

MANAGEMENT OF CHILDHOOD OBESITY

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ABSTRACT

In *Ayurveda*, obesity has been defined under the headings of *Sthoulya* in *Ashtoninditiya Purush* (Undesirable physics) in which mainly *Meda* (Fat) and *Mamsa* (Muscle) *Dhatu* is pretentious. *Sthoulya* is an abnormal and excess accumulation of *Medo Dhatu*. Frequent and excess intake of foods which increase *Kapha* and *MedoDhatu*. Childhood obesity is a known pioneer to obesity and other non-communicable diseases in later life. Environmental and genetic factors, lifestyle preferences and culture play a major role in the increasing prevalence of childhood obesity. In medical science *Sthoulya* can be compared with obesity. As obesity not only reduces the life span of an individual but also leads to life threatening complications like stroke, and ischemic heart disease. Prevention of obesity can be done initially in early stage of life by adopting regimens, *Shaman Aushadhis* and *Pathyapathya* mentioned in *Ayurvedic* classics. Present study emphasises prevention and management of childhood obesity.

Keywords: Childhood obesity, Prevention, Management, *Sthoulya*, *Pathyapathya*

INTRODUCTION

In medical science *Sthoulya* can be compared with obesity, obesity is an abnormal growth of the adipose tissue due to an enlargement of fat cell size or an increase in fat cell number or a combination of both. Various genetic, behavioural, and environmental factors play a role in its pathogenesis. Childhood obesity is a forerunner of metabolic syndromes, poor physical health, mental disorders, respiratory problems and glucose intolerance. Overweight is associ-

ated with an increase rate of mortality at all ages. Overweight and obesity have reached epidemic proportions in India in the 21st century affecting 5% of country's populations^[1] Obesity can be assessed by assessing tools like body weight, body mass index, skin fold thickness. Growth Charts -- These charts are used throughout a child's development to assess growth, both height and weight, as compared to other children the same age and

to watch how a child's body changes over time. Almost every doctor uses the same growth charts from the Centres for Disease Control and Prevention (CDC), based on the measurements of thousands of children. Body Mass Index (BMI) for Age Charts -- This index uses height, weight, gender and age to assess a child's weight. A formula is used to calculate a child's BMI: $BMI = \text{weight in kilograms}/(\text{height in meters})^2$. The number is plotted on a growth chart -- greater than the 95 percentile is considered overweight or obese. A child who falls between the 85 percentile and 95 percentile is considered at risk for becoming overweight. However, BMI alone is not an appropriate measure for children, because they are still growing. Factors such as rate of growth, age and sex, and the BMI of other children of the same age must be taken into account when assessing child's weight.

ETIOLOGY

Exogenous causes

Excessive intake- Intake beyond normal caloric requirement.

Diminished activity-After surgery or orthopedic procedures

Genetic factors-Poorly understood familial tendency does occur.

Endocrinal disorders

Hypoparathyroidism

Growth hormone- Fat accumulation in trunk and buttock.

CNS disorders

Chromosomal abnormalities

Klinefelter syndrome

Turner syndrome

Down syndrome

Common cause

Familial

Dietetic /Constitutional

Endocrine disease

Genetic syndromes ^[2]

AN AYURVEDIC PERSPECTIVE

In *Ayurveda Atisthaulya* has been described since very early days in various *Samhitas*. As *Charaka* has described *Sthaulya* among the *AstaNinditha Purusha*^[3], *Sleshma Nanatmaja*,^[4] *Santarpana Nimitaja*,^[5] *AtiBrahmana Nimitaja*^[6] and *Samsodhana Yogya*.^[7] Besides that, other aspect of *Atisthaulya* and line of treatment have been described on various places. A person in whom there is excessive accumulation of *Meda* (Fat/Adipose tissue) and *Mamsa* (Flesh/Muscle tissue) leading to looseness of hips, abdomen, and breast has been categorized as *Atisthula*.^[8] *Medas* is body tissue leading in *Prithvi and Apa Mahabhutas similar to Kapha Dosha*.^[9] It is characterized by *Snighdha* (Unctuous), *Guru* (Heavy), *Sthula* (Space occupying), *Picchila* (Slimy), *Mridu* (Soft) and *Sandra* (Dense) *Guna* (Qualities).^[10] *Sneha* (Oleation), *Sweda* (Production of sweat), *Drudhatva* (Compactness), and *Asthipushti* (Nourishment of bones) are the main function of *Medo Dhatu*.^[11]

The Vicious Cycle

There are seven *Dhatus*, and they are created sequentially. The creation of *Dhatus* is an ongoing complex process. The key word is *Sequential*. If at any stage there is an imbalance, this disrupts the whole sequence of tissue formation. The *Srotas* or channels play a big role, because they carry the information required to properly form the tissues step by step. If blockages occur in the *Srotas* due to toxins

(Ama), an imbalance starts. According to Ayurveda to maintain balance and health strong Agni and clear Srotas are essential.

Ayurvedic perspective the cause of weight gains is cyclical. It begins with balance reducing choices in diet and lifestyle that weaken the digestive fire, which in turns increases toxins, clogging the communication channels Srotas and thereby disrupting the formation of tissues. The poorly formed tissue layers increases Meda Dhatu and an imbalance in Kapha Dosha. This in turn increases accumulation of toxins (Ama), which leads to imbalance in Meda Dhatu. Accumulation of Ama in Srotas causes an imbalance in naturally-flowing Vata energy. Restricted or imbalanced Vata energy ends up increasing Agni – the digestive fire—leading to an increase in appetite and thirst. This leads in turn to an increase in Kapha Dosha and Meda Dhatu and the whole cycle starts again. To break the cycle, the Ayurvedic expert (vaidya) determines the unique nature of the individual (Prakriti) and the nature of imbalance (Vikriti). The essence of recommendation is generally comes down to addressing a few core issues: strengthening digestion (Balance Agni), removing Ama, improving dietary habits and adjusting inappropriate daily routines and lowering stress.^[12]

Causes of obesity according to Ayurveda

Avayamadivaaswapnashleshmalaaaharasevinaha/

Madhuroannarasaha prayaha snehamedhovivardhati //

1. Avyayama: Not exerting physically
2. Divaswapna: Sleeping in afternoon.

3. Shleshmala Ahara Vihara: The diet and life styles which increase Kapha

4. Madhura Annaha: Consuming sweetened foods.^[13]

AYURVEDIC MANAGEMENT OF CHILDHOOD OBESITY

Ayurvedic principles give more importance to prevention of disease rather than curing them after its manifestation^[14]. Certain diseases are better to be prevented rather than to be cured. For instance obesity, as it affects other major systems of the body in later phases and may turn out to be fatal. Henceforth for the prevention of disease a continuous intervention is needed. In the Santarpaniyaaadhyaya of Charak Samhita, the term Pratikarma is used for the prophylactic treatment^[15].

Diet Regimen (Ahara): Oily and deep fried food articles like noodles, pizza, hamburger, hot dog buns, French fries, pasta etc. should be avoided. The food articles sweetened with sugar like chocolate, sweets, cold drinks (sodas) should not be given to children. Children should be provided with a morning meal (breakfast) that includes whole grains, fruits, and protein. Skipping meals does not promote weight loss. Half glass of water should be taken before meal. More of fruits and vegetables should be included in the diet.

Fruits: Bilva (Bael fruit), Amalaki (Indian gooseberry), Bibhitaki (Beleric Myrobalan), Haritaki (Myrobalan), Jambu (Syzygium cumini). Vegetables: Patol (Pointed gourd), Shigru (Drumstick), Trapusha (Cucumber), Vartaka (Brinjal), Granjanak (Carrot). If the child does not accept these fruits and vegetables as such, then make it more palatable by serving in the form of fruit chat or vegetable halva.

Concept given by *Acharya Charak* for *Atisthaulya* management issues of *Guru Aptarpan* food^[16] and “*Vataghna Annapanani Sleshma Medo Harani ch*”.^[17]

Liquid Intake (*Anupana*): Children should be given Luke warm water in winter season while room temperature water (not cold) in summer season in the evening time. Other liquids that are beneficial in reducing childhood obesity are honey water (*Panam ChaAnuMadhuUdkam*) and *Arista* (*AristaanschAnupanarthe*).^[18]

Physical activity (*Vyayama*):*Vyayam*^[19] play a significant role to resolve obesity .Children should be encouraged for physical activity, at least 60 minutes of fitness every day that may be in the form of sports, morning walk or cycling, *Yog*, and *Aasan*.

Sleep (*Nidra*): Excessive sleeping after lunch should be avoided. *Prajagran* (night awaking)is an important factor for weight loss^[20].

Psychotherapy (*SatvavajayaChikitsa*): Parents should set a good example for children by choosing a healthy diet and doing abundant exercises, emotional support and lot of encouragement to be active. Children should be praised for making small changes and efforts for weight loss. Along with physical activity doing some mental work or stress also reduce obesity (*Chintan*).^[21]

Specific Ayurvedic treatment

Ayurvedic treatments are very effective in natural weight reduction along with the above regimen. But these treatments must be taken in appropriate dose according to the body weight and under medical supervision. In *Ashtanga Hridaya*^[22] and in *Ashtanga Samgraha*^[23], it has mentioned various therapeutic and prophylactic measures to cure and prevent this dis-

ease and considered *Rasanjana* as a drug of choice for *Sthaulya*. Use of *Langhana* therapy is indicated for *Brimhaniya* disorder like *Sthaulya*.^[24] Using *Shamanaushadhies* which consists of *Guduchi* (*Tinospora Cardifolia*), *Musta* (*Cyperous rotundas*), *Triphala*, *Vidanga* (*Embilica ribes*), *Nagara* (*Zingiber officinal*) *Yavakshara* and preparations like *Takrarishta*, *Triphala guggulu* are beneficial. *Yogic* posture like *Suryanamaskar*, *Pashchimottanasana*, *Bhujangasana* are useful. Some success in controlling obesity is also achieved by *Ayurvedic Panchkarma* therapy i.e. *Vasti* because *Vata* is playing an important role in *Samprapti* of *Sthaulya*.^{[25] [26]}

DISCUSSION

Ahara and *Viharatmaka Nidanas* mentioned for *Sthoulya* causes aggravation of *Kapha* and are responsible for *Medovridhhi*. These factors are contributing to get obesity in persons who have tendency to gain weight due to genetic predisposition (*Beejadushti*).The concept of *Santarpana* (Over nourishment) *Ahara* and *Vihara* when viewed with medical science, then it can be interpreted that the *Nidana*, which are explained, are nothing but the high caloric foods and sedentary life styles. The life span of an obese person decrease proportionally with increase of BMI. As a result there will be increased chances of developing complications like stroke, IHD. Hence prevention of *Sthoulya* is very much essential. Prevention of obesity aims at general education about the different aspects of the disease like causes, complications and prevention. Since obesity is having its early origin from childhood, modifications in lifestyle like alterations in eating patterns, adopting physical exercises and pre-

vention of addictions can be undertaken. Prevention can be adopted through controlled diet, regular physical exercises, avoiding day sleep, along with various treatment modalities, which help in controlling weight and reducing the complications. Following purificatory therapies limit the impairments and minimize the disabilities. Thus all these act as an effective preventive method.

CONCLUSION

Childhood obesity is a chronic disorder that has multiple roots. It has significant impact on both physical and psychological health. In addition, psychological disorders such as depression occur with increased frequency in obese children. Overweight children are more likely to have cardiovascular and gastrointestinal diseases as compared with those who are lean. It is believed that both overconsumption of calories and reduced physical activity are mainly involved in childhood obesity. *Ayurveda* in which obesity is described as *Sthaulya* can provide an effective management of this disease by applying various methods described in ancient texts. It has been widely accepted that *Yoga, Asanas* can heal such kind of diseases very efficiently. By adopting simple life style and healthy eating habits anyone can enjoy the life optimally without much stress or expenses.

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Source of Support: Nil
Conflict Of Interest: None Declared

How to cite this URL: Trivedi Bharvi B : management Of Childhood Obesity. International Ayurvedic Medical Journal {online} 2017 {cited May, 2017} Available from: http://www.iamj.in/posts/images/upload/1707_1713.pdf