



effects of LDL. HDL is good for health as it carries excess cholesterol back to the liver for excretion. The liver then eliminates cholesterol through bile. LDL that remains in the bloodstream damages health, because it allows excess cholesterol to build up in the blood. Triglycerides are another type of fat in the blood. They are not a type of cholesterol but have a strong association with heart disease.<sup>6</sup>

In Unani system of medicine, renowned Unani scholar Abu Sahal Maseehi had given the concept of *dosomat-e-khoon* (oily substance in blood) <sup>7</sup>The Hippocrates, Razes, and Avicenna described the obesity (*Saman-e-mufrit*), which is due to the excessive phlegm (*Khilt-e-Balgham*) <sup>8,9</sup>

A person can develop hyperlipidemia if they have one or a combination of the following:<sup>10,12,15,16</sup>

- high LDL levels
- high HDL levels
- elevated levels of triglycerides
- The following table highlights the ideal cholesterol levels

Overall cholesterol	Under 200 milli grams per deciliter (mg/dl)
HDL cholesterol	Men: More than 40 mg/dl Women: More than 50 mg/dl
LDL cholesterol	Otherwise healthy people: Less than 100 mg/dl  People with heart disease or diabetes or poorly controlled risk factors: Less than 70 mg/dl
Triglycerides	Less than 150 mg/dl

#### ETIOLOGY:<sup>13, 17, 18</sup>

- Hyperlipidemia can be caused by some genetic abnormalities but it can also happen due to some other disorders that change the lipid metabolism of the body. One other main cause of hyperlipidemia is eating foods which contain high quantities of saturated fats, trans-fats and cholesterol. These fatty and oily foods can cause an increase in the levels of lipids inside the body resulting into hyperlipidemia.
  - Most of the causes of obesity (*Saman-e-Mufrit*) described by ancient Unani physicians are very similar to the causes of hyperlipidemia (*Farte-e-Tadassum-Fid-Dam*)
1. Hereditary (*Virasat, Khilq*): The obesity which is present in a family (genetic origin) is called hereditary obesity or primary obesity.

2. Exercise (*Riyazat*) & life style: lack of exercise and sedentary lifestyle.
3. Diet (*Ghiza*): Use of excessive amount of carbohydrate, fat, and other dietary substances that produce excessive amount of *Khilt-e-Balgham* in body.

#### PHYSIOLOGY OF LIPIDS:<sup>18, 19, 20, 22</sup>

Unani scholars were familiar about the presence of fat (*shaham*) in blood, so they have mentioned elaborately regarding obesity. "Fat (*shaham* and *sameen*) is a white and very soft entity which is most of the times found along or around fascia and nervous tissues. Temperament of fat is cold". *Ibne Rushd* says that "fat (*shaham*) is the metabolic waste product (*fuzla*) of mature blood (*nuzuzyafta dam*) from which different organs of body obtains their nutrition. Average quantity of fat (*shaham*) is a sign of health and low level indicates immaturity of blood (*Adam pukhtagi of dam*) or the person is undernourished and excess of fat is not good for health. *Sheikh Ibn-e-Sina* (980-1030AD) in "Al Qanoon fit- Tib" has described "Fat is formed from wateriness and greasiness of the blood and cold coagulates it. This is why heat dissolves it" *Allama Kabeeruddin* in his book "Ifaada-e-Kabeer Mufassal" has quoted *Abu Sahal Maseehi* about the production of fat in the body he says that: 'Factor responsible for the production of fat in the body is coldness and this is the reason why fat is not found or found negligible in and around hot entities.

#### CLASSIFICATION OF FAT (SHAHAM):<sup>21</sup>

According to *Abu Sahal Maseehi* (970-1010AD) fat is of two types:

1. *Sameen*: It is soft, semisolid and has less property to solidify.
2. *Shaham*: It is hard and is found in the body adherent to kidneys.

"Both *shaham* and *sameen* are formed by that blood which has the property of 'Dasoomat' (meaning oily substance)

#### Pathophysiology of Fart-e-Tadassum fid-Dam in Unani<sup>17, 18, 23</sup>

It is described in the context of obesity. People with the symptoms of *Saman-e-Mufrit* are more prone to diseases as their *Hararat Ghareezia* becomes very weak due to *Baroodate Mizaj* and constriction of vessels (*Tangi Urooq*). These two factors cause early death of obese persons. Due to the vaso constriction, *Hararat Ghareezia* becomes weak and slow and weakness of *Hararat Ghareezia* causes itself vaso constriction. These are dependent to each other in a positive feedback system and both these factors finally leads to decrease in the passage of *Rooh* to the organs and finally death occur. [2, 10] In normal physiology, vessels are dilated

and their dilatation is essential for the supply of Ghiza (nutrition) and Rooh (oxygen supply) to Aaza. In obesity, excessive accumulation of Shaham (fat) in body and Balgham in blood causes "Imtilai Kaifiyat" (increase in vasopressor) which causes loss of vasodilatation of vessels and finally decreases the Hararat Ghareezia.<sup>23</sup>

#### Clinical Features:<sup>8,23</sup>

- First time Hippocrates describe the clinical features & complications in these words "when a person becomes extreme obese, Imtilai-dam may lead to sudden death because of hemorrhage (due to rupture of vessels) or due to loss of Hararat. Obese persons are prone to other diseases as well as death because of Narrowing
- In extreme obesity, dyspnea (tangiye tanaffus) as well as palpitation (Ikhtilaj-e-qalb) develops.
- Duration of any disease in obese person is more prolonged in comparison to healthy people.

#### USOOL-E- ILAAJ (PRINCIPLES OF TREATMENT)<sup>21, 23,24</sup>

- Following Principles are very important in the treatment of obesity as follows:
  1. Weight reduction
  2. Maintenance of healthy state (Baqa-e-Sehat)
  3. Taqleel-e-Ghiza (Low diet)
  4. Kasrat-e-Riyazat (Exercise)
  5. Ishal (Diarrhoea)
  6. Idrar-e-baul (Diuretic)
  7. Tareeq (Diaphoresis)
  8. Dalak-e-Khashin (Rough massage)
  9. Massage with Mohallil Roghaniyat
- Razi has classified all these treatment broadly into three categories as:
  1. Taqleel Ghiza (decrease in food intake)
  2. Riyazat Kaseera (too much exercise)
  3. Ishaal wa Idraar (Diarrhoea and diuretic), Fasad (venesection) and Istifrag (evacuation)

#### ILLAJ BIL DAWA (DRUG THERAPY)<sup>16,25,26</sup>

- Mufrad Advia (Single drugs): There are a large number of single drugs (Advia mufrada) which have been used by various Unani physicians for the treatment of obesity (Saman mufrat) in the ancient unani literature e.g. "Ajwayin Khurasani (Hyoscyamus niger), Ajwain Desi (Carum copticum), Filfil siyah (Piper nigrum), Kalonji (Nigella sativa), Khardal (Brassica nigra), Lahsun (Allium sativum), Luk

Maghsool (Cocculus), Marzanjosh (Oliganum vulgare), Namak Lahori (Sodium chloride), Nana (Mentha arvensis), Sirka (Vinegar), Zeera kimani (Carum carvi)

- Ø Murakkab Advia (Compound Formulations): Arq-e-Badiyaan, Arq-e-Zeera, Jawarish Kamooni, Jawarish Falafili, Safoof Mohazzil, safoof-e-darcheri.

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