

METABOLIC SYNDROME IN AYURVEDA – A CRITICAL REVIEWAntiwal Meera¹ Singh J. P.² Singh O.P.¹¹Dept. of Kayachikitsa, IMS, BHU, Varanasi, U.P, India²Dept. of Kayachikitsa, National Institute of Ayurveda, Jaipur, Rajasthan, India**ABSTRACT**

Sthaulya (Obesity) is considered the world's oldest metabolic disorder. It is not a single disease entity but a syndrome with many causes including combination of genetic, nutritional and sociological factors. WHO considers obesity as "Insidious, creeping pandemic which is now engulfing the entire world". Obesity develops as a result of a complex interaction between a person's genes and the environment characterize by long-term energy imbalance due to excessive caloric consumption, insufficient energy output (sedentary lifestyle, low resting metabolic rate) or both. Diet and life style play a significant role both in development and control of obesity. Obesity increases the likelihood of various diseases, particularly heart disease, type 2 diabetes, breathing difficulties during sleep, certain types of cancer, and osteoarthritis. Metabolic syndrome is a cluster of conditions — increased blood pressure, a high blood sugar level, excess body fat around the waist and abnormal cholesterol levels — that occur together, increasing your risk of heart disease, stroke and diabetes. Having just one of these conditions doesn't mean you have metabolic syndrome. However, any of these conditions increase your risk of serious disease. If more than one of these conditions occur in combination, your risk is even greater. In modern medicine no exact treatment is available, if present, has adverse effects but in *Ayurvedic* system of medicine various measures are given. This paper reviews about the metabolic syndrome in *Ayurveda* and management of *Sthaulya* (obesity).

Keywords: Metabolic syndrome, *Ayurveda*, *sthaulya*

INTRODUCTION

Metabolic syndrome is a burgeoning global problem. A global transition in the disease pattern has been observed, where the relative impact of infectious diseases is decreasing while chronic diseases like cardiovascular disease (CVD) and diabetes are increasingly dominating the disease pattern. The exact cause of metabolic syndrome is not known. Many features of the metabolic syndrome are associated with "insulin resistance." The condition is also known by other names including Syndrome X, insulin

resistance syndrome, and dysmetabolic syndrome.¹ Metabolic syndrome is a multiplex risk factor that arises from insulin resistance accompanying abnormal adipose deposition and function. It is a risk factor for coronary heart disease, as well as diabetes, fatty liver, and several cancers. The clinical manifestations of this syndrome may include hypertension, hyperglycemia, hypertriglyceridemia, reduced high-density lipoprotein cholesterol (HDL-C), and abdominal obesity. Under current guidelines, revised in 2005 by the The US National Cholesterol Education

Program Adult Treatment Panel III (2001) requires at least three of the following:²

- Fasting glucose ≥ 100 mg/dL (or receiving drug therapy for hyperglycemia)
- Blood pressure $\geq 130/85$ mm Hg (or receiving drug therapy for hypertension)
- Triglycerides ≥ 150 mg/dL (or receiving drug therapy for hypertriglyceridemia)
- HDL-C < 40 mg/dL in men or < 50 mg/dL in women (or receiving drug therapy for reduced HDL-C)
- Waist circumference ≥ 102 cm (40 in) in men or ≥ 88 cm (35 in) in women; if Asian, ≥ 90 cm (35 in) in men or ≥ 80 cm (32 in) in women

Medoroga (obesity) has been considered as an abnormality of body characterized by-

- a) Excessive increase of fat and other tissues of body.
- b) Bulky look of body.
- c) Pendulous situation of buttocks, abdomen and breast.
- d) Excessive anabolic conditions.
- e) Lack of vitality.

Commonly abdominal enlargement stated as *Sthaulya* and the morbid changes occur due to the obstruction of channels of *Meda*. The physiological concept of Ayurveda is based on *ahara* which further helps in growth and other activities of body. Due to Improper consumption of food and Improper digestion of food due to *Agnimandya*, *Ama-Rasa* (*Rasa* mixed with *Ama*) is formed which circulates all over body, causing *srotodusti* or blocks the *srotas* or channels, accumulates the *dhatu* called *Dhatu-vridhhi*, *srotoavrodha* and manifest in form of *Medoroga*, *Madhumeha* (diabetes), hyper triglyceridemia, hypertension. Obesity (*Medoroga*) itself is the major cause of hypertension, *Madhumeha* (diabetes).

Medoroga Nidana⁵

Absence of physical activity, sleeping during day, and intake of foods which increase *Kapha*, make the end product of digestion abnormally sweet which in turn causes increase of *Medas* (fat). This obstructs the nutrient channels of the tissues. Therefore, conditions like hypertension, diabetes, and obesity are observed. These make the person incapable of various activities. Difficulty in breathing even on slight exertion, thirst, delusion, sleep, breathlessness exhaustion, excessive hunger, bad smell of the body, poor physical and sexual capacity etc. gradually develop. As the abdomen and bones are the chief depots of fat, the abdomen gets enlarged in such persons, buttocks, abdomen and breasts begin to show movement (during activity) due to disproportionate accumulation of fat on those places to his age. The aetiological factors may be classified in following:

1. **Aharajanya hetu** (obesity due to dietetic factor): *Madhura*, *Kapha varadhak*, *Sarpi*, *Dadhi* as causative factors of *Sthaulata*, *Guru*, *Sheet*, *Snigdha*, *Navanna*, *Navamadya*, *Mansa*, *Ikshu ahara* as causative factor for *sthaulyata medoroga*.

Eating too many calories and not getting enough physical activity to burn those calories results in overweight & obesity. Obesity increases the risk of developing several health problems like high blood pressure, insulin resistance, type 2 diabetes, coronary artery disease (heart attacks), cerebrovascular disease (stroke).

2. **Viharajanya Hetu**: *Avyayama* (Lack of exercise) *divaswapana* (day time sleep), *Avyavaya* (lack of sexual intercourse) and *sukha shaiya* as causative factor for *sthaulyata*.

3. **Mansika hetu** (Psychological)³ *Harshantitaya* (Cheerfulness), *Achintata* etc.

4. **Garbhoghathkar bhava:** Charak has considered that when mother takes excessive *madhura ahara* during pregnancy, the progeny will be '*Sthula*'³ It is well known that *madhur rasa* increases *kapha* in body which has maximum effect on *medodhatu* responsible for enhancing *sthulata* in the body and the infant become *sthaulya* due to excessive *medo-dhatu*. *Vagbhata* has called such pregnancy as "*Garbhaja vyadhi*" and subdivided in *anarasaja* type.⁸

5. **Bijasvabhava** (genetic abnormality): The role of *bijasvabhava* or genetic abnormality in pathogenesis of *medo-roga* is stated by *Charak*.³ It can be explained that when parents or grandparents are indulged in *madhura, snigdha ahara* they may develop *bija-dosa*, which gives rise to a constitution that there is tendency for the formation of *meda* even with normal or subnormal diet. The *matribija* is responsible for *medo dhatu*. From abnormal *bija* the development of *medo-dhatu* is excessive and child becomes *sthaulya*.

In context of body eight type of persons are criticized and discarded (*Nindaniya*) such as over tall, over short, over hairy, less hairy, over black, over fair, over obese, over lean³ Among all over obese has been characterized by eight defects i.e. shortening of life span, restricted movement, difficulty in sexual intercourse, debility foul smell, excess sweating, excess hunger and excess thirst.³ Obesity is caused by over saturation, intake of heavy sweet, cold and fatty diet, indulgence in day sleeping and exhilaration, lack of mental work and genetic defect.

In obese individuals the life span decreases because of laxity, softness and heaviness of fat there is restriction in movement. Further, due to non-abundance of se-

men, there is difficulty in sexual intercourse, due to disequilibrium of *dhatu*s there is debility, foul smell is due to defect in fat and excess sweating. Due to association of *medas* with *kapha* it is of oozing nature having heaviness and intolerance to physical exercise there is excess sweating, because of intensified *agni* and increase of *vayu* in stomach there is excessive hunger and thirst³. Due obstruction of passage by fat *vayu* moves faster and stimulates digestion and absorbed food, hence the person digest food quickly and further desires to have food in excess quantity, and even short delay in consuming food may cause severe disorders.

Obesity & High blood pressure¹³: Multiple factors are responsible for increase in blood pressure in obesity. Weight gain is associated with decrease in elasticity of blood vessels & increase heart rate. Excess calories are deposited in body as fat in fatty tissue. This fatty tissue increases demand for oxygen & nutrients, which in turn increases amount of blood circulating in the body. More blood traveling through arteries adds pressure on walls of arteries leading to increase in blood pressure. Obesity increases level of insulin in body. Insulin causes sodium & water retention in body, which results in increase in blood volume & extra pressure on arteries. All of these factors can increase blood pressure.

Obesity & Diabetes: Increased blood sugar level¹²: Type2 diabetes is a common health problem in diabetes. Insulin controls blood sugar. Insulin is required for the entry of sugar (glucose) into body cells from blood. Excess body fat in obesity makes body resistant to insulin. Because of this insulin resistance, sugar will remain in blood, which will lead to increase in blood sugar or diabetes. High amount of sugar in blood

leads to complications in kidney, eyes, blood vessel, and heart.

Atherosclerosis or fatty deposits in blood vessels¹⁵: Cholesterol is carried in the blood as two compounds: Low-density lipoproteins (LDL) and High-density lipoproteins (HDL). HDL is also called the 'good' cholesterol and LDL is also called the 'bad' cholesterol. Obesity is associated with low levels of good (high-density lipoprotein) cholesterol and high levels of bad (LDL) cholesterol. When cholesterol levels are high, some of the cholesterol is deposited on the walls of the blood vessels. Cholesterol deposits reduce the elasticity of blood vessels, narrows blood vessels & decreases blood flow. All these changes lead to atherosclerosis and an increased risk of heart disease & stroke.

Coronary artery disease – angina & heart attack²: Atherosclerosis (fatty deposits in arteries) in coronary arteries (arteries that supply heart) reduces blood supply to heart. Decreased blood flow to heart can cause angina (chest pain) and complete blockage of blood flow to heart can cause heart attack. The World Health Organization says more than 1 billion adults are overweight and 300 million of them are obese, putting them at much higher risk of diabetes, heart problems, high blood pressure, stroke and some forms of cancer.

Samprapti (Etiopathogenesis) of **Sthaulya**⁵

1) *Sanchaya*: Because of excessive *madhura*, *snigdha*, *guru*, *ahara* intake and *divasvapna* (sleep in day time) *avyayama* (no exercise or physical activity) etc. and also because of *bijasyabhava* there is *sanchaya* of *kapha*.

2) *Prakopa*: The *Kapha* increases in quantity and quality and is responsible for the formation of the *Atimadhura* and *Atisnigdha*

ahara rasa.

3) *Prasara*: *Atimadhura* and *Atisnigdha ahara-rasa* circulates all over body through channels.

4) *Sthanasansrya*: The circulating *ahara rasa* gets collected in the *medodhatu* because of *kha-vaigunya* in *medo-vaha-srotas* and also *medodhatu* increases and gets accumulated in *udara* etc.

5) *Vyakti*: The *medodhatu* accumulations in body organs make them increase in size and pendulous movements when the person moves. The channels get blocked by the *meda* causing the ill effects of the *Sthaulaya*.

6) *Bheda*: The manifestation of the *upadrava* or the complications of obesity such as *prameha* (diabetes), *prameha-pidika* (diabetic ulcers), *bhagandara* (fistula) etc. can be considered as the *bheda* stage of *atisthauyaya*.^{8,10}

Ayurvedic management of Metabolic Syndrome:

Ayurveda has not described as such treatment of metabolic syndrome but there are various pharmacologic and non-pharmacologic methods for the prevention and management of obesity. The food and drinks which alleviates *vata*, reduces *kapha* and fat should be taken. Use of *Guduchi*, *Musta*, *Triphala*, honey etc¹⁴ are recommended for removing obesity or excess fat. *Vidanga*, *Shunthi*, *yavaksara*¹³ ash powder of black iron mixed with honey, powder of barley and *Amalaka* is beneficial in the management of obesity. Similarly *Bilvadi panchamula* mixed with honey and use of *Shilajatu* along with juice of *Agnimantha* is recommended⁹. In diet *prastika*, *kangu*, *shyamaka*, *yavaka*, *yava*, green gram, *kulatha*, *makushta*, *patola*, *amalaki* fruits can be used for reducing fat³

The obese taking regular fatty diet

may suffer from various *kaphaj* disorders. Such individuals should not-sleep in day time. *Halimak*, headache, cold sensation, heaviness in body parts, body-ache, edema, anorexia, nausea, rhinitis, migraine, itching, drowsiness, cough disorder of throat, derangement of memory and intelligence, fever, incapability of sense organs etc. are the abnormalities that manifests due to obesity and abnormal fat deposition in different parts of the body³. Similarly *Vagbhata* has also listed a number of drugs (*yogas*) for the management of obesity along with a specific regimen of life and diet to be followed by obese person.⁸

In brief, a detailed description regarding *ati-sthulata* (obesity/*medoroga*) is given in classical literature of *Ayurveda*, which can be correlated with the clinical conditions associated with metabolic syndrome.

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