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Exploring the *Ayurvedic* perspective of Lipid Disorder: Insight of *Meda Dhatu*

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ABSTRACT

In present era Obesity (*Sthaulya*) has become a big problem in the world. In Modern science *Sthaulya* can be considered as Obesity and various criteria for Obesity was already mentioned in modern science. The scattered evidence of *Sthaulya* are found in *Vedas* as well as in *Bhavaprakasha*, *Yogratnakar*, *Caraka Samhita*, *Sushruta Samhita*, *Madhav Nidana* and various other *Ayurvedic* literatures. The relation between vitiation of *Meda Dhatu* was defined by *Acharya Caraka* under the heading *Sthaulya* and mentioned by *Acharya Sushruta* in *Samprapti* of *Sthaulya*. In *Ayurveda* *Meda* is classified into *Baddha Meda* and *Abaddha Meda*. *Abaddha Meda* can be correlated with Lipid mentioned in allied science. **Objective of study:** To assess the status of *Meda Dhatu* in reference to total Cholesterol and Triglyceride. **Materials & Methods:** To fulfill the above aim and objectives, 50 patients between the age group of 16-70 years of age fulfilling the inclusion criteria were registered for study and data was collected with the help of questionnaire based on classical features of *Vridhi* and *Dushti* of *Meda Dhatu*. **Conclusion:** The study revealed that with increasing level of Total Cholesterol *Meda Dhatu Vridhi Lakshan* also increases but no change was found with the *Lakshana* of *Meda Dhatu Dushti* on the other hand, directly proportional relation was found between level of Triglyceride and *Meda Dhatu Dushti Lakshan*.

Key words: *Meda*, *Dhatu Vridhi*, *Dushti*, *Samprapti*, *Obesity*, *Sthaulya*.

INTRODUCTION

Life style metabolic disorders are our own creation. With the evolution of civilization human has become more and more physically inactive. Modernization, affluence, science and technological development lead to sedentary lifestyles. Such behaviors are trending

countries and acquiring urban as well as rural region too. This is transferable from one top other region like the pattern of infectious diseases. After exposing to these factor human beings unknowingly invites various diseases one of them is Obesity (*Sthaulya*). Obesity has reached epidemic proportions globally. According to WHO report, there are more than 250 million obese adults and about 1.1 billion overweight people worldwide.^[1] According to the recent report of National Family Health Survey (NFHS-5, 2019-21), prevalence of Obesity in India was 23% and 24% among men and women aged 15-49 years respectively are obese. Obesity can be seen as the first wave of a defined cluster of non-communicable diseases called "New World Syndrome," creating an enormous socioeconomic and public health of 21st century in both developed and developing countries.^[2]

We correlate Obesity with *Sthaulya* also known as *Medo Roga* mentioned in *Ayurveda*.^[3] According to

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Acharya Caraka, *Sthaulya* is considered under *Aṣṭanaindita Puruṣa*.^[4]

इह खलु शरीरमधिकृयाष्टौ पुरुषा निन्दिता भवन्ति; तद् यथा – अतिदीर्घश्च, अतिह्रस्वश्च, अतिलोमा, च, अलोमा च, अतिकृष्णश्च, अतिगौरश्च अतिस्थूलश्च, अतिकृशश्चेति ||

Acharya Caraka had defined *Sthaulya* as

मेदोमांसातिवृद्धत्वा ञ्चलस्फिग्दरस्तनः। अयथोपचयोत्साहो नरोऽतिस्थूल उच्यते || (Ch. Su 21/9)

Excessive deposition of *Meda* and *Mamsa* at various body parts such as *Sphika* (Hip), *Udara* (Abdomen) and *Stana* (Chest) and also having unequal abnormal distribution of *Meda* with lack of enthusiasm is called as "*Atisthūla*".^[5]

The relation with vitiation of *Meda Dhatu* and *Sthaulya* was defined by Acharya Caraka in its *Samhita* under the heading *Sthaulya* and mentioned by Acarya Sushruta in *Samprapti* of *Sthaulya*.^[6]

In *Ayurveda* *Meda* is classified into *Baddha Meda* and *Abaddha Meda*.^[7] *Abaddha Meda* can be correlated with Lipid mentioned in allied science.

According to WHO Obesity and overweight is defined as abnormal or excessive weight accumulation that may impair health. In modern science various parameters such as BMI, Skin fold thickness, Waist hip ratio (WHR) are described to assess Obesity.^[8] Thus, *Meda Dhatu* is assessed with the increasing BMI and Skin fold thickness in obese with BMI greater than and equal to 30.

This is an era for *Ayurveda*, so an effort is made to go hand in hand with modern science to cope up with various diagnostic difficulties and also to prove methods and *Lakshana* described in *Ayurveda* as per modern science with evidence.

AIM AND OBJECTIVE

1. To assess status of *Meda Dhatu Vridhi* on the basis of cholesterol and triglyceride.
2. To assess status of *Meda Dhatu Dushti* on the basis of total cholesterol and triglyceride.

MATERIALS AND METHODS

Total 50 patients were selected from the OPD of *Roga Nidan Avum Vikriti Vigyan* Department, Rishikul Campus, UAU, Haridwar between the age group of 16-70 years of age. The weight and height of patient was assessed to calculate the BMI and Skin fold thickness were measured from four sites to measure Skin fold thickness of the patients. All registered cases were evaluated as per the questions based on features of *Meda Dhatu Vridhi* (Table 1) and *Meda Dhatu Dushti* (Table 2) mentioned in *Ayurvedic* classics, Total Cholesterol and Triglyceride.

Table 1: Features of *Meda Vridhi*^[9]

SN	<i>Meda Vridhi</i>	Assessment via	
1.	अल्पऽपि चेष्टा श्वासनम्	dyspnea on mild exertion	Asking question and observation
2.	स्फिक् उदर लम्बनम्	increase circumference of butt, & abdomen	Waist hip ratio
3.	स्निग्ध अङ्गता	unctuousness of body	Observation(via touch)
4.	कास	cough	Question/Auscultation
5.	श्वास	Breathlessness	Observation/Question
6.	दौर्गन्धः	foul smell	Question and Observation

Table 2: Features of *Meda Dhatu Dushti*^[10]

SN	<i>Meda Dushti</i>	Assessment Via	
1.	जवोपरोधः	lack of enthusiasm	Question (history taking)
2.	कृच्छ्रव्यवायता	lack of sexual activity	Question (history taking)
3.	दौर्बल्य	Weakness	Question (history taking)
4.	दौर्गन्ध	foul smell	Question & Observation (by smell)

5.	स्वेदाबाध	uncomfortable due to sweating	Question & Observation
6.	क्षुद अतिमात्रा	Polyphagia	Question
7.	पिपासातिमात्रा	Polydipsia	Question
8.	जटिलीभावकेशे	complex hair	Question & observation (appearance)
9.	माधुर्य आस्य	sweet taste of mouth	Question
10.	करपाद सुस दाह	numbness and burning sensation in hand and feet	Question & inspection (via touch)
11.	मुख तालु कण्ठशोष	dryness of mouth	Question
12.	आलस्य	feeling of laziness	Question
13.	मलिन काय छिद्र उपदेहः	ugly appearance due to excess secretions of mucous from orifices of body	Inspection / question
14.	अङ्गपरिदाह और सूसता	feeling of burning sensation and numbness of body parts	Question / inspection (via touch)
15.	षट्पदपिपीलिकाभिश्च शरीर आभिसरणम्	roaming or attracting of fly, ant, butterflies etc. toward the patient body	Question
16.	मूत्रे च मूत्रदोषान	change in normal physical appearance of urine	Routine and microscopic examination of urine

Type of study - Clinical Observational study

A. Inclusion criteria

- Individual having BMI ≥ 30
- Individual between the age group 16-70 years are included.
- Individual having Skin fold thickness (sum of measurement of all 4 sites) ≥ 40 mm in male and ≥ 50 mm in female.

B. Exclusive criteria

- Individual of less than 16 years & more than 70 years of age.
- Individual having BMI < 30
- Individual having diabetes, renal disease, cardiovascular disease, abnormal thyroid hormone, HIV, Hepatitis B, carcinoma etc.

C. Investigation

- Biochemical test - lipid profile, FBS
- Urine examination (R/M)

OBSERVATION

Total 50 patients fulfilling the inclusion criteria were registered and their observations are as follows:

- Maximum patients i.e. (52%) belonged to 34-52 years of age group and (50%) patients were male and (50%) patients were female and (48%) patients were Post graduate from upper middle class (62%) with (46%) of service person with sitting nature of work (64%) and (84%) belongs to urban area with good hygiene (96%).
- Majority of the patients i.e. 50% were having good appetite followed by excessive, (86%) were taking *Madhura Rasa* were as 82% were taking *Lavana Rasa* in their dominant *Rasa* .72% were doing *Adhyashana* and 44% patient were having disturb sleep followed by excessive sleep (42%). Maximum patients i.e., 44% were having *Vishamagni*.
- Dasavidha Pariksha* biostatistics revealed that maximum number of patients having *Kapha-Vata Prakṛti* (60%) followed by *Kapha- Pitta Prakṛti* (30%), *Tamasika Manasa Prakṛti* (50%), *Madhyama Sara* (56%), *Avara Samhanana* (52%), *Avara Satva* (48%), in *Pramana*, maximum patients i.e., 84% were of *Visam Pramana*. Majority of patient i.e., 58% were having *Pravar Abhyavarana Shakti*, *Madhyama Jarana Shakti* (44%) and 84% were having *Avara Vyayama Shakti*.
- Aṣṭavidha Pariksha* biostatistics revealed that maximum number of the patient i.e., 38% had *Kapha-Vataja Nadi*, 62% were having *Nirama*

Mala, 33% were having normal urine, and 84% were having *Nirama Jivha*. On the basis of *Sparsh Pariksha*, most of the patients were found with *Anaushna* (48%) with *Snighdhata* in 68% of patients.

- Maximum 60% patients were having Serum Cholesterol value between 150-199 mg/dl while 20% patients were having level between 199-250 mg/dl.
- Out of 50 patients 20% patients were having Triglyceride value between 50-99 mg/dl while 44% and 36% patients were having level between 100-149 mg/dl and 150-200 mg/dl respectively.
- Meda Dhatu Vridhi Lakshana* wise, maximum number of patients were having *Alpaceṣṭāhishvasan* (76%), *Snigdhamgata* (78%), *Sphikudaralambanam* (100%), *Daurgandhya* (64%) and maximum patient were not having *Kasa* (66%) and *Shvasavidhi* (62%).
- Meda Dhatu Duṣṭi Lakshana* wise, number patients were having *Javoprodha* (66%), *Kṛcchvyavayta* (54%), *Daurbalya* (66%), *Svedabadha* (52%), *Daurgandhya* (64%), *Kṣudatimatra* (24%), *Pipasatimatra* (42%), *Jaṭilibhavakeshae* (34%), *Madhuryasya* (4%), *Karapada Suptadaha* (40%), *Alasya* (52%), *Mukhatalu Kaṅṭhashoṣa* (38%), *Malinakayacchidrupdaih* (8%), *Ṣatapadapilika-bhishca Sharira Abhisaranama* (0%), *Angaparidaha & suptata* (16%), *Mutre C Mutroṣan* (11%), *Vistra Shariragandha* (16%).

DISCUSSION

Most of the patients in this study belongs to the age group of 34-52years i.e., *Madhyam Kala* increased prevalence in this age group might be due to its *Kala*, that, as per *Acharya Caraka* during *Madhyam Kala* all *Dhatu*s reaches to it *Paripurna Avastha*. So, *Sthaulya* found more in *Madhyam Kala* and also by the concepts of allied sciences some textbooks of Davidson principle and practice of Medicine also supports the same observations i.e., excess weight gain usually starts when individuals are aged between 30 - 60 years with maximum body weight being achieved in middle age.

Adhyashana was found in maximum number of patients. The *Adhyashana* (taking meal on meal) forms *Ama* in the body result in *Dhatwagnimandyata* i.e., of *Medodhatvagnimandyata* leads to *Sthaulya*.

Alpaceṣṭāhishvasan (dyspnea on mild exertion) were found in maximum number of patients. This is due to the reason that the increased work of the inspiratory muscles to expand the lungs and chest wall against the fat load as well as the reduced lung and chest wall compliance, may contribute to the increased oxygen cost of breathing during exercise and the characteristic shallow and rapid breathing pattern of obese individuals.

Snigdhamgata (unctuousness of body) was found in maximum patients, the reason might be the *Sneha* as one of *Guna* of *Meda* and as per *Sarvadhasamamya Vridhi Karnam*, *Snigdhanasha* in body increases leads to unctuousness of body. In Obesity BMI above 30 leads to increase secretion of sebum from sebaceous glands result in oily skin texture.^[11]

Sphikudaralambanam was found in all registered patients. This is due to the reason that central Obesity which is most common in India. This is considered with help of increased waist hip ratio.

Maximum patients were having *Daurgandhya*. The reason might be the sweating increase as mentioned in *Ayurveda* that *Sveda* is the waste product of *Meda Dhatu*. As result of which increase production of vitiated *Meda Dhatu* increases *Sveda*. *Sveda* along with *Kleda* released leads to bacterial growth result in foul smell. Body odor occurs when bacteria on your skin break down acid in sweat. Apocrine sweat is released, it's colorless and odorless. When bacteria on the body start to break down dried sweat, an offensive smell can result in people with bromhidrosis and as adipocytes increases result on more secretion of sebaceous glands.

Javoprodha (lack of enthusiasm) was found in maximum patients, this is due to production of *Ama* and *Dhatvagni Mandata* in pathogenesis of *Sthaulya*.^[12] It leads to the formation of under nourished *Dhatu* resulting in lack of energy.

Maximum patients were having *Kṛcchvyavayta* the reason might be the *Shukra Dhatu* which is responsible for sexual activity and it is not formed properly in

Obesity which results in reduction of sexual activity. Obese patients are more prone towards erectile dysfunctioning.

Maximum 66% patients have *Daurbalya* (weakness). This might be due to undernourished *Dhatu*s as result of obstruction in *Strotas* and *Dhatwagni Mandata*.

Maximum patients were having *Svedabadha* (uncomfortable due to sweat). The reason might be the climate conditions of the city. The obese patient body temperature slightly high as compare to other so, the heat generated by their body alone can make it possible to sweat excessive. As per *Ayurveda*, *Sveda* is the byproduct of *Meda Dhatu*. As vitiation of *Meda Dhatu* increases, the byproduct of the *Dhatu* also increases leads to excessive sweating which causes discomfort to the patients in *Sthaulya*.

Most of patients were having the symptom of *Kshaudatimatra* because increasing *Vata* in *Kostha* results in increase of *Agni* leads excessive hunger.

40% patients were having *Karapada Supta Daha*. *Suptabhi* is one of *Updhatu Pradoshaja Vikara*.^[13] The reason behind this *Lakshana* might be the formation of vitiated *Updhatu* which is due to *Dhatvagnimandata* and obstruction in channels.

In this study most of the patients were having *Alasya*. The reason might be lack of energy as result of under nourishing *Dhatu*s due to obstruction in the channel of *Meda Dhatu*. It was evident that junk food begets laziness, according to the lifestyle of obese patients had lots of junk food.

38% patients were having *Mukhatalu Kanthashosha*. As it is a symptom of *Meda Dhatu Dushti* (*Purvarupa* of *Prameha*) the presence of this *Lakshana* in 38% of patients might be due to the prediabetic conditions or may be because of other factors such as open mouth breathing, dehydration, dry and hot weather etc.

Few patients were having *Mutre Ch Mutrdoshana*. The reason behind the presence of urine abnormalities might be due to the diet intake and excessive urination as some patients were in prediabetic stage. But incontinence of urine was found in maximum number of patients associated with Obesity as excessive weight on abdomen put pressure on bladder and results in leaking of urine.

The reason of excessive sleep might be the predominance of *Kapha*, as *Kapha* and *Tamo Guna* leads to *Nidra*. But in my study maximum patients i.e., 56% were found of disturb sleep, because the patients registered were having small babies and day/ night shifting job. Sleep loss result in metabolic and endocrine alterations, decrease level of leptin results in increases appetite. This evidence shows that lack of sleep or loss of sleep also increases risk of Obesity.

Maximum patient were having *Tandra*. The reason might be lack of sleep, fatigue mind and body due to work load and stress in current scenario results in drowsiness.

CONCLUSION

It was found from the present study that the *Lakshan* mentioned in *Ayurveda* for *Meda Dhatu Vridhi* and *Meda Dhatu Dushti* have a relation with Modern Parameters. On basis of *Abadha Meda* mentioned by *Chakarpani* a correlation was done with lipid profile and found that level of Total Cholesterol increases with increasing *Meda Dhatu Vridhi Lakshan* but no relation with *Meda Dhatu Dushti Lakshan* was found whereas level of Triglyceride had direct relation with *Meda Dhatu Dushti Lakshan* but no relation with *Meda Dhatu Vridhi Lakshan*. On the basis of this study, we can say that the patients with increasing total Cholesterol level should be treated with *Ayurvedic* perspective of *Meda Dhatu Vridhi Lakshan* and on the other hand increasing Triglyceride level should be treated with *Ayurvedic* perspective of *Meda Dhatu Dushti Lakshan*.

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