



## A REVIEW ON THE CONCEPT OF LIPIDS IN AYURVEDA

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**ABSTRACT** This era has witnessed a rapid rise in Noncommunicable diseases which are the products of metabolic derangement. Thus, there is need to understand the basic metabolic factors in body and their concept in Ayurveda in order to prevent the onset of the diseases by correcting the metabolism by following healthy lifestyle and diet. Lipids is one among those metabolic factors which is explained in the broad concept of *Sneha* especially the *medodhatu*. A derangement in *medodhatwagni* leads to *medodhatu dushti* which may lead to metabolic disorders like Dyslipidemia, Atherosclerosis etc. which may further contribute to Cardiovascular Diseases. Thus, understanding their concept is of prime importance in primary prevention of these disorders.

**KEYWORDS :** Lipids, *Medodhatu*, *Sneha*

### INTRODUCTION

Lipids are a group of organic substances of fatty nature which are insoluble in water, soluble in fat solvents, such as ether, alcohol, chloroform and benzene, related to fatty acids (either actually or potentially) as esters and utilizable in metabolism by living organisms<sup>1</sup>. Thus lipids can be compared to the *sneha* part of human being especially *medodhatu*. The derangement of *medodhatu* or *snehasma* of body is associated with so many metabolic disorders viz Dyslipidemia, Obesity etc.

### AIMS AND OBJECTIVE

To analyze the concept of lipids in Ayurveda with special reference to *medodhatu*.

### MATERIALS AND METHODS

All relevant information pertaining to *sneha* properties of *sareera* and *medodhatu* is collected and analysis was done by comparing their properties with that of lipids.

### Sneha and human body

The human body is said to be made of *Snehasara*, which means the purest form of *sneha*.

*Sneha* is an attribute present in all *dhatu*s except *asthidhatu*. It is a parameter for the *dhatu saratva* or optimum status of all *dhatu*s except *asthi*<sup>2</sup>. *Snehana* is the primary function of *medodhatu*<sup>4</sup>, which is a continuous layer or deposition on membranes such as mesenteries or greater omentum, around kidneys (*vapa*), around intestine, in the furrow of heart, around joints, marrow of long bones, in between muscles (*vasa*), in brain and nerve tissues (*mastulunga*)<sup>3</sup>.

*Snehana* property can be seen in *vasa* and *majja*, but there is a difference in their site and function. Thus, it can be said that *medas*, *majja* and *vasa* are similar in the properties of *snigdha* and *guru guna*.

Though these are major sites where *sneha* is apparent, the main focus is given to *medodhatu* owing to its significant role in diseases arising due to *santarpana* and due to similarities to lipids and disorders of lipid metabolism.

### Definition of Medodhatu

*Medas* is defined as one which performs the function of *snehana*. It is specific type of *dhatu* originated from *mamsa dhatu*.

### Synonyms

- *Mamsaja* – *medodhatu* is formed from *mamsa dhatu*.
- *Vasa* – *Sneha* of *mamsa* is called *vasa*.
- *Vapa* – *Sneha* deposited in abdomen.
- *Goda* or *Mastulunga* – *Sneha* located in *mastishka*.

### Sthana and Swaroopa of Medodhatu

Based on the function of *poshana*, *medodhatu* is of two types – *poshya medodhatu* & *poshaka medodhatu*. The *sthaiya* or *poshya medodhatu* is derived from *poshaka medodhatu* by the action of *medodhatwagni*. It is immobile in nature and usually stored in the *medodhara kala* situated in *udara* and *amasthi*<sup>5</sup>. *Sphik*, *sthana* and *udara* are also sites of deposition of *medodhatu* as seen in *atisthoulya*<sup>6</sup>. *Medas* located in *udara* can be compared to *medas* deposited in abdominal cavity i.e., in greater omentum, lesser omentum, mesentry and *medas* deposited in the fatty layer of superficial fascia of anterior abdominal wall. It is also found that central abdominal fat and visceral fat are more metabolically important than other fat depots, which is strongly associated with insulin resistance and dyslipidemia. The *poshaka medodhatu* is *asthaiya* in nature & circulates along with *gatiyukta rasa* and *rakta* to nourish the *sthaiya medodhatu*. It can be correlated with cholesterol, triglycerides & phospholipid which circulates in blood.

Other forms of *medas* are –

1. *Badha medas* : *medas* in compact and binded form.
2. *Abadha medas* : *medas* in noncompact and free from circulating in body.

Depot fats, which are stored in special mesenchymal cells known as fat cells or adipocytes, are *Badha medas*. These are found mainly in omentum, mammary glands and hip region.

### Panchabhoutika Ghatana of Medodhatu

*Medodhatu* is mainly composed of *Prithvi* and *Ap Mahabhutas*<sup>7</sup>.

### Quantity of Medodhatu

Total quantity of *medodhatu* in body is approximately two *anjalis*<sup>8</sup>.

### Upadhatu of Medodhatu

*Snayu* is the *upadhatu* of *medodhatu*. *Sarangadhara* mentioned *sweda* as the *upadhatu*.

### Mala of Medodhatu

*Sweda* is described as the *mala* of *medodhatu*.

### Karma of Medodhatu<sup>9</sup>

- *Snehana* – *Sneha* helps to maintain the luster of skin, eyes (*netra snigdhatu*) and various body organs (*gatra snigdhatu*).
- *Swedana* – *Sweda* is the *mala* of *medodhatu*. This can be understood as sebum mediated elimination of excess lipids and cholesterol.
- *Asthi Pushi* – *Medodhatu* helps in the nourishment of *asthi* and its *upadhatu*, *snayu* and *sandhi*. Cholesterol in the body turns into Vitamin D with the help of sunlight, which regulates Calcium and Phosphorous metabolism and is crucial for strong bones and teeth.
- *Drudhatva* – *Medodhatu* provides strength to the body. This can

be understood as the visceral fat cushions the organs protecting them from any trauma. *Snayu (upadhatu of medas)* provides support to *asthi* and *sandhi*.

#### Parinati kala

*Medodhatu* is formed on fifth day after ingestion of food according to Acharya Parasara.

#### Medovaha Srotas

The channels which provide nutrition to *medodhatu* by carrying the nutritive material to the site of *medodhatu* can be considered as *Medovaha Srotas*. These channels contain only *asthaya medodhatu* which is then transformed into the *sthayi medodhatu*.

#### Moola of Medovaha Srotas

Chakrapani explained the term “*moola*” as the site of origin. It can be understood as the organs which may directly relate to the formation, origin or circulation of *dhatu*s.

- Charaka – *Vrikka* and *Vapavahana*<sup>10</sup>
- Susrutha – *Vrikka* and *Kati*<sup>11</sup>
- Vagbhata – *Vrikka* and *Mamsa*<sup>12</sup>

#### Medodhara kala

*Medodharakala* is present in *udara* and small *asthis*. *Majja* is present in long and big bones and the *medas* present in small *asthis* is known as *saraktamedas*<sup>13</sup>.

#### Vrikka

*Vrikkas* are one of the *Koshtangas* formed by the *prasadabhaga of rakta* and *medodhatu*<sup>14</sup>. Sarangadhara stated that the *vrikkas* provide nourishment to the *medodhatu* present in the abdominal region. All Acharyas have considered *vrikka* as “*moola*” so it may be directly related with fat metabolism. The perineal fat is never known to undergo emaciation even after several days of fasting and it is known to be lipolyzed only on severe deficiency in the body which may be one of the reasons to consider *vrikka* as a *moola sthana*. Recently there has been evidence regarding the increased tubular reabsorption in obesity and shift pressure natriuresis towards higher blood pressure. The increased tubular reabsorption is linked to the possible changes in intra renal physical forces caused by medullary compression due to accumulation of adipose tissue around the kidney and increased extracellular matrix within the kidney.

#### Vapavahana

It is one among the *Koshtangas*. Majority of the diseases linked to obesity and its complications such as insulin resistance, diabetes mellitus, hypertension, hyperlipidemia etc. have connection with increased intraabdominal and visceral fat characterized by increased waist circumference. Abdominal fat is unique in its metabolic features as compared with peripheral fat depots, exhibiting larger adipocytes which contain more triglycerides and exhibit greater insulin resistance than smaller adipocytes.

#### Kati

*Kati* is one among the places of maximum fat accumulation, which might be the reason for considering it as one of the *medovaha srotas moolasthanas*.

#### Mamsa

*Mamsa dhatu* forms the *medodhatu poshakamsha* which on transformation by the *medodhatwagni* leads to the formation of *medodhatu*<sup>15</sup>.

#### Medodhatwagni

*Dhatwagni* is the *agni* situated at the level of tissues. If these fractions become overactive, there will be *kshaya* (catabolism) of *dhatu* and if they become diminished, there will be abnormal *vridhi* of the *dhatu*. Several hemocrine hormones like glucocorticoids, insulin, glucagon etc. determine the metabolic state of a *medodhatu*, which can be correlated to *medodhatwagni*. If glucagon levels are excess, lipolysis occurs which is equivalent to *medokshaya*. Along with these hormones, all enzymes involved in lipid metabolism may also be regarded as *medodhatwagni*.

#### Ashraya asrayibhava of Medodhatu<sup>16</sup>

*Meda* and *Kapha* are interrelated in a such manner that is *kapha* is *ashrayee* (residential) while *meda* is *ashraya* (residence). So, with increase in *kapha*, *meda* will increase and vice versa. Similarly, decrease in *kapha* will lead to decrease in *medas*.

#### Medodhatu vridhi lakshana<sup>17</sup>

*Shrama* (tiredness), *alpe api cheshtite swasam* (breathing difficulty even on mild exertion), increase in size of *sphik*, *sthana*, *udara* and *parshwa*, *snigdhangata* (unctuousness of the body), *kasa*, *swasa* and *dourgandhya* are said to be *vridhi lakshana* of *medodhatu*.

#### Medodhatu kshaya lakshana<sup>18</sup>

*Roukshya*, *sandhi soonyatha* and desire to consume food stuffs which are rich in *snigdha guna*, *swapna of kati pradasha*, *vridhi of pleeha* (apparently though there is no increase in size of spleen, it may appear to be relatively enlarged due to lean body), *krisangatha* (emaciated body) are said to be the *kshaya lakshanas* of *medodhatu*.

#### DISCUSSION

Lipids are major sources of energy in the body. Lipids are major components of cell membranes and are responsible for most of the permeability filter function of soft membrane. In the form fat soluble vitamins, like Vitamin A, D, E, K and essential fatty acids, they are important dietary constituents. They are found as deposits of fat underneath skin and other organs exerting insulating effect for the body against cold and heat.

Human body composed of the purest form of *sneha* is found in all *dhatu*s except *asthidhatu*. *Medodhatu* serves as the main *sneha* depot of the body and it is found in all the tissues of the body like that of lipids.

#### CONCLUSION

Lipids play a major role in pathologies of heart disease and some genetic disorders related to lipid metabolism. *Medodhatu* is involved in the pathologies of majority of diseases in Ayurveda especially *atisthoulya* which is *santarpanajanya vyadhi*. It is one among *Ashtanindita purushas*, the metabolic disorders of human system. Thus, understanding the concept of lipids in Ayurveda and correcting the metabolism of *medodhatu* is having high relevance in the present era of Noncommunicable diseases which are mainly caused due to the defects in metabolism.

#### REFERENCES

1. Godkar P B. Chemistry of Lipids. Textbook of Medical Laboratory Technology. Mumbai: Bhalani Publishing House; 2001: p.352
2. Acharya Yadavji Trikamji editor. Charaka Samhita of Agnivesha. Vimana Sthana. Rogabhishagiteeya Vimana. 8/102-12. Varanasi: Chaukhambha Prakashana; 2010: p. 56-7
3. Dwarakanath C. Digestion and Metabolism in Ayurveda. Reprint 2010 ed. Varanasi (India); Chaukhambha Krishnadas Academy; 2010: p.361
4. Paradakara S S editor. Astanga Hrdaya of Vagbhata. Sutrasthana, Doshadivignyaniam Adhyaya.11/4. Varanasi: Chaukhambha Sanskrit Sansthan; 2011: p.183
5. Acharya Yadavji Trikamji editor. Sushruta Samhita of Sushruta. Shareerasthana. Garbhavyakarana shareeropakrama Adhyaya:4/12-13. Varanasi: Chaukhambha Sanskrit Sansthan; 2013: p.356.
6. Acharya Yadavji Trikamji editor. Charaka Samhita of Agnivesha. Sutrasthana. Ashtouninditiya Adhyaya.21/9. Varanasi: Chaukhambha Orientalia; 2011: p.117.
7. Acharya Yadavji Trikamji editor. Sushruta Samhita of Sushruta. Dosh dhatu mala kshayavriddivignyaneyam adhyaya.15/8. Varanasi: Chaukhambha Sanskrit Sansthan; 2013: p.70.
8. Acharya Yadavji Trikamji editor. Charaka Samhita of Agnivesha. Sareerasthana, Shareerasthanyashareera Adhyaya.7/15. Varanasi: Chaukhambha Orientalia; 2011: p. 339.
9. Acharya Yadavji Trikamji editor. Doshadhatumalakshayavriddivignyaneyam Adhyaya:15/4. Varanasi: Chaukhambha Sanskrit Sansthan; 2013: p.67.
10. Acharya Yadavji Trikamji editor. Charaka Samhita of Agnivesha. Vimanasthana, Srotovimaneeya Adhyaya:5/8. Varanasi: Chaukhambha Orientalia; 2011: p.250-1.
11. Acharya Yadavji Trikamji editor. Sushruta Samhita of Sushruta. Sareerasthana, Dhamanivakaranasareera Adhyaya:9/12. Varanasi: Chaukhambha Sanskrit Sansthan; 2013: p.386.
12. Sharma S editor. Astanga Sangraha of Vrddha Vagbhata. Sutrasthana, Sirovibhagam Adhyaya:6/26. Varanasi: Chowkhambha Sanskrit Series Office; 2012: p.310.
13. Kaviraj Kunjalal Bhishagratna, Susruta Samhita of Susruta, Sarirasthana, Garbhavyakaranasaareeram,4/11, 3<sup>rd</sup> ed. Varanasi: Chowkhambha Sanskrit Series; 2007: p.169.
14. Acharya Yadavji Trikamji editor. Sushruta Samhita of Sushruta. Shareerasthana, Garbhavyakaranshareeram:4/31. Varanasi: Chaukhambha Sanskrit Sansthan; 2013: p.358.
15. Acharya Yadavji Trikamji editor. Ayurveda Dipika of Chakrapanidatta on Charaka Samhita of Agnivesha. Chikitsa Sthana. Grahanchikitsa Adhyaya:15/16. Varanasi: Chaukhambha Orientalia; 2011: p.514.
16. Paradakara S S, editor. Astanga Hrdaya of Vagbhata. Sutrasthana; Doshadivignyaniam Adhyaya:11/26-27. Varanasi: Chaukhambha Sanskrit Sansthan; 2013: p.358.
17. Paradakara S S editor. Astanga Hrdaya of Vagbhata. Sutrasthana. Doshadivignyaniam Adhyaya:11/10. Varanasi. Chaukhambha Sanskrit Sansthan; 2011: p.184.
18. Acharya Yadavji Trikamji, editor. Susrutha Samhita of Susruta. Sutrasthana. Doshadhatumalakshayavriddivignyaneyam Adhyaya: 15/9. Varanasi: Chaukhambha Sanskrit Sansthan; 2013: p.69.