



ROLE OF IMMUNITY IN OBESITY WITH SPECIAL REFFERANCE TO AYURVEDA AND MODERN POINT OF VIEW

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ABSTRACT

In modern science, there are several studies available that show that there is a relationship between obesity and immunity. The study found a negative correlation between the neutrophil-lymphocyte ratio, and a positive correlation between BMI values and higher lymphocyte values in the obese group compared with the normal group. It proves that obese people have low immunity as compared to the normal group of people. Obesity in Ayurveda is known by the name of *Shaula* or *Medovruddhi*. Our *Acharya* mentions eight types of undesirable per-

sons from the standpoint of physical constituents. That is too obese, too emaciated, too tall, too short, too hairy, hairless, too black, too white. Out of these eight categories he gives special attention to *Sthaulya*[obesity]. The defect of too obese persons, their causes, sign, and symptoms explain by *Acharya Charak* in *Ashtoninditiya Adhyaya*. The modern pattern of living style affects the health of status of people due to stressful working routines, food habits, etc. therefore it is required to adopt some ethical conduct for maintaining physical and mental health along with spiritual wellbeing. Prevention of health is the first aim of *Ayurveda*. *Ayurveda* recommends daily and dietary rules along with an ethical regimen in the form of *dincharya*, *Rutucharya*, *sadvritta*, *na Vegandharayet*, etc to boost overall health and internal strength. In *Ayurveda*, many *Acharyas* show that there is a relationship between obesity and immunity. We can make our immunity strong by correcting our life style as per mention in our *Samhitas*. Considering this fact importance of the study of obesity summarizes in the present article for managing the adverse effect of obesity.

Keywords: Immunity, *Ashtoninditiya Purush*, Neutrophil lymphocyte ratio.

INTRODUCTION

Obesity is a state in which weight exceeds a standard based on height; obesity is a condition of excessive fatness, either generalized or localized. Obesity has reached epidemic proportions in India in the twenty-first century, with morbid obesity affecting 5% of the country's population.^[1] Because of reduce physical workload, faulty food habits, and stressful lifestyle lead to various types of diseases, and obesity is the root cause of all these diseases. Obesity in *Ayurveda* is known by the name of *Sthaulya* or *Medovruddhi*. Our *Acharya* in ancient times gives much evidence and stress on the point that for living a long and healthy life normal physical constituent is needed. Our *Acharya* mentions eight types of undesirable persons from the standpoint of physical constituents. That is too obese, too emaciated, too tall, too short, too hairy, hairless, too black, too white. Out of these eight categories they give special attention to *Sthaulya*[obesity]. The too obese person has more importance in unwanted distinctive features than other types of persons. That the defect of too obese persons, their causes, sign, and symptoms explain by *Acharya Charak* in *Ashtoninditiya Adhyaya* ^[2]. In the case of fatty people, other dhatus do not grow to the extent, fat grows this lead to disturb, equilibrium state of *dhatu* [bodily tissues] which further lead to various disease. In modern science also several studies are done shown that there is a close relationship between obesity and immunity. There is evidence

that certain infections may induce obesity. Obese people may also have more severe infections and have compromised responses to therapies. Evidence shows that obesity is related to insulin resistance and low-grade chronic inflammation. It has also been proven that obesity is part of many complications. Macrophages accumulate in the fat tissue is strongly related to the person's weight, BMI, and total body fat measures to reduce the number of macrophages or inflammatory properties reduce systemic inflammation, and increase insulin sensitivity.^[3] This problem can only be solved by focusing on a proper lifestyle. *Ayurveda* is the science of life and its main aim is to maintain the healthy status of a healthy living being, by making normal *Doshas*, equilibrium state of *Dhatu* [bodily tissues] normal *Agni*[digestive fire], patency of *Srotasa* [microchannels, etc as per various *ayurvedic* text make strong *Vyadhikshamatva*. The aim and objection of *Ayurved* is the maintenance of the equilibrium state of tissue elements^[4]. *Ayurveda* gives equal importance to the prevention of disease. *The ayurved* approach is the perfect answer to being overweight because *Ayurved* does not recommend any weight losing pills or fast weight-loss programs. For the prevention of disease, *Ayurveda* had advocated the adherence to a concept like *Dincharya*, *Rutucharya*, *Sadvritta*, *Na Vegandharayet*, etc plays a vital role in preventing lifestyle-related disease also for preventing the *Anup-*

sargikrogas [communicable disease], *Janapada Dhwasna*, *Rogas*[epidemic disease], *Krumi Roga* [infectious disease], *Asatmyaj Roga* [allergic disorder] the concept of *Vyadhikshamta* [immunity] is propagated by *ayurvedic* science. We can make our immunity strong by making our immunity strong by correcting our lifestyle.

Material and method-

The Material was collected from classical ayurvedic literatures and modern research journals.

Medo Dhatu Utpatti

Sthoola occurs because of *Medovruddhi*, *Meda* is dominated by *Prithvi* and *Apa Mahabhut*. The human body is made up of seven body elements and *Meda dhatu* is one among them. As per *Acharya sushrut* has explained *Sthaulya* and *Karshya* due to the vitiation of *Ras*[*Aharas*]^[5]. *Rasa dhatu* represents the essence of all the *Ahara rasa*. The essence of *Rasa* gets transformed into *Rakta* by virtue of the color imported by the heat of *Ranjak pitta*. This *Rakta dhatu*, again accompanied by *Vayu*, *Jala*, *Tejas*, and *Ushma*[heat] attains compactness and gets transformed into *Mamsa* [muscle tissue]. *Mamsa*, again digested by its own *Agni*, "*Meda dhatvagni*" gets transformed into *Medas* [fat tissue]. This helps in the excitement of liquidity and *Snigdhatva* [unctuousness], which are the attributes of *Jala mahabhuta*, and finally gets converted into *Medadhatu*.^[6]

Sthaulya Utpatti-

Due to the consumption of kapha increasing diet and lifestyle, while traversing in the body vessels, generate excessive medo dhatu utpatti and thereby leads to sthauilya. Due to the accumulation of medo dhatu in all systems, the vata becomes obstructed and over active in the GI tract which leads to arouses hunger. The flared agni causes rapid digestion of food leading to polyphagia and in turn, leading to increases obesity. If the obese patient does not get food when hungry then his increased appetite further digests dhatus which causes a lot of disorders related to agni and vata. As like jungle fire with the help of wind burn the jungle. Thus aggravated agni and vata endanger the life of obese individuals.^[7] in *Ayurveda Sthaulya*[obesity] has special importance.

From a treatment point of view treating obesity is difficult because in *Atisthoola purush* both *Bruhan* and *langhan chikitsa* is not useful because *Bruhan chikitsa* further increases *meda* in the body and *langhan chikitsa* will increase the already increase *Koshtagata agni* and *vayu* which may be dangerous for the patient^[8]. *Acharya Charak* included *Sthaulya* under *Santarpanjanitavyadhi* [disease due to over indulgence in fatty diets]. *Acharya Charak* has quoted *Sthaulya* [obesity] under eight varieties of impediments, which are designated as *Ashtaninditapurusha*.

Ashta Lakshana of Atisthoola Purush -

- 1] *Krichhravyavayata*[loss of libido],
 - 2] *Angagandha*[bad odour] ,
 - 3] *Swedadhikya*[increased perspiration]
 - 4] *Kshudhaadhikya*[increased appetite]
 - 5] *Pipasaadhikya*[increase thirst] ,
 - 6] *Kshudrashwasa*[dyspnea] ,
 - 7] *Chala sphik- Udara-stana*[pendulous hips ,abdomen ,breasts]
 - 8] *Nidradhiky*[increased sleep]
- Ashtadosha in atisthula -*
- 1] *Ayu hras*[premature ageing].
 - 2] *Javoprodha/utsah hani*[loss of enthusiasm].
 - 3] *Krichhavyavayata*[loss of libido].
 - 4] *Daurbalya*[weakness].
 - 5] *Dourgandhya* [bad odour].
 - 6] *Swedadhikya*[perspiration]
 - 7] *Kshudhatimatra*[increased appetite].
 - 8] *Pipasatiyoga*[increased thirst].^[9]

Relationship between Obesity and Vyadhikshamatva in Ayurveda:-

The capacity or power of the body to fight against disease and to resist the production of disease is known as *Vyadhikshamatva*. *Shleshma*, *bala*, and *ojas* are synonyms for *vyadhikshamatva*. In *Ayurveda*, the superior vital essence of all bodily tissue is called '*Ojas*'. According to the concept of *Ojas* or *Vyadhikshamatva* or *Bala* or *shleshma* [immunity] in *Ayurveda* the resistance power of the body is important not only for the prevention of disease but also for rapid recovery from the disease. *Ayurveda* gives equal importance to the prevention of disease.

Eight types of undesirable persons are the factors that affect *vyadhikshamatva*. Thus for disease management strengthening the immune system, is a natural way to help the body fight against the disease. *Acharya Madhava* has mentioned that excessive *Meda* obstructs the *Srotas* and hence further *Dhatus* are not nourished properly^[10]. The same phenomenon is explained by *Acharya Charak* who says this phenomenon lead to *Ayuhras*^[11]. Thus good build plays a very important role in *Ayurveda* for maintaining a strong *Vyadhikshamatva* and long life of a person. A person having proportionate musculature and compactness of body no doubt possess very strong sensory and motor organ and as such, they are not overcome by the onslaught of disease. They can stand hunger, thirst, the heat of the sun, cold and physical exercises. They can digest and assimilate properly.

Relationship between obesity and immunity in modern science

There are several studies that prove that there is a close relationship between obesity and immunity. The study found a lower neutrophil-lymphocyte ratio value in the obese group compared with the normal group. The overweight group showed a higher lymphocyte count, thereby confirming the positive correlation of lymphocyte count with BMI^[12]. Macrophages accumulate in the fat tissue is strongly related to the person's weight, BMI, and total body fat, measures to reduce the number of macrophages or inflammatory properties reduce systemic inflammation and increase insulin sensitivity^[13]. There is evidence that certain infections may induce obesity. Obese people may also have more severe infections and have compromised responses to therapies. Evidence indicated that viral infection by 'human adenovirus Ad36 and antibiotic eradication of *Helicobacter pylori* was followed by weight gain. People who were overweight or obese had higher susceptibility to developing postsurgical infections, H1N1 influenza, and periodontal disease^[14]. Obesity was an important associated factor for mortality in patients with COVID-19. This is most likely because the patients with obesity were known to have a de-

fective immune system that makes them vulnerable to a type of infection that specially requires a prompt cellular immunity response.^[15]

DISCUSSION

Obesity is the root cause of all diseases and lifestyle plays a vital role. In recent decades, lifestyle as an important factor of health is more interesting to researchers. According to W.H.O., 60% of related factors of individual health and quality of life are correlated to lifestyle, malnutrition, unhealthy diet, smoking, alcohol consuming, drug abuse, stress, and so on, and are the presentation of an unhealthy lifestyle. It is one of the most common diseases that occur due to a faulty lifestyle.^[16] Following a healthy life style as per mention in *ayurvedic samhita* like *dincharya*, *Rutucharya*, *sadvritta*, *na Vegandharayet*, etc acts like a sun which spread light on these measures are useful in preventing lifestyle-related disease but for preventing the *Aupsargika rogas* [communicable disease], *janapada Dhwasna, rogas* [epidemic disease], *krumi roga* [infectious disease], *Asatmyaj roga* [allergic disorder] the concept of *Vyadhikshamtva* [immunity] is propagated by *ayurvedic* science.

CONCLUSION

In the present era lifestyle disorders like heart disease, stroke, diabetes, and metabolic syndrome is the main as compared to all other diseases and obesity is the root cause of all these diseases. Because this chronic disease caused recurrent hospitalization, and prolonged medication it put a heavy load on the economy of the nation. In Ayurveda as well as in modern science various literature is available which stat that there is a relationship between obesity and immunity [*vyadhikshamatva*]. In Ayurveda deformed formation of *Dhatu* leads to the deformed formation of *oja* which provide bad *Vyadhikshamatva* to the body in modern also obese people have more lymphocytes compared to neutrophils which mean obese individual has chronic infection because of less immunity as compared to an individual with normal body building.

RESULT –

Thus the individual body is a favorable platform to produce disease. Hence, we can prevent lifestyle disease by maintaining normal *Dhatu* and body build by applying a healthy lifestyle as per *Ayurveda*. Also, we can add parameters like lymphocyte and neutrophil ratio, and BMI as a parameter to determine *vyadhikshamatva* or *oja* of an individual with obesity.

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