

**A short-term clinical survey to scientifically evaluate the *Nidana* of *Atisthaulya* (etioloical factors of obesity) mentioned in *Caraka Samhita*.**

Waidyarathna, S.K.P.<sup>1</sup> and Rohini, N.V.P.<sup>2\*</sup>

<sup>1</sup>Ayurveda Medical Officer, Ayurvedic Teaching Hospital, Borella.

<sup>2</sup>Senior Lecturer - Grade II, Department of Nidana Chikitsa, Institute of Indigenous Medicine, University of Colombo, Rajagiriya.

\*Corresponding author:

Postal address: Department of Nidana Chikitsa

Institute of Indigenous Medicine, University of Colombo, Rajagiriya.

Email ID: drnvprohini@gmail.com

Running title:

Evaluating etioloical factors of *Atisthaulya*.

## **Abstract**

The objective of this study was to evaluate the *Nidana* of *Atisthaulya* (etiological factors of obesity) mentioned in *Caraka Samhita*. Twenty-nine patients, age between 20-60 years, were selected from the O.P.D. of Ayurvedic Teaching Hospital, Borella. Qualitative and quantitative data were gathered and recorded in a specially prepared proforma, while body mass index (BMI) was considered as the assessment criteria. Analysis of the data revealed the maximum percentage of patients (79.3%) were obese having BMI between 30.0-39.9 kgm<sup>-2</sup>, while the rest (20.7%) were morbidity obese with BMI above 40.0 kgm<sup>-2</sup>. The results revealed that majority of the patients had showed the usage of excessive amounts of oily food items (*Snigdha Ahara*: 89.6%) as dietary factors, lack of adequate physical exercises (*Avyayama*: 65.5%) as lifestyle factors and a positive heredity (*Bija-svabhava*: 41.4%). The findings of this study strongly corroborate and validate the *Nidana* of *Atisthaulya* (etiological factors of obesity) mentioned in *Caraka Samhita*. Further, they point out the necessity of an individualized obesity management plan incorporating a well-balanced dietetic regimen with proper physical and mental exercises.

**Key words:** *Nidana*, *Atisthaulya*, etiological factors, obesity, body mass index

## **Introduction**

Obesity is defined as an excess of adipose tissue that imparts a health risk and a body weight of 20% excess over ideal weight for age, sex and height [1]. Excess body weight is termed as *Atisthaulya* in the Ayurvedic literature [2] and it clearly poses a considerable health risk by increasing mortality [3]. It has been estimated 1.2 billion people in the world are overweight and at least 300 million of them are obese. The population risk has shown steady increase particularly in developing countries including Sri Lanka [4]. In the clinical practice, this is one of the commonest metabolic disorders seen, which is associated with the life-threatening complications such as type 2 diabetes mellitus, hypertension, stroke, hyperlipidemias, coronary heart disease, cancers, *etc.* [5]. As the obesity is extensively dealt in the Ayurvedic literature, this study has been carefully planned and carried out to examine the veracity of the etiological factors of obesity mentioned in *Caraka Samhita*.

## **Aims and objectives**

The objective of this study was to evaluate the *Nidana* of *Atisthaulya* (etiological factors of obesity) mentioned in *Caraka Samhita*.

## **Materials and methods**

This study consisted of a literary survey and a short-term clinical survey. As for the literary survey, the *Nidana* of *Atisthaulya* (etiological factors of obesity) mentioned in *Caraka Samhita* and other relevant Ayurvedic texts have been carefully screened and utilized in the preparation of the special clinical proforma. This survey was conducted at the Out Patient Department (OPD) of Ayurvedic Teaching Hospital, Borella, for three months duration from January 2011 to March

2011, including a total of 29 obese and morbidity obese subjects. Patients, who were suffering from diabetes mellitus, hypertension, heart diseases, malignancies and any other chronic pathological conditions, had been excluded. All the selected patients were individually informed about the purpose of this study and their written consents were obtained.

### **Data collection and analysis process**

A specially prepared clinical proforma was used to collect the data. Measured individual's body weight, height and calculated BMI were recorded. Frequency distribution charts have been used for analyzing the distribution of various etiological factors among the sample of obese and morbidity obese patients.

### **Observations and discussion**

Collected data from 29 obese and morbidity obese patients showed that maximum number of subjects (32.5%) belonged to the age group of 31-40 years. Majority of patients (75.9%) were females.

Table 1: Distribution of body mass index (BMI) among the 29 subjects.

<b>No.</b>	<b>Body Mass Index/ BMI (<math>\text{kgm}^{-2}</math>)</b>	<b>No. of patients</b>	<b>Percentage (%)</b>
01.	18.5-24.9	00	00.0
02.	25.0-29.9	00	00.0
03.	30.0-39.9	23	79.3
04.	Above 40.0	06	20.7

Table 1 shows the calculated body mass index (BMI) distributed among the studied sample. There were 79.3% individuals, who were obese (BMI between 30.0-39.9 kgm<sup>-2</sup>) and the remaining patients of 20.7% were morbidity obese (BMI above 40.0 kgm<sup>-2</sup>).

Table 2: Distribution of dietary factors as etiological factors of *Atisthauilya* (obesity) among the 29 obese and morbidity obese subjects.

No.	<i>Ahara</i> (Dietary factors)	No. of patients	Percentage (%)
01.	<i>Snigdha Ahara</i> (Oily foods)	26	89.6
02.	<i>Guru Ahara</i> (Heavy foods)	21	72.4
03.	<i>Madhura Ahara</i> (Sweet foods)	18	62.1
04.	<i>Shita Ahara</i> (Foods with cooling properties)	05	17.2

It should be noted from the Table 2, that oily foods (89.6%) consisting of high lipid content, contributed as a major dietary factor leading to *Atisthauilya* (obesity). Further, heavy and sweet foods with high caloric values also contributed to the generation of an excess of 20% adipose tissue over an ideal body weight.

Table 3: Distribution of lifestyle factors as etiological factors of *Atisthauilya* (obesity) among the 29 obese and morbidity obese patients.

No.	<i>Viharana</i> (Lifestyle factors)	No. of patients	Percentage (%)
01.	<i>Avyayama</i> (Lack of adequate physical exercises)	19	65.5
02.	<i>Divya-svapna</i> (Daytime sleep)	14	48.3
03.	<i>Atisampurna</i> (Over eating)	13	44.8
04.	<i>Avyavaya</i> (Abstinence of sexual intercourse)	10	34.5
05.	<i>Harsha Nityatvat</i> (Constant cheerfulness)	07	24.1
06.	<i>Achintanat</i> (Lack of necessary mental exertion)	02	06.9

In the Table 3, lack of adequate physical exercises (65.5%) is seen as the leading lifestyle factor conducive to *Atisthauilya* (obesity), while daytime sleep and over eating augmented the storage of the energy nutrients as body fat in adipose tissue, thus causing obesity.

Table 4: Distribution of heredity as an etiological factor of *Atisthauilya* (obesity) among the 29 obese and morbidity obese patients.

No.	<i>Bija-svabhava</i> (Heredity)	No. of patients	Percentage (%)
01.	<i>Bija-svabhava</i> (Heredity)	12	41.4
02.	No heredity found	17	58.6

The data in the Table 4 showed that heredity's influence in causing *Atisthauilya* (obesity). Larger number of patients (41.4%) reported that their obesity had an inherited background.

Table 5: Main categories of etiological factors of *Atisthauilya* (obesity) according to *Caraka Samhita*.

No.	<i>Atisthauilya Nidana</i> (Etiological factors of obesity)	No. of patients	Percentage (%)
01.	<i>Ahara</i> (Dietary factors)	26	89.6
02.	<i>Viharana</i> (Lifestyle factors)	19	65.5
03.	<i>Bija-svabhava</i> (Heredity)	12	41.4

From the data shown in the Table 5, the etiological factors of obesity can be mainly categorized into dietary factors, lifestyle factors and heredity. Around 90% patients reported that they have over indulged in oily foods excessively. This fact strongly supports the necessity of a well-balanced diet to prevent not only the diseases, but also the obesity.

### Conclusion

Careful consideration of the above facts shows that *Nidana* of *Atisthauilya* (etiological factors of obesity) mentioned in *Caraka Samhita* can be very well correlated and corroborated with the scientifically established modern medical etiological factors of obesity such as dietary factors, lifestyle factors and heredity [6,7], thereby strongly validating the claims made in *Caraka Samhita* regarding the causation of *Atisthauilya*. It is important to note a fact that, the ancient physicians were able to recognize the role played by one's heredity causing obesity and technically termed the genetic predisposing of obesity as *Bija-svabhava* of *Atisthauilya* [8]. Further, the findings of this short-term clinical survey point out the necessity of an individualized obesity management plan incorporating a well-balanced dietetic regimen with proper physical and mental exercises.

## **Acknowledgements**

We express our sincere gratitudes to Dr. H.A.S. Ariyawansa and Dr. (Mrs.) I.G.P.R. Kulanata of Institute of Indigenous Medicine, University of Colombo, who helped us with valuable advices and assistance in completing this short-term clinical survey successfully.

## **References**

1. Mohan H. (2005), Textbook of Pathology, Jaypee Brothers Medical Publishers (P) Ltd., 5<sup>th</sup> eds., India, p. 250.
2. Sharma RK, Dash B. (2002), Agnivesha's Caraka Samhita Text with English Translation and Critical Exposition, Chowkhamba Sanskrit Series Office, India. Vol. I, p. 375.
3. Haslett C, Chilvers ER, Hunter JAA, Boon NA. (1999), Davidson's Principles and Practice of Medicine, Churchill Livingstone, 18<sup>th</sup> eds., United Kingdom, p. 528.
4. Wilborn C, Beckham J, Campbell B, Harvey T, et al. (2005), Obesity: Prevalence, Theories, Medical Consequences, Management and Research Directions, Journal of the International Society of Sports Nutrition, 2(2): pp. 4-31.
5. Haslett C, Chilvers ER, Hunter JAA, Boon NA. (1999), Davidson's Principles and Practice of Medicine, Churchill Livingstone, 18<sup>th</sup> eds., United Kingdom, p. 529.
6. Wilborn C, Beckham J, Campbell B, Harvey T, et al. (2005), Obesity: Prevalence, Theories, Medical Consequences, Management and Research Directions, Journal of the International Society of Sports Nutrition, 2(2): pp. 4-31.
7. Haslett C, Chilvers ER, Hunter JAA, Boon NA. (1999), Davidson's Principles and Practice of Medicine, Churchill Livingstone, 18<sup>th</sup> eds., United Kingdom, p. 528.



8. Sharma RK, Dash B. (2002), Agnivesha's Caraka Samhita Text with English Translation and Critical Exposition, Chowkhamba Sanskrit Series Office, India. Vol. I, p. 375.