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MANAGEMENT OF OBESITY (STHAULYA) THROUGH AYURVEDA

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Abstract

Obesity is the world's commonest metabolic disorder. The WHO now considers obesity to be a Global epidemic and a public health problem. *It is one of the disorders of non-communicable disease, which laid down base of diabetes mellitus, hypertension and other metabolic disorders. The etiopathogenesis, management and consequences of obesity are not very clear and it still evolving in sciences of today.* Globally an estimated 300 million adults are now obese and many are overweight. *As a disease entity it is multi-factoral metabolic disorders, is very near to Medoroga / Sthaulya of Ayurveda. Charaka has described obesity as fatty tissue disease (Medoroga) leading to hugeness (sthoulyam). Due to steady depletion of the holistic way of life in the cities as well as the sedentarylife and overeating habit the prevalence of obesity is higher in urban areas than in rural populations of India,. The spiritual, psychological, and physical levels of human health and disease is given due importance in Ayurveda. So by the application of principles available in Ayurvedic literature one can overcome the obesity.*

Keywords: Obesity, *etiopathogenesis, Ayurveda, Medoroga.*

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INTRODUCTION

Obesity is recognized as one of the important lifestyle and metabolic disorders. It is a leading preventable cause of death world over. The incidence of obesity has been felt most dramatically in urban areas and gradually acquires its place in semi-urban and rural areas. In 2008, 35% of adults aged 20+ were overweight (BMI ≥ 25 kg/m2) (34% men and 35% of women). The worldwide prevalence of obesity has nearly doubled between 1980 and 2008. In 2008, 10% of men and 14% of women in the world were obese (BMI ≥30 kg/m2), compared with 5% for men and 8% for women in 1980. An estimated 205 million men and 297 million women over the age of 20 were obese – a total of more than half a billion adults worldwide [1]. Being obese can have a serious impact on health. Carrying extra fat leads to serious health consequences such as cardiovascular disease (mainly heart disease and stroke), type 2 diabetes, musculoskeletal disorders like osteoarthritis, and some cancers (endometrial, breast and colon). These conditions cause premature death and substantial disability [2].

At present childhood-obesity is also running out of control. In the past two decades, the number of overweight children and adolescents has doubled.

Obesity is defined as body weight above a desirable standard [3], as a result of lack of physical activity with increased intake of food. Issue of weight and health as we can say, are more complex than simply consuming fewer calories or switching from butter to margarine. Obesity is well defined in Ayurveda by ancient scholars as Sthoulya and Atisthoulya. In this context Acharya Susruta also mentioned that Madhyam Sarira [4] is best but Ati sthula and Ati krisha are always affected with some diseased conditions. Sthoulya is a notorious disease which disturbs the total metabolic system of the body. Various treatment modalities have been defined for Sthoulya in our Sahmitas. Among them langhan, swedan, lekhan, guru- apatarpan [5], Kaphaghna karma and Vaman, Virechana, Basti karma has more importance. Charak has recommended ushma-tikshna basti [6], where as Sushruta has indicated lekhan basti for Sthoulya [7].

Definition and classification of Obesity

The term *Sthula* derived from the root *"sthula brimhane* " with an addition of a c*pratyaya*. Which stand probably is thick or solid or strong." It means a person in whom excessive and abnormal increase of *Meda* along with *Mamsa Dhatu* in the body, which results into pendulous appearance of *Sphika*, *Udara*, and *Stana*. In Ayurvedic literature, systematic classification of the disease

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Sthaulya is not available. Vagbhatta has mentioned three types of *Sthaulya* while describing the efficacy of *Langhana* therapy [8] *Heena Sthula*: Mild degree of overweight.

- *Madhyam Sthula:* Moderate degree of overweight.
- *Ati Sthaulya:* Excessive state of overweight.

WHO had used Body mass index (BMI) to define obesity.

Based on BMI obesity can be classified as follows [9]

BMI Classification

< 18.5 Underweight

18.5–24.9 normal weight

25.0–29.9 Overweight

30.0–34.9 class I obesity

35.0–39.9 class II obesity

-40.0 class III obesity

BMI = Weight in kilograms / height in meters2

Particular bodies have made some modifications to the WHO definitions. The surgical literature breaks down "class III" obesity into further categories whose exact values are still disputed.

- Any BMI _ 35 or 40 is *severe obesity.*
- A BMI of _ 35 or 40–44.9 or 49.9 is *morbid obesity.*
- A BMI of _ 45 or 50 is *super obese.*

Etiological factors with modern correlates

According to Ayurveda, the central cause of almost all diseases is the vitiation of wastes products (*Malas*- the end products of *Dhatus*) and opines that-*"Sarvesham Cha Roganam Nidanam Kupitah Malah"* which is outcomeof fault of different sets of *Agni i.e. Jatharagni, Dhatvagni, Bhootagni* and *Pachakamsha*. By virtue of these substances, the functional activity of body humors (*Doshas*) deranged, which may leads to play an important role in the genesis of diseases. This is due to faulty regimens of foods, food habits and lifestyle errors along with genetic abnormality.

Sushruta has considered that *Rasa Dhathu* is the main culprit for both obesity and emaciation-*Rasa nimittameva sthaulyam karshyam cha* [10]. Both Ayurveda and conventional system of medicine have considered

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The most common etiological factors of obesity are given below

Ayurvedic Factors

No exercise (*Avyayama)*

Dense food (*Sleshmala ahara)*

Daytime sleeping (*Diva svapna*)

No sexual intercourse (*Avyavaya)*

No anxiety (*Achinta)*

Genetic *(Beeja-dosha*)

Prodromal signs (*Prameha-poorvarupa*)

Loss of appetite (*Agnimandya)*

Lipotoxicity *(Medavrittavayu)*

Lack of restraint (*Ahara-asamyama)*

Tissue indigestion (*Dhatvagnimandata)*

A limited number of cases are primarily due to genetics, medical reasons, or psychiatric illness. In contrast, increasing rates of obesity at a societal level are felt to be due to an easily accessible and palatable diet,

increased reliance on cars, and mechanized manufacturing. Modern system of medicine has given due consideration on certain factors which play greater role in the etio-pathogenesis of obesity and its related disorders.

1. Insufficient sleep.
2. Endocrine disruptors (environmental pollutants that interfere withlipid metabolism).
3. Decreased variability in ambient temperature.
4. Decreased rates of smoking, because smoking suppresses appetite.
5. Increased use of medications that can cause weight gain (atypical antipsychotics).
6. Proportional increases in ethnic and age groups that tend to be heavier.
7. Pregnancy at a later age (which may cause susceptibility to obesity in children).
8. Epigenetic risk factors passed on generationally.
9. Natural selection for higher BMI, and
10. Assortative mating leading to increased concentration of obesity risk factors.

Pathophysiology of obesity

Leptin and ghrelin are considered complementary in their influence on appetite, with ghrelin produced by the stomach modulating short-term appetitive control (i.e. to eat when the stomach is

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empty and to stop when the stomach is stretched). Leptin is produced by adipose tissue to signal fat storage reserves in the body and mediates long-term appetitive controls (i.e. to eat more when fat storages are low and less when fat storages are high). Although administration of leptin may be effective in a small subset of obese individuals who are leptin deficient, most obese individuals are thought to be leptin resistant and have been found to have high levels of leptin. This resistance is thought to explain in part why administration of leptin has not been shown to be effective in suppressing appetite in most obese people.

While leptin and ghrelin are produced peripherally, they control appetite through their actions on the central nervous system. In particular, they and other appetite-related hormones act on the hypothalamus, a region of the brain central to the regulation of food intake and energy expenditure. There are several circuits within the hypothalamus that contribute to its role in integrating appetite, the melanocortin pathway being the best understood. The circuit begins within area of the hypothalamus, the actuate nucleus that has outputs to the lateral hypothalamus (LH) and ventromedial hypothalamus(VMH), the brain's feeding and satiety centers, respectively. The arcuate nucleus contains two distinct groups of neurons. The first group co expresses neuropeptide Y (NPY) and agouti-related peptide (AgRP) and has stimulatory inputs to the LH and inhibitory inputs to the VMH. The second group co expresses pro-opiomelanocortin (POMC) and cocaine- and amphetamine-regulated transcript (CART)and has stimulatory inputs to the VMH and inhibitory inputs to the LH.Consequently, NPY/AgRP neurons stimulate feeding and inhibit satiety, while POMC/CART neurons stimulate satiety and inhibit feeding. Both groups of arcuate nucleus neurons are regulated in part by leptin. Leptininhibits the NPY/AgRP group while stimulating the POMC/CART group. Thus a deficiency in leptin signaling, via leptin deficiency or leptin resistance, either leads to overfeeding or may account for some genetic and acquired forms of obesity [11].

Impact of obesity on Health and life process

Bhavamishra and Madhavakar have pointed out the importance of obesity control and its adverse impact on health 1000 years ago [12], which is quite true to the contemporary science. Today, with a better understanding of the reference to the importance of the visceral and abdominal obesity as a cardiovascular risk factor, the reference in ancient texts seems a valuable insight of the seers. We have yet to understand what they have fore seen in the reference about fat accumulation around the kidneys. The management of morbid obesity was considered difficult and the prognosis grave if other risk factors were present. Decreased life span (*Ayu-kshaya*) is

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stated to be an important consequence of obesity. Even today, early diagnosis and timely management of obesity is mostly neglected because few people realize it as a symbol of wealth. Charaka emphasized that serious diseases (*Darun vikara*) arise when fat blocks the body channels. Some of the co-morbidities related to overweight and obesity include cancers (cancers of breast, endometrial, ovarian, colorectal, esophageal, kidney, pancreatic, prostate), Type 2 diabetes, hypertension, stroke, Coronary Artery Disease, Congestive Heart Failure, asthma, chronic back pain, osteoarthritis, pulmonary embolism, gallbladder disease, and also an increased risk of disability. All this leads to more than three million deaths worldwide annually [13].

The Health Consequences of Obesity

- Coronary Heart Disease

Type -2 Diabetes mellitus

- Hypertension (high blood pressure)
- Dyslipidemia (high total cholesterol or high levels of TG) Stroke
- Liver and gallbladder disease

Sleep apnea and respiratory problems

- Osteoarthritis

Gynecological problems

Diagnosis and Markers of obesity

The differentiating features of overweight *(Pushta),* obesity (*Sthula*), and morbid obesity *(Atisthaulya)* were recognized very well in Ayurveda. Charaka has described the assessment of obesity by the patient's own fingers (*Angulapramana*) to measures the breadth and length of the abdomen. This may be investigated through the waist–hip ratio (WHR), waist circumference and body–fat ratio analysis (Pandey and Singh, 2003). According to conventional medicine, the body mass index (BMI) is a simple method of estimating adiposity. Beside this, measurement of abdominal obesity is also required to assess the degree improvement and grade of obesity [14].

Clinical course and prognosis of obesity

The long-term consequence of obesity on health has been well described in Ayurvedic lexicons including diminished life span such as, *Prameha, Pramehapidika, Jvara, Bhagandara, Vidradhi, Vatavikara, Udara–Roga, Urustambha, Shvasa, Apaci, Kasa, Sanyasa, Kushtha, Visarpa,Atisara, Arsha, Shlipada, Kamala, Mutrakriccha, Ajirna*. Obesity ismajor risk factors for developing NIDDM and CVDs, well known to the ancient scholars of Ayurveda. However, obesity related

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cryptogenic cirrhosis of the liver and hepato-cellular carcinoma has recently been recognized by biomedical sciences. The transitional physiological phases such as weight gains during adolescence in boys and girls, enormous weight gains during and after pregnancy, and peri-post menopausal obesity are noted frequently in clinical setting that are warranting special care and management. These are known to be associated with changes in insulin resistance and physiological hyperinsulinemia. An anti-obesity preventive measure for such physiological phases for smooth transitions may save many individuals, particularly women, a lifetime burden of obesity and its health consequences.

Preventive measures of obesity

Preventive measures are the backbone of Ayurvedic therapeutics, which is described in the context of diurnal, nocturnal and seasonal regimens that offer for prevention in terms of daily and seasonal regimens, healthy foods, yoga exercise, *panchakarma*, and daily medicines (Singh, 1998). The daily routine in Ayurveda involves the following measures:

1. Going to bed early and waking up early.
2. Proper eliminations tongue cleaning, washing, etc.
3. Meditation;
4. Massage.
5. *Surya-namaskara.*
6. Proper clothing.
7. Suitable, balanced, and measured dietary intake.
8. Adequate fluid intake.
9. Family, friends, and community relationships.
10. Avoidance of undue stress or exertion.
11. Pleasant, healthy, and socially permissible sex life.
12. Continuing self-education throughout life etc.

Besides other measures, breathing Yogic practices (*Pranayama*) under guidance of a proper expert are advisable for all persons prone to obesity. Yogic practices and meditative practices (*Asanas* and *Pranayama*) diminish the sympathetic overdrive, which has a role in inducing IR and obesity. Ayurveda and modern medical measures have to be individualized for their synergy by practicing doctors and health educators.

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Approaches of Management of Obesity

In conventional system of medicine, the main treatment for obesity consists of dieting and physical exercise. Diet programs may produce weight loss over the short term, but maintaining this weight loss is frequently difficult and often requires making exercise and a lower food energy diet a permanent part of a person's lifestyle. Success rates of long-term weight loss maintenance with lifestyle changes are low, ranging from 2–20%.Dietary and lifestyle changes are effective in limiting excessive weight gain in pregnancy and improve outcomes for both the mother and the child. One medication, orlistat, is current widely available and approved for long-term use. average of 2.9 kg (6.4 lb) at 1 to 4 years and there is little information on how these drugs affect longer-term complications of obesity. Its use is associated with high rates of gastrointestinal side effects and concerns have been raised about negative effects on the kidneys. Two other medications are also available. Lorcaserin results in an average 3.1 kg weight loss (3% of body mass) greater than placebo over a year. A combination of phentermine and topiramate is also somewhat effective. However, above medication are not up to the mark the researchers are inclined towards others system of medicine for safe and effective remedial measure [15]. The process and measures, which balances the vitiated *Dhatus* of the body, is called chikitsa in Ayurveda. Excessively accumulated *Medodhatu* alters the normal functioning of other *Dhatus*. The abnormal states in different *Dhatus* are the main initiating factor for the pathogenesis of *Sthaulya*, other factors involved are *Meda*, *Kapha*, *Agni*and *Ama*. These factors always kept in mind during their management.

The first and foremost step of Ayurvedic therapeutic is avoidance of etiological factors, which play significant role in the genesis of obesity. Ayurveda has laid down also a strong emphasis on *Pathya-apathya* measures for the management of disorders. Therefore, factors such as *Madhura, Shita, Snigdha, Guru, Pichchhila* and lifestyle errors are to be avoided. Ruksha Udvartanas are advocated to obese patient as external purificatory measure, while *Vamana*, *Virechana*, *Asthapana Vasti* as internal bio-purificatory measures

Acharya Charaka has mentioned that if *Atisthula* person possessing stamina and strength they should be treated with *Vamana* and *Virechana Karma*. Non-unctuous, warm and strong enemata are advocated in such type of patient [16].

Palliative measure

The non-pharmacological measures such as reasonable fasting, exercise, yoga, lifestyle changes and counseling are helpful to obese patient. A diverse formulation from Ayurvedic resources and

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sometimes-single plants preparation with appropriate dosages helps them. In obese patients, according to the state of *Ama*, digestive and carminative medications are given. Ayurvedic formulations such as *Triphala guggulu, Medoharaguggulu, Amritadi guggulu, Arogyavardhani vati ,Shilajatvadi vati, Vidangadi lauha, Vidangadi churna, Trikatu churna, Bilvadikvath* etc are advised with appropriate doses considering the age, sex and severity of obesity, with water or decoction of *Triphala*. Acharya Charaka has mentioned *Lekhaniya dashemani Dravyas* [17] *a* group of 10 drugs, these drugs principally performs the *Lekahana Karma* of excess and abnormal *Meda* such as *Mustaka, Kushtha, Haridra Vacha,Atievisha, Katu rohini, Chitraka, Chirabilva, Daruharidra, Haimvati Vacha (Karanja)* causing weight reduction as well as relief in other signs and symptoms.

CONCLUSION

Based on above observation we finally conclude that obesity and its related consequences of biomedical sciences are well conceived in age-old system of medicine Ayurveda. It is generally recognized that no two persons are exactly alike, scientifically speaking, nor do they react alike, and a diet or drug that agrees with one may disagree with another. That is why, ayurveda, while describing the principles of therapeutics, mentions that 'the physician must take into consideration the fact that drugs differ with respect to land, season, source, flavour, taste, potency, post-digestive effects and specification, and also that men differ with respect to their body, constitution, age, vitality, gastric fire, morbid tendency, proclivities, homologation and the state of disease. In other words, a more personalized approach is necessary while treating obesity. Certain Ayurvedic modalities bear close resemblance with several non-drug approaches of modern medicine. These modalities can be combined judiciously for individualized prevention and cure of obesity. The weight loss is expected to be gradual, long term and lasting due to integral care rather than drastic weight loss advocated by crash dieting.

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