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Concept of *Siman Mufrit* (obesity) in Unani system of medicine: A review

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Abstract

Siman Mufrit, also connoted as obesity, has been existent in the human records for more than twenty thousand years affecting various aspects of human life and society. The epidemic of obesity is now being recognized as one of the most potent public health issues facing the world today. Obesity and overweight imply "abnormal or excessive accumulation of fat that may impair health." As per WHO, overweight is a BMI ≥ 25 , and obesity is a BMI ≥ 30 . Obesity is a major risk factor for various and important diseases, notably type 2 diabetes, cardiovascular and respiratory disease, dyslipidemia, degenerative joint disease, stress incontinence and some form of tumors and other various diseases, cardiovascular disease and certain cancers and is thought to contribute to many more. It also inflicts large direct and indirect costs that drain healthcare and social resources. In Unani system of medicine, various modes of treatments for obesity have been extensively described including various single and compound drugs along with *Ilaj bit Tadbeer* which may play a pivotal role in the prevention and management of obesity. In this paper, the authors have discussed every aspect regarding to *Siman Mufrit*.

Keywords: *Siman Mufrit*; Obesity; BMI; *Unani Medicine*

1. Introduction

Siman Mufrit is defined as accumulation of excess fat in the body^[1]. Hippocrates (460 BC), who was the first to realized the complications of *Siman Mufrit* and its association with disease processes. He noted that it may lead to infertility, and even the sudden death^[2-3]. Rufas (98-117AD) further added to Hippocrates and said that it may cause complications like epilepsy, breathlessness, hemiplegia and syncope in their advanced stages, besides infertility and sudden death^[4]. But the work of Galen (119-200 AD) is more important, as he not only distinguished between morbid and non-morbid *Siman Mufrit*, but also gave a conceptual approach to pathogenesis of *Siman Mufrit*^[2]. It may be deduced that as the time elapsed, the insight into the *Siman Mufrit* progressively developed not only in complications, but also in its pathogenesis in *Greco-Roman* period.

In *Arab* period, much emphasis was laid on its management. Although Rabban Tabri (780-850 AD) did not deal with its management, but he has given a general description of weight reducing diets and regimens^[5]. The systemic management of *Siman Mufrit*, first of its kind, is found in writings of Zakariya Razi (865-925AD) where he has detailed various modes of its management including drugs, dieto-therapy, exercises, massage, hydrotherapy, and lifestyle changes^[6].

Later on, physicians such as Ali Ibne Abbas Majoosi^[3, 7], Ibn Sina (980-1037 AD)^[8], and Ismail Jurjani (12th AD)^[9] have mentioned the same therapies, although their writings have put stress on the role of *Hararate-Ghareezia*, which is generally decreased in individuals suffering from *Siman Mufrit*, and thus, fat is easily deposited in the body.

Before that, no physician has highlighted the association of *Siman Mufrit* with cardiovascular and cerebrovascular diseases, as well as respiratory and reproductive ailments, as Ibn-e Nafis did^[10-11]. He has discussed these associations in an elaborated manner, although earlier physicians described these symptoms, but that was a simple, very brief, and indicative illustration. Since then, no new and innovative insight has been added to *Siman Mufrit* in terms of pathogenesis comprehension, prevention, and management.

Fat is nothing, but *Shaham*, and concept of *Shaham* (fat) is present in Unani medicine since *Greco-Arab* time; *Shaham* in normal values plays vital role in maintenance of *Hararat* (energy) in the body, and results from mature blood and is responsible for nutrition of *Aza* (organ)^[12]. Moreover, *Shaham* is an end product of food (*Nuzj Fazila*) produced after digestion,

and in turn this *Shaham* goes to different organs of the body and provide nutrition [1, 12]. *Shaham* has tendency to be deposited into those organs which possess *Barid Mizaj* due to similarity in their temperament, and most of the fat deposition takes place at *Surb* (omentum) [3, 1, 13].

Pathology

According to Unani principles, blood is the mixture of four *Akhlat* (humours) [14]; *Dam* (blood), *Balgham* (phlegm), *Safra* (yellow bile), and *Sauda* (black bile) [15] derived from food after going through digestive processes. The equilibrium of these humours in their appropriate proportions maintains health state of whole body and vice versa [16]. *Akhlat* are mainly produced in stomach, liver, vessels and organs as a digestive process of ingested foods. Nature of food composition establishes conversion of digested products into respective humours, which accomplish nutritive aspects of blood, and also of human body. Incomplete digestion of ingested food or their retention leads to formation of morbid *Akhlat*, which may cause disease process in the body [16].

In all four humours, *Balgham* is *Barid Ratab* (cold and wet) by temperament [17] and it applies to all matters possessing *Barid Ratab Mizaj*, or has functions similar to *Balgham* such as *Shaham*. Pathologically, excess accumulation of *Barid Ratab Madda* (*Balgham & Shaham*) in individuals having *Barid Mizaj* (generally obese persons), are more prone to develop *Siman Mufrit* [17, 18]. *Siman Mufrit* is a *Balghami* disease [19] characterized by loss of movements of *Aza* due to deposition of *Shaham* in particular organs or in whole body [1]. Moreover, in normal conditions, *Balgham* mixed with blood maintains the blood viscosity [15]. Conversely, the increased level of abnormal *Balgham* in blood circulation renders the blood viscous and thick resulting in disastrous consequences of *Siman Mufrit*.

Pathogenesis

In *Siman Mufrit*, *Hararat-e Ghareezia* is severely compromised due to increased *Buroodat* (coldness), and in turn causes vasoconstriction that may result in early death in individuals with this infirmity. Moreover, decreased *Hararat-e Ghareezia* in itself promotes narrowing of vessels and contributes to obstructed propagation of *Ruh* in the body, and thus may predispose to the death in advanced stage of disease [3]. Besides this, *Imtilai Kaifiyat* (congestion in blood vessels) is produced in consequence of increased level of *Shaham* and abnormal *Balgham* accumulation in *Siman Mufrit*. Hence, rupture of blood vessels may occur anywhere in body; although vessels of heart and brain are more vulnerable to it. As a result, patient has present symptoms of severe breathlessness, and palpitation [3, 20-21].

Ibn-e Nafis states that morbid matters hinder absorption of *Akhlat* resulting in narrow and hard blood vessels, which may be either *Laham* or *Shaham*; these matters produce disturbance in flow and penetration of *Ruh* into the organs. When *Ruh* fails to accomplish the body requirement, tissues turn hard and blood flow is not adequately maintained to heart and brain, and thus, patient suffers from syncope, stroke, and even sudden death in some cases [10, 20]. It is evident that excess deposition of *Shaham* in any individual is not a good sign for health, and it causes *Siman Mufrit*, about which physicians have warned since ancient time [12, 17].

Causes

Alcohol [4, 22, 23], sleeping on soft bed [5], music [5], Martoob Ghiza (fatty diet like meat, sweet dishes etc) [7], Martoob Roghinyat (fatty oils) [7], Genetic predisposition [8, 23], oily &

fatty diets [5, 22, 24], excessive eating habit [24], sedentary lifestyle [5, 24], lack of exercise [5, 23, 24], excess sleep, excess rest, decreased body movements [5, 24].

Signs and Symptoms

The usual signs and symptoms of *Siman Mufrit* are lethargy [1], Sue Tanaffus [8], Is'haal (diarrhoea) [9], Khafqan (Palpitation) [9, 18, 23], Zeeq un Nafs [8, 23], Usre Tanaffus (breathlessness) [3, 9, 18, 21], Zoof' bah (Loss of libido) [8, 9, 23] and Tahabbuj (Puffiness of face) [24].

Complication

Patient may have complications of concealed hemorrhage [8, 9, 21, 22], Tangie urooq (narrowing of vessels) [21], Gashi (syncope) [8, 9, 21], Faliq [8, 9, 21], Sakta (stroke) [8, 9, 21], hepatomegaly [23], loss of libido [8, 18, 21], Uqr (infertility) [8, 18, 21], and even sudden death [8, 9, 18, 21].

Usoole Ilaj (Line of treatment)

According to Zakaria Razi and Ibn Sina, *Siman Mufrit* should be treated based on the following principles:

1. Drugs having opposite temperament i.e. hot and dry temperament should be used in correction of *Su-e-Mizaj Barid Ratab* (cold & wet).
2. Elimination of existing causes.
3. In case of abnormal *Khilt Balgham* in the body, *Munaffis Balgham* (expectorant), *Mus'hil Blagham* (purgatives), *Mudir* (diuretics), *Muarriq* (diaphoretics) and *Mujaffif* (desiccant) drugs should be administered.
4. To reduce increased fat, fibrous foods with least nutritional values should be used, as these foods occupy the space of stomach and patient feels fullness in the stomach, and thus appetite is compromised [8, 22].

Ilaj (Treatment)

The management can be categorized into three parts:

Ilaj bit Tadbeer (Regimenal therapy)

Hammam Yabis (dry bath) before meal, *Tareeq* (increased sweating), excess purgation, use of *Mus'hilat* (purgatives) and *Mudirrat* (diuretics) for inducing *Yuboosat* (dryness), and increased *Tahleel* (dissolution) of accumulated fat are effective in reduction of body fat. Hard work and sleeping on hard bed, vigorous exercise such as fast running, vigorous massage of the body with *Haar* and *Muhallil Roghan* such as *Roghan Shibbat*, *Roghan Qust*, *Roghan Soya*, *Raghan Yasmin* and *Roghan Nardin*, and *Hijamah* (cupping) are equally useful in treatment of *Siman Mufrit* [4, 6, 8, 22].

Ilaj- bil- Ghiza (Dieto Therapy)

Diets of less nutritive but high in quantity diets (*Qaleel-ut-Taghzia* but *Kaseerul Kaimoos* diets) should be advised, as decreased consumption casts less burden on *Quwwat* (power) of digestion; rigid avoidance of fatty, roasted and fried edibles, hot water, and judicious use of vinegar, fasting, diets having *Har Yabis Mizaj* (hot and dry temperament) should be given. Hot spices such as onion, alium, mint, carum carvi, and piper longum should be added in diets as their *Mulattif* property help metabolize the accumulated body fat. Beside these measures, small quantity of meal should be taken at one point of time in a day [4, 5, 8, 22].

Ilaj bid Dawa (pharmacotherapy)

Single drugs exerting actions of *Mufattit* (deobstruent), *Musakhkhin*, *Mudir* (diuretic), *Mulattif* (demulcent), *Muhallil* (resolvent), *Muqawwi Qalb-wa-Kabid* (cardiotonic & hepatotonic), *Daf Shahmeen* drugs such as *Marzanjosh*,

Zanjabeel, Kalonji, Rewand Chini, Asaroon, Qust, Sumbul-ut-Teab, Mastagi, Tukhm-e-Karafs Luk, Anisoon, Nankhwah, Izkhair etc are effective in treatment of *Siman Mufrit* [8]. Clinical and experimental trials conducted on these drugs have reported significant effects which may be exerted by their hepatoprotective, hypolipidemic, anti-inflammatory, diuretic and antioxidant nature of actions.

Ibn-e Sina suggested that the drugs and regimens used for obesity manifest their actions on the body fat through three possible ways:

- 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* (diuresis), 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].

As the principle of *Unani System of Medicine*, the drugs used to treat the obesity should have *Har Yabis* temperament as the obese person generally have *barid Ratab Mizaj*; exert *Musakhin*, and *Mulattif* actions on fat which result in increased *Hararat* and *Yaboosat* in the body. It plays a key role in metabolism of *Shaham*, and thus reduction in weight is resulted [6, 8, 22].

In perspective of modern research based studies, anti-obesity herbal plants prompt reduction in lipid absorption, reduced energy intake, increased energy expenditure, 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 [25].

Scientific Reports: Various clinical studies suggested that *Luk* has significant effect to reduce the lipid level in the blood [26]. Siddiqui SA reported that *Luk* was found to have anti-inflammatory and diuretic effects [27]. In many studies, *Reward Chini* found to have anti-inflammatory and hepatoprotective actions [28-29] which may help to improve the metabolism of lipids in liver. *Sumbul-ut-Teab* also has lipid lowering property as concluded by Shadke AS [30]. Some studies showed that *Mastagi* has anti-dyslipidaemic [31], anti-atherogenic [32], hepatoprotective [33] properties by different scholars. *Tukhm-e-Karafs* was found effective in lowering the increased levels of lipids [34]. Similarly, *Nankhwah* has anti-hyperlipidaemic effect reported by Javed *et al* [35]. Akhtar MS *et al* reported that Methanolic Extract of *Qust* has cardio tonic activity [36]. Various studies on *Zanjabeel* show that it has hypolipidemic [31, 37-38], and hepatoprotective actions [39]. *Anisoon* and *Izkhair* are known for antioxidant activity reported by Kucukkurt I *et al* [40] and Prasad C *et al* respectively [41]. *Badiyan* has significant effect in reduction of body weight and elevated level of lipid profile [42]. *Kalonji* has also been found quite effective in reduction of weight [43]. *Haleela Siyah* was found effective in reduction of total serum cholesterol, and triglyceride level in the blood [44]. Study on *Safoof Mohazzil* was found effective in the reduction of body weight reported by Pooja *et al* [45]. Thus, the herbal drugs used in management of obesity are found to be effective to a greater extent as evidenced by above mentioned studies.

Conclusion

In *Unani system of medicine*, there are many drugs which have potential effects in the management of obesity and its

consequences. If these drugs are given in a correct manner, may prove boon in the form of alternative source of treatment which is further strengthened by various clinical and experimental trials conducted in the recent years. In future, more studies are needed to see the effects of herbal drugs on obesity. Thus, *Unani medicine* may play a major role not only in prevention and management of the obesity and its complications but also in decreasing the economic burden incurred on the society.

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