CONCEPT OF MEDO DHATU: AN AYURVEDIC PERSPECTIVE

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ABSTRACT

The present study conceptually tries to correlate Meda verses lipid as per Ayurvedic parlance. It may correlate these lipids with the Medo Dhatu, Vasa and Majja Dhatu which concerned with the two functional aspects i.e. Dharana (architectural support of the body) & Poshana (appropriate nutrients of the body). That once Jatharagni (fire of digestion) is impaired, the Bhutagni and Dhatwagni (liver and cellular metabolism) would also be having impairment. The above-mentioned pathologies can occur with Medo Dhatu also especially when Medo Dhatwagni (fat metabolism) is impaired and the homologues nutrients present in Poshaka Medo Dhatu will be in excess in circulation and this can be referred to the conditions such as hyperlipidaemia, Medoroga (obesity) etc.

KEY WORDS: Meda Dhatu, Hyperlipidaemia, Medoroga.

INTRODUCTION

We have the every comfort of living and due to the reduced physical activity the body fats along with cholesterol are increasing in our body, which invites the disorders like hypertension, heart disease, dyslipidemia etc. Considering the concept of Snehatwa (smoothness), we may correlate these lipids with the Medo Dhatu, Vasa and Majja Dhatu. Although they have Snehatwa as common feature these differ in their site and function.[1] It is so called because it smoothen (Snihyati) the body. The function of Medo Dhatu Snehana (oilliness), Sweda (sweat), Dridhatva (strength), Asthipusti (strengthening of bones) and Netra Gatra Snigdhata (oiliness of eyes and body) are the main functions of Medo Dhatu.[2] Agni is responsible for all metabolic activities of the body.[3] Medas is present mainly in Udara (abdominal area), but if it is present inside small (Anu) Asthi (bone) is called Sarakta Medas and when in large (Sihula) Asthi, the same is called Majja. The pure form of Medas present in Mamsa (Peshi)
is called Vasa, thus all forms of lipids in body are present mainly in Meda, Vasa and Majja. But importance is given to Medo Dhatu which is having role in developing many metabolic disorders like Medoroga, Prameha (diabetes) etc. Vasa: It is the Updhatu of Mamsa Dhatu and differs from Medas depending on site of presence and mode of production. Its quantity is 3 Anjali (one anjali represents the volume equal to that of two hands joined in the form of a cup and is applicable only for that individual). Majja Dhatu: Majja is the 6th among the seven Dhatus and gets nourishment from Asthi and nourishes Shukra Dhatu. It is situated inside the hollow of bones. Karma of Majja Dhatu: imparting Sneha and Bala to the body, filling the hollow of Asthi and nourishment of Shukra Dhatu. Meda Dhatu: Literally, the word Meda is derived from the root ‘Stimida Snehane’ which stands for Sneha, fats, oil, etc. Vasa & Vapa: The fatty substance located in the Mamsa is called Vasa & when it deposits in abdomen it is known as Vapa. Majja: Asthi Madhyagata Sneha is known as Majja.

CONCEPT OF MEDO DHATU

Dhatus is concerned with the two functional aspects i.e. Dharana & Poshana of the body. The term dharana refers to the architectural support of the body provided by the various Dhatus, which are in turn constantly formed, destroyed & reformed by the appropriate nutrients provided to them by the Poshaka Dhatus. The components of Dhatus are therefore of two types – stable or the Poshya Dhatus & unstable or the Poshaka Dhatus. Poshya Dhatus support the body by providing it with basic tissues, whereas the Poshaka Dhatus are seen to support the former by nourishing, sustaining, & maintaining them. Sthana (position in body) and Swarupa (features) of Medo Dhatu: It is considered as Sneha dominant Drava Dhatu which is having Guru (heavy), Snigdha (oiliness) properties and dominance of Prithvi, Apa and Teja (Earth, water and fire respectively) Mahabhoota. Meda is a yellowish, greasy, soft, solid material; innumerable globules of fat form a thick, spongy layer under the skin.

Types of Medo Dhatu

There are 2 types of Medo Dhatu first is Baddha Meda / Poshya Medo Dhatu which have immobile nature (Gativivarjita), which is stored in Medodharakala. The site of Medodharakala is Udana and Anuasthi, Udana Spihka Stana, Gala are also depots of Poshya Meda. And second is Abaddha Meda / Poshaka Medo Dhatu which have mobile in nature (Gatiyukta), which is circulated, in the whole body along with the Rasa Rakta Dhatu, to give nutrition to Poshya Medo Dhatu. Through different imaging techniques it can be visualized that lipids along with the cholesterol are being circulated with the blood. Pramana (quantity) 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 Anjalies & total measurable body elements are counted as 56.5 Anjalies; thereby counting the Medas content to be roughly 1/11th of total body weight which is an accordance with the total amount of body fat (1/12th of body wt.) according to modern science which may vary in Medoroga.

FUNCTION OF MEDO DHATU

(1) Snehana (oiliness): Sneha quality helps to keep lustre of skin, hairs and eyes etc. Snigdhagatrata arise in Medoroga may be due increased Snehana function of Meda. (2) Sweda (perspiration): The function of Meda is to produce Sweda which is listed as Mala (excreta) of Meda. (3) Asthi Pushti (bone nourishment): Another function of Meda is nourishment of further Dhatu i.e. Asthi and its Updhatu Snayu and Sandhi. (4) Dridhatva (consistency): It is possible with the help of Snayu the Updhatu of Meda. Both Snayu and Sandhi are directly related to the Asthi Dhatu. Snayu provides support to Asthi and Sandhi and helps in joint formation. Medas provide support to various organs & helps in binding of important organs. The fat tissue deposits as a layer over the underlying organ thereby providing it protection from outside pressure & frictions. If Dridhatva be considered as energy then it is a great energy conserver, providing almost double energy than other through nutrients, carbohydrates & proteins. (5) Netra and Gatra Snigdhata (oiliness in whole body): Both are the symptoms of Sthaulya and may arise through increased Snehana function of Meda.

MEDOVAHA SROTASA. Srotasa is nothing but channels in the body through which the Poshaka Dhatus & Malas pass to & from the stable Dhatus. Srotasa exercise a selective discrimination as regards the supply of nutrition to the Dhatus. As observed by Acharya Charaka, “Nutrients substances which nourish the Dhatu undergo metabolism by the fire of Dhatus (Dhatwagni). They are then made available to the Dhatus through their own Srotasa.” The channels, which give nutrition to the Medo Dhatu or the Srotas carrying the nutritive material up to, the site of Medo Dhatu can be considered as Medovah Srotas. Dr. Ghanekar B. G. considered the Medovaha Srotas as the capillaries of the perinephric tissue and omentum. The fat cells are held together mainly by the network of capillary blood vessels, which are distributed to them. Therefore Medovaha Srotasa are the channels through which the Poshaka or the unstable Medo Dhatu circulates in the whole body mixed with Rasa & Rakta, thereby nourishing the Sthayi Medo Dhatu. Vitiation
of Medovaha Srotasa takes place in Medodushti or Medoroga. **Moola (Roots) of Medovah Srotas:** According to Brihattrayee, Charaka - Vrikka and Vapavahana,\(^{[13]}\) Shusruta - Vrikka and Kati,\(^{[14]}\) Vagbhata - Vrikka and Mamsa.\(^{[15]}\) The Medovaha Sroto Moola means the organs which may be closely related to Medo Dhatu functions or which are important sites related to beginning or ending of the channels of Medo Dhatu. The three Acharyas have considered unanimously Vrikka (Kidney and its related area) as one of the Moola (root) of Medovah Srotas but Vapavahana, Kati and Mamsa are mentioned as second Moola separately.

**Vrikka (Kidney and its related area)**

Vrikka is one of the Koshthanga formed by the Sara of Rakta and Meda Dhatu. There are two Vrikkas, situated in both the sides of the mid vertebral line inside the abdominal cavity. Sharangdhara says that they nourish the Meda Dhatu inside the stomach area of the abdominal cavity while Charaka has considered them as “Moola” so these structures must be directly related with fat metabolism. But, there is no clear evidence in Modern science as well as Ayurvedic Science. If we take into the consideration of two structures situated above the two kidneys i.e. Supra-renal glands as Vrikka that will fulfil the all aspects of fat metabolism.

**Vapavahana (omentum)**

Vapavahana is also a Koshthanga and another root of Medovah Srotas. Dr. Ghanekar has considered it as omentum, where the maximum Meda is stored.\(^{[16]}\)

**Kati (lumbo-sacral area)**

Acharya Shusruta has clearly pointed out the exact site of the Kati but normally the Kati is the place where the fat accumulates.

**Mamsa (a part of skin)**

Vagbhata has considered Mamsa as the Moola of Medovah Srotas. It may be correlated with the Vasa (Mamsagata Sneha) below the skin and as such the entire skin might be considered as the Moola of Medovah Srotas.

**Formation of Medo Dhatu from Raktadi Dhatus**

The formation of Medo Dhatu is from Mamsa Dhatu when acted upon by Meda Dhatwagni on MedaposhakAmansha. If any disturbances found in these above pathways during formation of Medo Dhatu, it may lead to Medo Dushti i.e. either Vrudhhi or Kshaya (increase and decrease
respectively) of the Medo Dhatu.

**Medodharakala**

*Klas* are the fine membrane like structures which separates the *Dhatu* from their *Ashayas* (cavity). Medodharakala is the 3<sup>rd</sup> *kala* in the body & it supports the Medo Dhatu. In describing this *Kala*, Acharya Shrusruta has made an interesting & far reaching suggestion that, the Medas that fills up the shaft of long bones is known as *Majja* & that which is presents in the Anuasthi is to be treated as Saraktam Medas i.e. blood cum fat.

**Updhatu of Meda**

Snayu is the *Updhatu* of Meda. According to Vaidhyaka Shabda Sindhu, Snayus are the *Nadis* that conduct Vayu. Vayu conducts the *Sneha* of the Medas & make the *Sira*. Snayus bind the Deha Mamsa (muscles), Asthi (bones), and Medas (adipose tissue) & strengthens the joints. The body is sturdy because of the Snayus.

**Mala (excreta) of Meda**

Sweda (sweat) is the *Mala* of the Meda Dhatu.

**Derangement of Metabolism (Parinama) of Medas**

Agni is responsible for all metabolic activities of the body. It is solely responsible for any increase or decrease of Dosha, Dhatu or Mala. The vitiation of Agni has serious impact on health at various levels depending on type of Agni involved. When Agni is decreased, it will lead to various metabolic disorders at various levels and produces “Ama” (undigested/partially digested molecules) i.e. Agni fails to convert the Vijatiya (non-assimilable) products into Sajatiya (assimilable) ones and the end products cannot be assimilated by the Dhatus. Such products will be dangerous to body and can cause signs and symptoms according to their presence at various physiological levels.

If Agnimandya (appetite loss) is present at the level of *Jatharagni* only, then *Ama* is usually restricted to Koshtha. There will be no production or Ahara Rasa and the result will be obviously Dhatu Kshaya. If Agnimandya is present at the level of *Bhutagni*, then *Ama* is restricted to Ahara Rasa and this Ahara Rasa which is improperly formed cannot be assimilated by Dhatus and results in Dhatukshaya. It should be noted that *Ama* will be in circulation. This *Ama* can be accumulated in anyparts of the body leading to various disorders. Also, it is important to note that which among the 5 types of *Bhutagni* is involved. If one *Bhutagni* is involved, it leads to impairment in nourishment of that particular *Dhatu*.
which is having predominance of that particular Mahabhoota. If Agnimandya is present at the level of Dhatvagni (one or more), then the particular Dhatu cannot assimilate nutrients present in the circulating Ahara Rasa or circulating Poshaka Dhatu. So, such Poshaka Dhatus will be accumulated in Ahara Rasa in abnormal quantities and they may further get accumulated at abnormal sites. This sort of process can be called Leenatwa (deep seated) of Ama in Dhatu. Such Leenatwa can cause a number of disorders.

But it should always be kept in mind that once Jatharagni is impaired, the Bhutagni and Dhatwagni would also be having impairment. Hence during treatment of any kind of Agnimandya or Ama conditions, one should think about all the three levels. The above-mentioned pathologies can occur with Medo Dhatu also. Especially when Medo Dhatwagni is impaired and the homologues nutrients present in Poshaka Medo Dhatu will be in excess in circulation and this can be referred to the conditions such as hyperlipidaemia. This is because the Poshaka Medo Dhatu cannot be assimilated into stable Medo Dhatu by Medo Dhatwagni. The cause for excess Poshaka Medo Dhatu in circulation is not only the Medo Dhatwagnimandya, but there may be decrease in other Agni also. Any cause, which can lead to Kapha Vriddh, Pitta Kshaya or Vata Prakopa, can lead to this condition.

The consequence of such increase in Poshaka Medo Dhatu may be Dhamani Pratichaya. The excess Poshaka Medo Dhatu may accumulate on the walls of vessels (Dhamani) and may cause serious complications related to circulation. Dhamani Pratichaya is considered as one of the Nanatamaja Kapha Roga. In Medoroga, due to the excessive supply of Snigdha, Madhura, Guru etc. types of Ahara, the Ahararasa contains excessive nutrition homologous to Medas. Due to persistent overload, the Medoagni is diminished leading to excessive accumulation of Medas in Ama form and thus causing Medoroga.

Pathological conditions pertaining to Medo Dhatu

Medo Producing Vikara, such Prameha, Meda Vriddh, such increased abdominal girth, cough, dyspnœa on exertion, Meda Kshaya, such crepitations in the joints, weakness of the five sense organ, easy fatigability, sunken abdomen, splenomegal, dryness & a liking towards fat-rich non-vegetarians diet and Sthaulya means a accumulation of Medo leading to enlargement of the abdomen (Adiposity).

CONCEPT OF LIPIDS

Lipids constitute a heterogeneous group of compounds of biochemical importance. Lipids may
be defined as compounds, which are relatively insoluble in water, but freely insoluble in organic solvents like benzene, ether and chloroform etc. Lipids function as a major form of stored nutrients (Triglycerides, TGs), as a precursor of adrenal and gonadal steroids and bile acids (cholesterol) and as extra cellular and intracellular messengers (prostaglandin). Lipoproteins provide a vehicle for transporting the complex lipids in the blood as water – soluble complexes and deliver lipids to cells throughout the body. They are classified in three major groups such simple, compound and derived lipids.

**Table No.1: Comparison between the concept of Meda and Lipids**

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<thead>
<tr>
<th>S. no.</th>
<th>MEDAS</th>
<th>LIPIDS</th>
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<tbody>
<tr>
<td>1</td>
<td>Ingestion of excessive <em>Sneha</em> (<em>Ghrita, Taila, Vasa &amp; Majja</em>).(^{[25]})</td>
<td>Intake of high fat diet (<em>ghee, oils, Marrow, butter etc.</em>) increases body lipids</td>
</tr>
<tr>
<td>2</td>
<td>Dietary intake of excessive <em>Madhura Dravyas</em> causes <em>Medoroga</em>.(^{[27]})</td>
<td>Increased consumption of carbohydrates (especially sucrose enhances cholesterol level).(^{[26]})</td>
</tr>
<tr>
<td>3</td>
<td>Medo-Snigdhangata(^{[28]})</td>
<td>Fat gives an oily appearance of the body.</td>
</tr>
<tr>
<td>4</td>
<td>Meda is the main factor which is affected (<em>Dushya</em>) in Medoroga and Prameha.(^{[29]})</td>
<td>Obesity and diabetes are often associated with abnormal lipid level.</td>
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</table>

**CONCLUSION**

The Medo Dhatu plays an important role in two important functional aspects i.e. Dharana & Poshana of the body. Jatharagni (fire of digestion) is impaired, the Bhutagni and Dhatwagni (liver and cellular metabolism) especially Medo Dhatwagni is impaired resulting of the homologues nutrients present in Poshaka Medo Dhatu will be in excess in circulation and ultimately develops hyperlipidaemia, Medoroga etc. Lastly we can say that Agni plays very important role in growth, development & maintenance of the body so it maintain at equilibrium by changing in life style.

**REFERENCES**

2. Ibid, Sushruta Samhita, Sutra Sthana15/5; page no.56.


27. Text of Medicine Biochemistry (1988); Chaterji & Shinde, Page no.484.