



Review Article

## **Siman-E-Mufrit (Obesity) - A Modern Pandemic Controlled by Ancient Greeko-Arab Medicine**

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### **ABSTRACT**

The term *Siman-e-Mufrit*, also implied as obesity, is a chronic and increasingly lifestyle disease globally. Obesity and overweight denotes “abnormal or excessive fat accumulation that may impair health.” As per WHO, overweight is a BMI  $\geq 25$ , and obesity is a BMI  $\geq 30$ . As a preventable cause of the death, obesity is next only to smoking. The fast growth of urbanization and industrialization and dramatic lifestyle changes have led to the pandemic of obesity, even in the developing countries. Around 3.4 million adults die each year as a result of being overweight or obese. Obesity exerts serious public health implications and has been associated with mortality and morbidity as well. In Unani system of medicine, the treatment of obesity has been delineated elaborately and various single drugs and compound formulations along with *Ilaj bit Tadbeer* regimens have been advised that may play a pivotal role in the prevention and management of obesity. In this paper, the role of Unani medicine in the prevention and management of obesity has been discussed.

**Keywords:** *Siman-e-Mufrit*; Obesity; BMI; Unani Medicine; *Ilaj bit Tadbeer*.

### **INTRODUCTION**

Siman-e-Mufrit (Obesity) is a big medical concern of the world of utmost importance. In 2014 About 39% of adults aged  $\geq 18$  were overweight and 13% were obese. More than 1.9 billion adults  $\geq 18$  years were found overweight; out of these, > 600 million were obese. Around 3.4 million adults die each year in consequence of being overweight or obese. [1] It is estimated that nearly 22 million Indians are obese; especially abdominally obese. [1] Worldwide, 44% of diabetes, 23% of ischaemic heart disease, and 7-41% of certain cancers are due to overweight and obesity. The

important predisposing factors of obesity are unhealthy diet, lack of physical activity, and sedentary nature of work. People taking extra high energy foods, saturated fats, trans- fats and free sugars in their diets, are more vulnerable to obesity. Obesity is regarded as a primary risk factor for non communicable diseases like diabetes; cardiovascular complications mainly heart diseases, and stroke, disabilities like osteoarthritis and some cancers (endometrial, breast, and colon) It also poses serious public health implications and has been associated with mortality and morbidity. [1] Thus, obesity acquires

maximum attention in respect of its prevention and management.

**Historical Perspective:** In Unani medicine, Siman-e-Mufrit connotes excessive fat deposition and hence causing domination of Burudat (coldness) in the body. It is one of the oldest diseases described by eminent Unani physicians. Buqrat (Hippocrates) (460 BC) was the first physician who warned about the possible complications of obesity including infertility and sudden death. [3] Rufus further highlighted the unwanted results and severe diseases related to obesity such as epilepsy, syncope, hemiplegia, breathlessness and high grade fever; [4] while Jalinoos (Galen) (131-210 AD) has very scientifically described principles of treatment for morbid obesity. [5] Rabban Tabri (700-780 AD) described etiology and patho-physiology of Siman Mufrit in his famous book "Firdousal Hikmat". He stressed that excessive eating and sedentary lifestyles are the most important factors contributing to the development of obesity. [6] Zakariya Razi (865-925AD) also delineated risk factors, etiology and specific treatments of obesity, including Ilaj bil Ghiza (dietotherapy), Ilaj bid Dawa (pharmacotherapy), and Ilaj Bit Tadbeer (regimenal therapy) based on his own experience and practice; [7] whereas Ibn Sina (980-1037 AD) laid much stress on Taqleel Ghiza (decreased food intake) in obese. He described Advia Mulattifa with their pharmacological actions and mechanisms in greater details. [8] Ibn Nafis (1207-1288 AD) highlighted the association between morbid obesity and cardiovascular, cerebrovascular and respiratory ailments. Ismail Jurjani (12th cent.AD) described the complications of obesity and their treatment. He focused on the diet as well as drug therapy for the treatment of obesity. In 19<sup>th</sup> century, Azam Khan (1813-1902 AD) mentioned management of Siman Mufrit in Rumuz-e-Azam. [9,10] In recent decades,

Unani physicians have tried to appropriately understand this disease in view of modern patho-physiology, and related important complications resulted from obesity.

**Etiology:** There are a few factors responsible for obesity in Unani medicine are fatty diet, inadequate exercise, soft beddings, emesis before taking meal, all Martub (wet) diets, Farhat (happiness), Rahat (leisure), Naghma (music) wa Suroor, Iqtidar and Hukumat (authority), sweet substances, fatty diets, and diets having high nutritional values such as Harisa, meat, Magziyat (dry fruits) such as almond and pistachio. [6,7,11]

**Clinical Features and Complications:** Obesity is characterized by predominance of Burudat which results in narrowing of blood vessels, reduced blood volume, and increased craving for foods. It occurs due to development of excess Burudat in the body due to excess intake of Baarid (cold) things, sedentary lifestyle, and lack of adequate physical activity. [5] Obese people appear to be healthy but they are always prone to develop the complications as they cannot properly perceive any malfunctioning of the body for their senses of perceiving anything even in their own body becomes very less due to the deposition of fat. The signs and symptoms of diseases are generally silent and hence a sudden attack of epilepsy, paralysis, dyspnoea, diarrhea, coma or certain inflammatory diseases may occur. Excessively accumulated fat and cold temperament renders the person lazy and dull. [7,8,10-11]

**Types:** Jalinoos (Galen) has categorized Siman-e- Mufrit (obesity) into two types:

- 1) The first type of obesity results due to predominance of Burudat (coldness) with the normal Mizaj (temperament) of the body.
- 2) This type is acquired and occurs due to influence of factors which result in excess of Burudat (coldness) such as

use of Baarid regimes, sedentary lifestyle, and lack of physical activity. [5]

**Pathogenesis:** Regarding pathology of Siman-e- Mufrit, mainly two important theories have been propounded in this context. Deposition of fat leads to suppression of Hararat Ghariziyya (innate heat of the body) due to Burudat-e-Mizaj (cold temperament). As a result, Hararat Ghariziyya is not equally distributed in the body. Tangi-e-Urooq (narrowing of blood vessels) is another factor, which hinders the propagation of Ruh (spirit) in the vital organs of the body. In the advanced stage of the disease, these two factors predispose to the early death of obese persons. [8,11,12]

#### **Prevention and Management**

##### **Ilaj- bil- Ghiza (Dieto Therapy):**

Qaleel-ut-Taghzia and Kaseerul Kaimoos diets (less nutritive but high in quantity diets) should be given, less intake of diet is commensurate with Quwwat (power) which should not be affected; strict avoidance of roasted fried meals, curry, and fatty edibles, use of hot water, as well as judicious use of vinegar and other foods processed in vinegar. Faqa (fasting), diets with Har Yabis Mizaj (hot and dry temperament) should be advocated. Hot spices should be added in Ghiza (food) due to Mulattif property e.g. Pyaz, Lehsun, Hasha, Zeera, Filfil Daraz, use of vegetables; small quantity of meal should be taken one time in a day. [4,6-8,13]

##### **Ilaj-bid- Dawa (Pharmacotherapy):**

**Advia Mufrida (Single Unani Drugs):** Commonly used drugs are Lehsun (*Allium sativum*), Luk Maghsul (*Coccus lacca*), Nankhwah (*Ptychotis ajowan*), Soya (*Anethum sowa*), Zeera (*Carum carvi*), Anisoon (*Pimpinella anisum*), Fitrasaliyoon (*Petroselinum crispum*), Badiyan (*Foeniculum vulgare*), Tukhm Karafs (*Apium graveolens*), Marzanjosh (*Oliganum vulgare*), Tukhme Suddab (*Ruta graveolens*), Kalonji (*Nigella sativa*),

Khardal (*Brasica nigra*), Filfil Siyah (*Piper nigrum*), Haleela Siyassh (*Terminala chebula*), Haloon (*Lepidium sativum*), Jawakhar (*Potassium carbonate*), Juntiana (*Jentiana lutea*), Unsul (*Allium cepa*), Na'na (*Mentha arvensis*), Sheetraj Hindi (*Plumbago zeylanicum*), Zarawand Taweel (*Aristolochia longa*), Sandarus (*Trachylobium hornemannianum*), Sirka (Vinegar). [4,7,8,11,14,15]

**Advia Murakkabah (Compound Unani Formulations):** Compound drugs include Arq Zeera, Arq Badiyan, Iyaraj Faiqra, Jawarish Kamoni, Jawarish Falafili, Majoon Baladuri, Majoon Kamooni, Anqarooya, Dawa-ul-Luk, Itrifal Saghir, Dawa-ul-Kurkum, Safoof Mohazzil, Amroosiya, Asnasiya, Habb-Sandarus and other Lateef drugs are useful in the treatment of obesity. Besides these measures, Mulattif, Mudirr-e-Baul and Haar Yabis drugs are useful in its management. [4,7,8, 12-15]

**Ilaj-Bit-Tadbeer (Regimenal Therapy):** Hammam-e-Yabis before meal, Tareeq (increased sweating), regimen for kasrat-e-is'hal (excess purgation), use of Mus'hil (purgative) and Mudir (diuretic) for producing Yaboosat (dryness), increased Tahleel (dissolution) of body fat, Hard work and sleeping on hard bed, vigorous exercise like running, repeated vigorous massage of the body with Haar and Muhallil Roghaniyat such as Roghan Shibbat, Roghan Qust, Roghan Soya, Raghan Yasmin and Roghan Nardin, repeated Hijamah are useful in reduction of fat. [4,7,8,12,13,15,16]

**Mechanism of Action:** Ibn Sina opined that drugs used for obesity and regimens exert their actions on the body through three possible mechanisms:

- 1) Anti-obesity drug act by Tarqeeq-e-Khilt (liquefaction of thick humors) and thus decrease the In'eqaad-e-Khilt (consistency of humors).
- 2) By inducing Idrar, excessive Akhlat are removed from the vessels.

- 3) These drugs increase Hiddat in blood, and Tabiyat dislike these Akhlat, hence not absorbed properly by Quwwat e Jaziba. [8]

Generally, the drugs used in management of obesity are Har Yabis in temperament. They exert as Musakhin, and Mulattif properties on fat resulting in increased Hararat and Yaboosat. It plays a pivotal role in metabolism of fat, and thus decrease in weight is resulted. [7,8,15]

In perspective of modern research based studies, anti-obesity herbal plants prompt reduction in lipid absorption, reduced energy intake, increased energy expenditure, or decreased lipogenesis and increased lipolysis. Some components affect body weight by introducing changes in body-fat metabolism and oxidation, or increasing metabolic rate through activation of lipid metabolism, acceleration of oxidation, inhibition of fatty acid synthesis. Some plants like *Nigella sativa* decrease lipid peroxidation in plasma or liver acquiring a mechanism of anti-obesity effect. [17]

**Scientific Reports:** It is reported that *Lehsun* (*Allium sativum*) exhibits hypolipidemic activity, [18] *Luk* (*Coccus lacca*) is reported for significant effect on hyperlipidemia. [19] *Badiyan* (*Foeniculum vulgare*) significantly decreased the elevated lipid profile. [20] *Zeera* (*Carum carvi*) is quite effective in the management of obesity. [21] *Nankhwah* (*Ptychotis ajowan*) exerts anti-hyperlipidaemic effect; [22] *Tukhm Karafs* (*Apium graveolens*) has shown potent antihyperlipidemic property, [23] In another study, *Tukhm Karafs* (*Apium graveolens*) extract was reported for its blood pressure and lipid lowering effects. [24] *Kalonji* (*Nigella Sativa*) has also been found quite effective in reduction of weight. [17] *Zanjabeel* (*Zingiber officinale*) has been found to have hypolipidemic, [25,26] and hepatoprotective effects. [27] Extract of *Unsul*

(*Allium cepa*) greatly decreased high blood glucose and total cholesterol levels. [28] *Filfil Siyah* (*Piper nigrum*) extracts significantly lowered the body weight, [29] and *Haleela Siyah* (*Terminalia chebula*) was found effective in reduction of total serum cholesterol, and triglyceride. [30] *Javaid et al* in a clinical trial reported that test drug (*Carum carvi*, *Ptychotis ajowan* and *Laccifer lacca* in the ratio of 2:2:1 respectively) was effective in lowering the level of serum total cholesterol, serum LDL, and increases the serum HDL level in patients with hyperlipidemia against atorvastatin. [31] *Jahangir et al* working on *Safoof Muhazzil* reported a significant decrease in total cholesterol, TGs, LDL and VLDL and increased HDL level. [32] Thus, single and compound drugs used in management of obesity in Unani medicine are quite effective as evidenced by above mentioned studies.

### Complications of Obesity

- 1) Breathlessness due to *Imtila* of *urooq wa Tajawif* (congestion of blood vessels and cavities).
- 2) *Ghashi* (Syncope) and *Sakta* due to *Imtila*
- 3) Rupture of any large vessel which has *Raqiq Jirm* (thin vasculature).
- 4) *Khafqaan* (palpitation), *Tap* (Fever), *Qai* (vomiting)
- 5) *Aqr* (sterility): The obese men carry less amount of blood, incriminated as a potential factor for deficient production of semen. Usually Obese women either do not conceive easily, if conceive, generally abort it.
- 6) *Falij* (paralysis)
- 7) *Zarb* (sprue) *wa Is'haal* due to increased *Rutubat* (wetness). [4,7,8,11]

### CONCLUSION

Unani medicine has great potential in the management of obesity and its complications as well. If judiciously employed, may prove boon in form of

alternative source of treatment which is further supported by various clinical and experimental trials conducted for the actions of the single and compound drugs in the recent years. In future more studies are required to be conducted especially to evaluate the effects of compound formulations on obesity. Thus, Unani medicine not only plays a major role in prevention and management of obesity and its complications, but also reduces the economic burden incurred by obesity.

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