo Dhatu, on the other hand, remains immobile and is stored in a place called *Medodharakala* This storage site is mainly found in the abdomen and small bones. Additionally, fat is also stored in areas such as the abdomen, thighs, hips, breasts, and neck.

Medo Dhatu is recognized as a fluid tissue predominantly characterized by oiliness, attributed to its richness in the earth, water, and fire elements. It possesses heavy qualities and is often described as having a lubricating nature.

Due to the digestion process by *Mamsagnipaka*, *Medo Dhatu* undergoes a transformation into a subtle form known as *Sukshmabhaga*, which plays a role in further processing the tissue.

Comparison between the concept of *Meda* and Lipids

Meda	**Lipid**
Meda is the main factor which is affected in *Sthaulaya* and *Prameha*[5]	Obesity and Diabetes are often associated with abnormal lipid levels.
Medo – Snigdhangata[6]	Fat gives an oily appearance to the body
Ingestion of excessive *Sneha (Ghrita, Taila, Vasa & Majja)*[7]	Intake of high fat diet like Ghee, Oils, Marrow, Butter increases body lipids.
Dietary intake of excessive *Madhura Dravyas* causes *Medoroga.*[8]	Increased consumption of carbohydrates (especially sucrose enhances cholesterol level)

Concept of *Meda* and Lipids

Lipids share *Snehatva,* as does *Meda Dhatu.* Overconsumption of *Sneha (Ghrita, Taila, Vasa, & Majja*) raises body fat levels and causes *Medo roga. Meda Dushti Janya* Sign & Symptoms, as described in *Ayurveda*, bears a striking resemblance to the explanation of hyperlipidemia found in contemporary texts. *Ayurveda* states that consuming too much *Shleshma Vardhak Aahar-Vihar* combined with inactivity leads to *Agnidushti,* which in turn promotes an excessive production of *Saam Meda*. It appears as "*Medo roga* or *Medo dushti*" as a result. The primary pathology of *Medodushti* is vitiation and excessive accumulation of *Meda Dhatu*, which results in two types of *Medovriddhi: Baddha Meda Vriddhi* and *Abadhha Meda Vriddhi. Baddha Meda Vriddhi* is associated with an overabundance of fat build-up. The excess of circulatory Meda Dhatu that feeds the *Baddha Meda* is known as *Abadhha Meda Vriddhi*. The body's serum lipid level may rise because of this, since triglycerides are also present in adipose tissue. The body seems greasy due to fat (*Meda- Snigdhangata*).

Comparison between *Medoroga* and Lipid disorders

	Medoroga	**Lipid disorders (Hyperlipidaemia and associated disorders)**
Etiological factors	*Medyanam-Atisevana* *Avyayama* *Diwaswapana* and *Achintana* *Ativaruni sevana* *Bija-Swabhava*	Intake of high fat diet Lack of exercise Sedentary lifestyle Excessive intake of alcohol Genetic predisposition
Clinical features	*Medomamsaativriddhi* (*Sphika,udara,parsava,stana*) *Kshudhaatimatram* *Pipasaatiyoga* *Kshudra shwas* *Ati sweda, Swedabadha, Daurbalya*	Excessive deposition of fat in abdomen, waist, buttocks and breasts. Excessive appetite Excessive thirst Exertional dyspnoea Excessive perspiration General weakness
Complications	*Ayusho hrasa* *Javopradha* *Moha* *Alpa prana* *Vata vikara*	Decreased life expectancy Mechanical disabilities Syncope Loss of immunity Cardiovascular and cerebrovascular manifestations
Management	*Medo Mamsa Kaphapaham* *Chikitsa Medohara Dravya* *Prajagar, Vyayam*	Low fat diet Hypolipidaemia drugs Exercise

After reviewing the comparison of the facts presented above, it appears that Hyperlipidaemia can indeed be considered as manifestation of *Medoroga.* In *Charak Samhita,* there isn't a specific explanation of disease known as *Medoroga*, but *Atisthulaya* is mentioned under *Ashtauninditiya,* which essentially refers to conditions related to fat metabolism, indicating *Medoroga.* Furthermore, in the same chapter, causes, symptoms, etiology and treatments related to these conditions are described.

DISCUSSION

One could argue that *Medoroga* refers to the aberrant and unequal distribution or collection of *Medo Dhatu* in the body. Hyperlipidaemia can be correlated with *Medoroga*. Acharya *Charak* didn't mention *Medoroga* separately but instead that he explained *Sthaulya* which is nothing but *Medoroga*.[9] In his description of *Medoroga*, Acharya Charak used the term *Atisthaulya*. He clarified that *Atisthaulya* is a synonym for *Medoroga* and is a result of *Medovaha Srotas dushti*. Madhavakar has described the disease under the heading of *Medoroga* in 34th chapter and has used *Medaswina*,[10] *Atisthula*[11] and *Sthula*[12] words as synonyms. The primary pathology of Medadushti is vitiation and excessive accumulation of Meda Dhatu, which results in two types of Medavruddhi: Baddha Meda Vriddhi is associated with an overabundance of fat build-up.

The excess of circulatory *Meda Dhatu* that feeds the *Baddha Meda* is known as *Abadhha Meda Vriddhi*. The body's serum lipid level may rise because of this, since triglycerides are also present in adipose tissue.

CONCLUSION

The body contains a variety of lipid-rich tissues, including *majja dhatu, vasa*, and *medo dhatu*. Of these lipids, *medo dhatu* is particularly significant because it plays a major role in the development of many metabolic diseases. Agni is in charge of all bodily metabolic processes. The pathology of *medho dhatwagni mandya* causes an excess of homologues *poshaka Medo Dhatu* in circulation, which can be associated with conditions like hyperlipidaemia. The etiological factors, as well as the signs and symptoms mentioned for *medoroga* are nearly identical to those of hyperlipidaemia. Therefore, the illness that is characterized by dyslipidaemia in the body can be categorized as *medoroga*. Based on these data compared above, it appears that lipids are a *Meda dhatu*, and hyperlipidaemia is a *Medaroga*. Thus, a link between hyperlipidaemia and the *Ayurvedic Poshya Poshaka Meda Dhatu* can be established. Additionally, hyperlipidaemia can be managed using *Ayurvedic* principles, which lowers the risk of cardiovascular disorders through a comprehensive approach.

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