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Review Article

DYSLIPIDAEMIA: A CORRELATIONAL APPROACH WITH SIMAN MUFRIT IN UNANI MEDICINE

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ABSTRACT

Dyslipidaemia is a leading metabolic disorder characterized by an incongruity in the blood lipid levels, which may both go too low or too high affecting the overall health status of an individual. It can be asymptomatic in the early stage and its progression may lead to the hardening of arteries; if left untreated, it may result in development of cardio-vascular (MI), cerebro-vascular (stroke), and peripheral vascular diseases in the last decade of life. Dyslipidaemia has become a global call for cardiovascular diseases, mainly when it is associated with risk factors like obesity. The major killer in obesity is atherosclerotic cardiovascular disease, as dyslipidaemia in terms of several deleterious plasma lipid and lipoproteins abnormalities occur in obesity. Concept of Dusumat-e-Dam (presence of fatty substances in blood circulation), mentioned in Unani literature, attains immense importance in view of dyslipidaemia, as Dusumat-e-Dam (lipidemia), Siman Mufrit (obesity), and Shaham (fat), are inter-related with each other. Based on risk factors, etiology, pathogenesis, prevention, management, and complications, dyslipidaemia strongly simulates with Siman Mufrit. In this paper, authors have tried to present a correrational discourse of dyslipidaemia with Siman Mufrit as per Unani literature.

Keywords: Dyslipidaemia; Dusumat-e-Dam; Siman Mufrit; Obesity.

INTRODUCTION

Dyslipidaemia is characterized by increased triglycerides level, decreased high-density lipoprotein (HDL-C) cholesterol level, and a high proportion of small, dense low-density lipoprotein (LDL) particles in the blood circulation[1]. It may be of primary or secondary types[2]. Primary dyslipidaemia denotes a genetic defect in lipid metabolism, whereas secondary one results due to a variety of causes such as environmental factors (diet rich in saturated fat, sedentary habits), diseases (type 2 diabetes, hypothyroidism etc.), and medications (thiazide diuretics etc)[3]. Prevalence of dyslipidaemia is high in most developed countries, whereas in developing countries, its prevalence is on the surge due to lifestyle changes[4]. As per WHO estimates, dyslipidaemia is associated with more than half of global cases of ischaemic heart diseases and more than 4 million deaths occur every year[5]. Increased incidence of dyslipidaemia has incurred huge burden on the society in terms of high morbidity, mortality, and medical costs[5]. In India, there has been a tremendous increase in the prevalence of cardiovascular diseases over past two decades, accounting for 24% of all deaths in adults between the ages of 25–69 years[6]. Among various risk factors, obesity is also one of them, as there is a well established association between dyslipidaemia and obesity[7].

There is as such no description of dyslipidaemia in Unani literature, as it comes under those diseases which have not yet been compiled in Unani medicine. Although, the concepts of Dusumat-e-dam (lipidaemia) and Siman Mufrit exist in Unani literature, and both these two entities have been considered as an upshot of each other by renowned Unani physicians.

BRIEF DESCRIPTION OF LIPIDS/ SHAHAM

Cholesterol and triglycerides both constitute types of lipid[8]. Cholesterol is an essential component in composition of hormones in the body and cell membrane, and plays pivotal role in the synthesis of steroid hormones, vitamin D and bile acids[9]. Triglycerides are composed of fatty acids, which are esterified to glycerol, stored in adipose tissues and serve as energy reservoir for the body[9,10].

According to Unani basic principles, Shaham is an end product (Nuzj Fazila) produced after digestion, and in turn provides nutrition to different organs of the body[11]. Ibn Nafis writes that Dusumat (fatty substance) in blood is of two types: Lateef and Kaseef. Lateef (lighter) portion of Dusumat is rendered into Ghiza (nutrition) and produces Tabai Hararat (energy) into Lahmi Aza (muscular organs), whereas Kaseef (heavier) part penetrates Barid Aaza (cold organs) or Aghshia (membranes) and is solidified as Shaham in presence of Buroodat (coldness) in organs of cold temperament[12]. Shaham is produced from the mature blood and is responsible for nutrition of Aza[13], which may be simulated with triglycerides in modern biochemistry.

It is also mentioned that individuals having Barid Ratab Mizaj (cold and wet temperament) are more prone to develop Siman Mufrit[14]. Hence, it is inferred that Siman Mufrit occurs due to deposition of Barid Ratab (cold and wet) matter[15], especially Shaham in the body falling under the category of Amraz-e-Balghamiya (phlegmatic disorders) due to its temperamental coherence[16]. Moreover, people suffering from Siman Mufrit are more likely to develop complications like Tangi urooq (arteriosclerosis), Sakta (stroke), and finally sudden death in advanced stage[12].

Arteriosclerosis due to Siman Mufrit is nothing but a resultant aspect of arteriosclerotic (Tangi-e-Uruq) process which is predisposed by excess deposition of lipids (Shaham) in blood vessels, which may manifest as MI, cerebro-vascular accident (Sakta), and finally sudden death[17]. Thus, it may be deduced that dyslipidaemia strongly simulate with Siman Mufrit as described in Unani medicine.

BASED ON PATHO-PHYSIOLOGICAL CHANGES

As per Unani medicine, blood is a mixture of four humours: Dam (blood), Balgham (phlegm), Safra (yellow bile), and Sauda (black bile)[18], and lipid is also an important constituent of circulating blood in modern biochemistry. This concept is further corroborated with the description of Dusumat-e-Dam (lipidemia) given by Ibn Rushd[13].

Beside this, Akhlat are mainly produced in stomach, liver, and vessels as a continued digestive process, and based on nature of food composition, get converted into respective humours. In a broader sense, Akhlat are not merely four separate entities, rather include the bio-chemical classes constituting carbohydrate, protein, lipid, organic acids, and their intermediates which accomplish nutritive aspects of human body. Incomplete breakdown of these molecules, their aggregation, and precipitation leads to production of abnormal humours, and thus, disease process is ensued[19].

On critical analysis, it infers that the theory of four humours is nothing but the chemical classification of end products of digestion, which have been converted into specific molecules such as carbohydrates, proteins, lipids, and organic acids. Moreover, Balgham (phlegm) is homologous to macromolecules of peptides and protein[19], which preferably predominates in individuals having Barid Ratab Mizaj (generally obese individual)[14]. Excess levels of Barid Ratab Madda (cold & wet matter; Shaham) in blood circulation leads to a diseased condition known as Siman Mufrit[15], which may be corroborated with the presence of abnormal lipid (fat) levels in blood, especially in obese individuals, leading to dyslipidaemia. Jalinoos (Galen) opined that normal Balgham (phlegm) flows with blood, and also serves as precursor of the blood; when need arises, it is converted into blood[16,18].

Physiologically, lipid also flows in the blood circulation needed for all the organs of the body; hence, it may be propounded that Balgham is similar to lipid in context of its functions as well.

After entering into blood circulation, Balgham corrects Qiwam (viscosity) of blood[18], is normally stored in various part of the body, get metabolized and provides nutrition to the body in the same way as lipids are stored in adipose tissue; get metabolized and supply energy to the body as described in conventional medicine. Ibn Nafees mentioned in his book "Kulliyat Nafisi" that Balgham serves the purpose of nutrition to the body[20].

Normally, the vessels remain dilated in order to properly maintain adequate and constant supply of energy to the organs[21]. In Siman Mufrit, Hararat Ghareezia (inherent heat) is enormously compromised due to excess Buroodat (coldness) and narrowing of vessels, and leads to early death in morbidly obese individuals. Debility of Hararat Ghareezia in itself is a potent risk factor for narrowing of vessels (constriction) and substantially hinders propagation of Ruh (oxygen) into the organs[22]. Thus, Siman Mufrit, Dusumat-e-Dam and Shaham mentioned in Unani literature simulate with lipid, and the pathologic process of dyslipidaemia.

Moreover, excess deposition of Shaham and abnormal Balgham in obese people causes "Imtilai Kaifiyat" (hyperemic state) in vessels, vasoconstriction, and finally decreased Hararat Ghareezia. Rupture of vessels (haemorrhage) and reduction in Hararat Ghareezia may occur anywhere in body, but vessels of heart and brain are more vulnerable to it. Consequently, patient may have symptoms of severe breathlessness, palpitation, and even sudden death in severe cases[22,23,24].

It is evident that Siman Mufrit causes narrowing of vessels and due to which, supply of Nasim (oxygen) is decreased to the body tissues. Hararat Ghareezia is decreased due to excess Burudat, and if completely lost, may cause death[12,23,24]. Thus, narrowing of blood vessels (arteriosclerosis) is implicated in pathogenesis of Sakta (stroke), Jiryan-ud-Dam (hemorrhage), and sudden death. All the above manifestations, when analyzed in modern pathology, develop merely due to atherosclerosis which is again implicated in causation of coronary artery disease, cerebro-vascular diseases, and peripheral vascular diseases, and even death.

BASED ON RISK FACTORS

On analyzing risk factors involved in Siman Mufrit, it is predisposed by approximately the same factors that play a pivotal role in causation of dyslipidaemia:

Dyslipidaemia	**Siman Mufrit**
Genetic predisposition[25,26,27,28]	Genetic predisposition[29,30]
Fatty Diet[25,17,28]	Fatty Diet[21,31,32]
Alcohol[28,33]	Alcohol[21,30]
Sedentary Lifestyle[25,26,28,33]	Sedentary Lifestyle[31,32]
Advancing Age[25,26,27,33]	

BASED ON SIGNS AND SYMPTOMS

In most cases, dyslipidaemia may go unnoticed or may manifest with life-threatening complications. The onset of symptoms is vital for timely diagnosis to manage and prevent life-threatening consequences[25]. Dyslipidaemia may manifest as xanthomas[26,27,34,35], xanthelasma[27], corneal arcus[25,27,33,34,36], corneal opacification[25], lipaemia retinalis[34,37], acute pancreatitis[27,34,37,38], dysponea[34], and hepatosplenomegaly[37].

Clinical presentation of dyslipidaemia is not described as such in Unani texts, but some points strongly resemble with those of Siman Mufrit such as Usr-e-Tanaffus (breathlessness) [15,22,24,39], Zeeq un Nafs[29,30], Khafqan (palpitation)[15,30], Is'haal (diarrhoea)[39], Tahabbuj (puffiness of face)[32], Sue Tanaffus (tachypnoea)[29], and Zoaf-e-Bah (Loss of libido) [29,30,39].

BASED ON COMPLICATIONS

Unani physicians have laid much emphasis on the consequences of Siman Mufrit which are very similar to those of dyslipidaemia.

Dyslipidaemia	**Siman Mufrit**
Atherosclerosis[27,28]	Tangi-e-Urooq (narrowing of vessels)[24]
Stroke[28,34]	Sakta (stroke)[39,29,24] Falij[39,29,24]
Syncope[27]	Gashi (syncope)[39,29,24]
IHD[28]	Concealed hemorrhage[39,29,21,24]
Erectile dysfunction[25,35]	Loss of libido, Uqr (infertility)[15,29,24]
Hepatosplenomegaly[37]	Hepatomegaly[30] CHD[27] CAD[34]
May lead to death[8]	Sudden death[39,15,29,24]

Thus, it is apparent that the description of Dusumat-e-dam as well as clinical features and complications of Siman Mufrit give an insight into the concept of lipidemia, atherosclerosis and resulted complications.

BASED ON MANAGEMENT

The principle of dyslipidaemia management constitutes dietary modification, exercise, and drug therapy either alone or in combination. Reduction of body weight and risk factor modification can be achieved by non-pharmacological therapy, such as decreased daily calorie intake, increased physical activity; but in certain conditions, pharmacological management of dyslipidaemia becomes inevitable[31,26].

Lifestyle modification and low fat fibrous and balanced diet are initial steps to stabilize lipid levels[9,40]. Regular exercises help in lowering the lipids level[38] and body weight, considered as a potent risk factor for dyslipidaemia, so the target should be reduction of body weight[2].

At present, available allopathic hypolipidemic drugs are moderately effective but associated with unacceptable and life-threatening adverse effects. Consequently, these agents could not be used for a prolonged period, whereas dyslipidaemia requires long term treatment. Similar line of management is described in Unani treatises under the caption of Siman Mufrit which can be adopted for longer duration without any significant side effects. The treatment modalities may be categorized into three parts:

Ilaj bit Tadbeer (Regimenal therapy)

- Riyazat (exercise)[21,29,39]
- Fast running[21,29]
- Sun bath[41]
- Sleeping on hard bed[42]
- Bathing before meal[42,43]

Ilaj bil Ghiza (Dieto-therapy)

- Drink hot water[21,39]
- Qaleel Taghziya (low calorie) diets like vegetables[21]
- Lateef Ghiza (light foods) like as onion, vinegar[21]
- Single meal in a day[44,41]
- Avoid meat, milk, and alcohol[41]

Ilaj bid Dawa (pharmacotherapy)

Drugs having Muhallil (resolvent), Mulattif (demulcent), Mudir (diuretic), Mufattit (deobstruent), Muqawwi-i Qalb-wa-Kabid (cardiotonic & hepatotonic) drugs like Luk (*Coccus lacca*), Mastagi (*Pistacia lentiscus*), Sumbul-ut-Teeb (*Valirians jatamansi*), Nankhwah (*Carum capticum*), Qust (*Saussurea lappa*), Zanjabeel (Zingiber officinalis), Kalonji (*Nigella sativa*), Thukhm Karafs (*Apium graveolans*) etc are effective in management of Siman Mufrit[29]. Studies conducted on these drugs have shown potential effects in correcting dyslipidaemia due to hypolipidemic, hepatoprotective, and antioxidant properties[45-53].

CONCLUSION

Based on etiology, pathogenesis, clinical presentation, complication, prevention and treatment measures, it infers that dyslipidaemia simulates with Siman Mufrit to a greater extent. Thus, treatment modalities for Siman Mufrit mentioned in Unani medicine may prove beneficial in management of dyslipidaemia.

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