A Review of Ancient and Modern Concepts of Hyperlipidemia/Fart shahm fi al-dam

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Abstract: Ancient Yunani physicians were aware of dasam and shahm (fat) of the blood. They described the condition of fart shahm fi al-dam which is what we call now hyperlipidemia. They also described al-simna al-mufrita (excess of fat in the body) or what we call now obesity. They considered these two conditions a single disease. While we now know that they are different conditions, it is true that obese individuals frequently suffer from hyperlipidemia.

Key words: Hyperlipidemia, obesity, Yunani medicine, al-simna al-mufrita, fart shahm fi al-dam

Introduction
Medical science is as old as mankind. Every civilization on the earth had its unique system of medicine. Classical medicine included Babli Tibb (Babylonian medicine), Miṣrī Tibb (Egyptian medicine), Hindi Tibb (Ayurvedic medicine), Sinī Tibb (Chinese medicine) and Yunani Tibb (Greek medicine). Yunani Tibb is a system of medicine that originated in Greece about 2,500 years ago and was adopted and developed by Muslims and others living in the areas of Syria, Iraq, Iran, Central Asia and India.1 The Yunani (Greco-Islamic) system of medicine is a rich storehouse of remedies, principles and philosophies, which if practiced properly, can prove to be of immense value to science in general and medicine in particular. The theories, philosophies and therapies of this system are most appropriate to the human biologic system. Their remarkable results in day-to-day health problems as well as in complicated conditions have created implicit faith in the minds of people towards this system.

The concept of tābiyāt and mizāj are unique. The term tābiyāt is derived from the Arabic word tābi'a. It is also known as al-ṭabi‘a al-mudabbira lil-badan. Tābiyāt is a natural power, a prime mover, which, when it exists in a body, becomes the direct (proximate) cause for its active motion or rest.2 Mizāj (temperament) is the homeostasis in the internal environment of the body. It is specific for each individual, fluctuating between certain minimum and maximum limits.

In physiological conditions, tābiyāt maintains homeostasis in the internal environment of the body (mizāj). In case of disease or simply the body's failure to reach its ideal state, tābiyāt acts to correct imbalances and non-ideal states.3

Man is subjected to various dangerous ailments in present time. Among these challenging diseases, fart shahm fi al-dam (literally "excessive fat in the blood") or hyperlipidemia is a major public health problem disproportionately affecting the affluent classes of society throughout the world. It accounts for millions of visits to doctors per year.

Hyperlipidemia is a pathological condition and the term is applied when the plasma cholesterol or triglyceride levels are increased above the normal levels.4-6 It is characterized by an excess of fatty sub-

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stances such as cholesterol, triglycerides and lipoproteins in the blood and is an important risk factor in the development of atherosclerosis. Lipoproteins include very low-density lipoproteins (VLDL), low-density lipoprotein (LDL), and intermediate-density lipoproteins (IDL). Chylomicrons are also considered as lipoproteins, and are composed of triglycerides, cholesterol and protein. High-density lipoprotein (HDL), or "good cholesterol", level is inversely related to the risk of coronary artery disease, as it is protective against the development of atherosclerosis. Hyperlipidemia is mainly of two types:

Primary: This may be caused by genetic factors and includes familial hypercholesterolemia, familial lipoprotein lipase deficiency, hepatic lipase deficiency and familial apoprotein C-II deficiency.

Secondary: This can be due to some other cause like diabetes mellitus, hypothyroidism, renal and liver diseases.

More than half of the coronary artery disease is attributed to the abnormalities in the metabolism of plasma lipids and lipoproteins. Sedentary life style, high fat intake (greater that 40% of total calories, saturated fat intake greater than 10% of total calories, and/or cholesterol intake greater than 300 milligram per day), habitual excessive alcohol use and cigarette smoking are also associated with increased risk for atherosclerosis.

Defect in lipid metabolism causes hypercholesterolemia. LDL is the mediator of cholesterol and is the mediator of cholesterol and triglycerides, cholesterol and protein. High-density lipoprotein (HDL), or "good cholesterol", level is inversely related to the risk of coronary artery disease, as it is protective against the development of atherosclerosis. There is no direct reference to this disorder in the classical Yūnānī literature per se, but since hyperlipidemia is almost always associated with obesity, the term al-simna al-mufrita (obesity) can be said to encompass this disorder as used in these classical books.2-3,4 If we trace back the genesis of this problem, one will realize that the ancient Yūnānī scholars were well acquainted with the basic concept of this disorder. The ancient Yūnānī physicians like Būqrat (Hippocrates, 460-377 B.C) and Ibn Sīna (980-1038 CE) have described al-simna al-mufrita (obesity) in their magnum opus.7-9 They mentioned dasam (fat) of blood in their books. According to Abū Sahal al-Masīḥī, fat is ‘udw mufrad (tissue) or ‘udw e-basīt (simple organ), and omentum or tharb, the fat that supports the outer surface of the intestine, is soft organ. He described fat’s two types. One is soft (liq­uid) and has less propensity to solidity. For example, fat which is bound to muscles (‘aḍalāt) is called samm. The second type is solid or munjamīd fat, which he called shaḥīm, which adheres to the kidneys (adipose tissue). According to al-Masīḥī, fat (shaḥīm and samm) are formed by the blood. The lubricant property of blood is due to the dasam. He also said that fat (shaḥīm and samm) has less ghidḥā’iyāt (nutrients). Balgham (phlegm) and other faḍulat (wastes) are formed by shaḥīm and samm.10

According to Ibn Rushd, fat is a source of ḥarānat (energy) in the body of human beings. He said fat (shaḥīm) is produced by blood and its average quantity in human beings is a sign of health and its decreased level indicates ‘adam-e pukhtīgī-e dam (undeveloped blood) and reduction of ghidḥā’ (diet) for a’dā’ (organs). He said excess of fat is not good for health.11

Ibn Sīna also said, “Shaḥīm and samm are formed by the mā‘īyyāt (water) and dasam (fat) of al-dam.” According to Nafis ibn Iwāz Kirmānī (d. 1448 CE), dasam-e latīf of al-dam (good fat of blood) changes into ghidḥā’ and maintains harānat al-tabī‘a of laḥm-e-a’ḏā’ (the natural heat of the muscular organs). On the other hand dasam fi al-dam (blood cholesterol), which comes with blood circulation to bārid a’ḏā’ or al-aghshiya (membranes), solidifies by the barīda (cold) and is known as shaḥīm (fat). He also wrote that due to its lubricant property it makes these organs soft and mushy.12 From the above descrip-
tion, it is clear that ancient Yūnānī physicians were aware of dasam (shaḥm, fat) of blood. This dasam or shaḥm of blood has now been called lipids (cholesterol and triglycerides).

In the humoral theory, Būqrāt has said that health is maintained by homeostasis of al-dam (blood), bālghām (phlegm), ṣafrah (bile) and sawdā’ (black bile). Imbalance of homeostasis leads to disease. Since dasam is present in blood in a certain proportion required for the maintenance of health, increased level of shaḥm and samn in the blood is sū‘-al-mizāj māddi (abnormal temperament due to change in matter), which manifests itself with many symptoms. In the modern conception, this dasam is called lipids of plasma (cholesterol and triglycerides), the increased level of which leads to hyperlipidemia. So we can say that fart shaḥm fi al-dam is a marad khīlti (humoral disease) and we are justified in calling this increase of dasam (cholesterol and triglycerides) in blood as fart shaḥm fi al-dam or hyperlipidemia.

In classical Yūnānī literature, a disease similar in various aspects such as etiology, clinical features and complications to fart shaḥm fi al-dam has been mentioned, namely al-simna al-mufrita (obesity). Despite the fact that hyperlipidemia and obesity are two different diseases, many times obese people do suffer from hyperlipidemia. The causes, signs, symptoms and complications of these two diseases are very similar. This might be the reason that our ancient Yūnānī physicians considered these two conditions as a single disease. Also, at that time there was a lack of laboratory facilities and means of evaluation of lipids in blood, so our Yūnānī physicians may have considered obesity and hyperlipidemia as one disease. Thus, they described al-simna al-mufrita as a whole (excess of fat in whole body) and could not specify the excess of fat in blood. Fart shaḥm fi al-dam is one of the complications of al-simna al-mufrita (obesity) and al-simna al-mufrita (obesity) can be said to include this disorder as used in classical books.

References

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