

## APPROACH TO DYSLIPIDEMIA IN UNANI MEDICINE-A REVIEW

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### ABSTRACT

Dyslipidemia is a prevalent metabolic disorder known to significantly contribute to the risk of coronary heart disease. While affecting individuals of both sexes, it exhibits a higher prevalence among men. In India, approximately 25-30% of urban populations and 15-20% of rural populations are affected by dyslipidemia. Currently, pharmacological interventions such as statins, fibrates, and niacin are widely utilized for the management of dyslipidemia. However, prolonged usage of these medications can lead to various adverse effects, including hepatic toxicity, dyspepsia, myopathy, gastrointestinal disturbances constipation, and renal dysfunction, among others. Thus, while pharmacotherapy remains a cornerstone in the management of dyslipidemia, the potential for adverse effects necessitates careful monitoring and consideration of alternative treatment modalities

**KEYWORDS:** Dyslipidemia, unani medicine, obesity.

### INTRODUCTION

A dyslipidemia literature review suggests that high cholesterol is a major risk factor for heart disease. It is characterized by abnormal levels of lipids, including triglycerides and LDL (bad) cholesterol, in the blood. People with dyslipidemia are at increased risk of developing atherosclerosis and other cardiovascular diseases.<sup>[1]</sup>

The prevalence of dyslipidemia has been rising globally, with many factors contributing to its development, such as an unhealthy diet, a lack of physical activity, and genetics. Diagnosing dyslipidemia involves measuring lipid levels through a blood test, and treatment typically includes lifestyle changes and medications, like statins, to lower cholesterol levels.

It is crucial to manage dyslipidemia effectively to reduce the risk of heart disease and stroke. Monitoring lipid levels regularly and following a healthy lifestyle are essential steps in preventing complications associated with dyslipidemia. Identifying and addressing this condition early can significantly improve the patient's overall health outcomes.

In conclusion, the dyslipidemia literature review highlights the importance of early detection, proper management, and lifestyle modifications in reducing the burden of cardiovascular diseases associated with high cholesterol levels. Regular monitoring and adherence to treatment guidelines are key to preventing adverse outcomes in individuals with dyslipidemia.<sup>[2,3]</sup>

Indeed, the Unani system of medicine, which has roots in ancient Greek and Islamic traditions, offers its own perspective on conditions like obesity (Saman-e-mufrat) and dyslipidemia (Dusumat-e-Dam). Scholars such as Hippocrates, Galen, Razes (Rhazes), and Avicenna (Ibn Sina) made significant contributions to the understanding and treatment of these conditions within the Unani framework. They observed similar etiological factors, presentations, complications, and pathophysiology in these conditions.<sup>[4,5,6,7,8]</sup>

In the Unani system, Saman-e-mufrat (obesity) and Dusumat-e-Dam (dyslipidemia) are considered to be closely related conditions, often interconnected. The concept revolves around the balance of bodily humors (Akhlat) and their influence on health and disease. The imbalance or excess of certain humors, particularly

Phlegm (Balgham) and Black Bile (Sauda), is believed to contribute to conditions like obesity and dyslipidemia.

Traditional Unani medicine offers a range of herbal remedies, dietary recommendations, lifestyle modifications, and therapeutic interventions for managing Saman-e-mufrat and Dusumat-e-Dam. These treatments aim to restore the balance of humors, improve metabolic functions, and alleviate associated symptoms and complications.

Some examples of herbs and formulations used in the Unani system for managing Saman-e-mufrat and Dusumat-e-Dam may include

1. **Guggul (*Commiphora wightii*):** Known for its lipid-lowering properties, guggul is used in Unani medicine to regulate cholesterol levels and aid in weight management.
2. **Triphala:** A combination of three fruits (Amalaki, Bibhitaki, and Haritaki), triphala is used to improve digestion, detoxify the body, and support weight loss efforts.
3. **Kalonji (*Nigella sativa*):** Kalonji seeds are believed to have hypolipidemic effects and may help in reducing cholesterol levels.
4. **Arjuna (*Terminalia arjuna*):** This herb is traditionally used to support heart health and manage lipid levels in the body.
5. **Garcinia cambogia:** Known for its appetite-suppressing properties, Garcinia cambogia is sometimes used in Unani formulations for weight management.
6. **Habb-e-Jawahar:** A Unani preparation containing various herbal ingredients, Habb-e-Jawahir is used for managing dyslipidemia and related cardiovascular issues.
7. **Habb-e-Mudir:** Another Unani formulation, Habb-e-Mudir is used to regulate lipid metabolism and support healthy cholesterol levels.

It's important to note that while traditional Unani treatments have been used for centuries and may offer benefits, their efficacy and safety should be evaluated in the context of modern scientific research. Additionally, individuals should consult qualified practitioners before initiating any herbal remedies or treatments for obesity and dyslipidemia.

## PREVALENCE

Cardiovascular diseases (CVDs) are the leading cause of death globally, surpassing all other causes. In 2016, an estimated 17.9 million people died from CVDs, constituting 31% of all worldwide deaths. Among these deaths, 85% are attributed to heart attacks and strokes. Alarmingly, over three-quarters of CVD deaths occur in low- and middle-income countries. In 2015, out of 17 million premature deaths (those under 70) due to non-communicable diseases, 82% occurred in low- and middle-income countries, with 37% of these deaths caused by CVDs.<sup>[9,10]</sup>

According to a study by Gupta et al. (2017), dyslipidemia stands out as the most crucial atherosclerotic risk factor. Recent research indicates that high cholesterol levels are prevalent in approximately 25–30% of urban and 15–20% of rural populations in India. Although these figures are lower compared to high-income countries, they still represent a significant health burden. The most common types of dyslipidemia observed in India include borderline high LDL cholesterol, low HDL cholesterol, and elevated triglyceride levels.

Studies have also revealed a concerning trend over the past two decades, showing an increase in total cholesterol, LDL cholesterol, and triglyceride levels among urban residents in India. This suggests a worsening of dyslipidemia prevalence and highlights the urgent need for effective preventive measures and interventions to address this growing public health issue.<sup>[9,10]</sup>

As of my last update in January 2022, here's a general overview of the prevalence of dyslipidemia in India, based on available data.

### 1. National Family Health Survey (NFHS)

The NFHS is a large-scale survey conducted in India to assess the health and nutritional status of the population. While the NFHS primarily focuses on maternal and child health, it also collects data on various health indicators, including dyslipidemia. However, dyslipidemia-specific data from the NFHS may not be readily available or as comprehensive as data from other sources.

### 2. Indian Council of Medical Research (ICMR)

The ICMR periodically conducts studies and surveys related to various health conditions, including dyslipidemia. These studies often provide valuable insights into the prevalence and trends of dyslipidemia in different population groups across India.

### 3. Hospital-Based Studies

Many hospitals and healthcare institutions in India conduct research and epidemiological studies on dyslipidemia among their patient populations. These studies often provide detailed information on the prevalence of dyslipidemia, risk factors, and associated health outcomes.

### 4. Population-Based Studies

Several population-based studies have been conducted in India to estimate the prevalence of dyslipidemia in specific regions or demographic groups. These studies contribute to our understanding of the burden of dyslipidemia at the national and regional levels.

### 5. Global Burden of Disease Study

The Global Burden of Disease (GBD) study provides comprehensive estimates of disease burden and risk factors, including dyslipidemia, for countries around the

world, including India. The GBD study utilizes data from various sources to estimate the prevalence, incidence, and disability-adjusted life years (DALYs) attributable to dyslipidemia.

## 6. Meta-Analyses and Systematic Reviews

Meta-analyses and systematic reviews of existing literature on dyslipidemia in India can also provide valuable insights into the prevalence and trends of the condition. These studies synthesize data from multiple sources to generate more robust estimates of dyslipidemia prevalence.

It's important to note that the prevalence of dyslipidemia in India may vary by region, socioeconomic status, age, gender, and other factors. Additionally, changes in lifestyle, dietary habits, and healthcare access may influence the prevalence of dyslipidemia over time. For the most up-to-date and detailed information on the prevalence of dyslipidemia in India, it's advisable to refer to recent research studies, government health reports, and authoritative sources in the field of public health and epidemiology.

## DISEASE DEFINITION AND TYPES:

### MODERN VIEW

Dyslipidemia refers to an abnormal amount of lipids or fats in the blood, characterized by disruptions in lipoprotein metabolism leading to elevated levels of low-density lipoprotein cholesterol (LDL-C), total cholesterol, triglycerides, and/or reduced levels of high-density lipoprotein cholesterol (HDL-C). It is a significant risk factor for cardiovascular diseases (CVDs).<sup>[11]</sup>

### The types of dyslipidemia can vary based on their etiology

**1. Hereditary Disorders:** These include conditions such as familial hypercholesterolemia, familial hypertriglyceridemia, familial combined hyperlipidemia, familial dysbetalipoproteinemia, and chylomicronemia. These disorders are primarily genetic in nature and are associated with abnormal lipid metabolism.

**2. Secondary Causes:** Dyslipidemia can also result from secondary factors such as diabetes mellitus, dietary habits, alcohol consumption, hypothyroidism, renal failure, obstructive liver disease, Cushing's syndrome, metabolic syndrome, and certain medications like glucocorticoids, beta-blockers, thiazides, and estrogen therapy. These secondary causes often contribute to disturbances in lipid metabolism and result in dyslipidemia.<sup>[11]</sup>

### Pathophysiology in the modern medical system explains the mechanisms underlying the development of dyslipidemia<sup>[12]</sup>

- **LDL Clearance Defect:** Reduction or deficiency of receptors for apolipoprotein B-100/E can lead to impaired hepatic clearance of very low-density

lipoprotein (VLDL) remnants, resulting in increased conversion of intermediate-density lipoprotein (IDL) to LDL and reduced clearance of LDL, leading to elevated LDL levels in the blood.

- **Defect in Lipolysis:** Defective lipolysis can occur due to reduced availability of lipoprotein lipase (LPL), leading to elevated triglyceride-rich lipoproteins such as chylomicrons. Abnormalities in the composition of lipoproteins, particularly apolipoprotein C-II, can also contribute to dyslipidemia.

- **Remnant Removal Defects:** Apolipoprotein E (apo E) plays a crucial role in the removal of triglyceride-rich lipoprotein remnants. Defects in apo E function can lead to impaired clearance of remnants, contributing to dyslipidemia.

- **Overproduction of Lipoproteins:** Overproduction of lipoproteins, particularly VLDL, can occur either as a primary or secondary phenomenon. Excessive synthesis of apo B without a proportional increase in VLDL triglycerides (TG) can lead to increased VLDL secretion. Dietary factors, such as a high-carbohydrate diet, can also stimulate VLDL production. Overproduction of VLDL can lead to the conversion of VLDL to LDL, contributing to dyslipidemia.

Understanding these pathophysiological mechanisms is essential for the diagnosis, treatment, and management of dyslipidemia, enabling targeted interventions to reduce the risk of cardiovascular events and complications associated with this condition.

### UNANI VIEW

In the Unani system of medicine, dyslipidemia, characterized by abnormalities in lipid metabolism, is attributed to various factors including Dasumat-e-Dam (greasy blood), Siman-e-Mufrit (obesity), and abnormalities in Hazm-e-Kabidi (liver function). According to classical Unani literature, obesity (Saman-e-Mufrit) is considered a disease caused by su-e-mizaj-e-balgham, which leads to disturbed metabolism and accumulation of excessive phlegm in the blood. The reduction in hararat-e-ghariziya (digestive heat) leads to less supply of rooh (vital spirit) to the vessels, further complicating the condition.

The causes of obesity and dyslipidemia in Unani medicine are attributed to factors such as heredity, dietary habits (including excessive consumption and poor quality of food), lack of physical activity, excessive alcohol consumption, and other lifestyle factors. The concept of Quwat-e-Tabaiyah (natural faculties) is central to Unani medicine, particularly Quwat-e-Ghazia, which governs the ingestion, digestion, absorption, and excretion of nutrients and waste products in the body. Hazm-e-Kabidi, as a part of Quwat-e-Hazema, plays a crucial role in benefiting the cells and the entire body.

Historically, Unani physicians such as Hippocrates, Galen, Ali-Ibn Abbas Majoosi, Ibn-e-Rushd, Zakariya Razi, Ibn-e-Sina, Ismail Jurjani, and Ibn-e-Nafees have contributed to the understanding and management of obesity and its complications in Unani medicine. Their approaches include dietary therapy, evacuation of morbid material, and the use of diuretic and laxative Unani drugs to hinder the digestive process and reduce body weight.

In contrast to synthetic agents used in conventional medicine, Unani modalities of treatment for dyslipidemia are considered safe, cost-effective, and readily available. They include correcting the temperament (mizaj) of the individual, using diuretic, anti-inflammatory, hot, calorific, aphrodisiac, and deobstruent drugs as part of the treatment principles (Usool-e-Ilaj). This holistic approach aims to address the underlying imbalances in the body and promote overall health and well-being.

It's important to note that while Unani treatments may offer benefits, individuals should consult qualified practitioners and consider their individual health conditions and needs before starting any treatment regimen. Additionally, monitoring and follow-up are essential to ensure effectiveness and safety.<sup>[13,14,15,16,17,18]</sup>

### Clinical Features

Elevated cholesterol levels often do not present with specific signs and symptoms unless the condition has been longstanding. However, certain clinical features may indicate dyslipidemia.

- 1. Xanthoma:** Thickening of tendons due to the accumulation of cholesterol. Xanthomas can appear as yellowish nodules or plaques on the skin, particularly around the joints and tendons.
- 2. Xanthelasma Palpebrarum:** Yellowish patches or plaques that develop on the eyelids, typically near the inner canthus (medial aspect). These lesions are composed of cholesterol deposits and are often seen in individuals with dyslipidemia.
- 3. Arcus Senilis:** Also known as arcus senile cornea or arcus lipoids, it is a white or grayish ring-like deposit that forms around the cornea. It is caused by lipid deposition in the cornea and is more commonly observed in older individuals.
- 4. Cardiovascular Symptoms:** Patients with dyslipidemia may present with symptoms related to cardiovascular complications, including palpitations (irregular heartbeat), dyspnea on exertion (shortness of breath during physical activity), chest pain or heaviness (angina), and joint pain (arthralgia).

### Diagnosis

Diagnosing dyslipidemia typically involves measuring lipid levels in the blood. Common diagnostic tests include.

- 1. Serum Cholesterol:** Total cholesterol level in the blood, which includes both high-density lipoprotein (HDL) cholesterol and low-density lipoprotein (LDL) cholesterol.
- 2. Serum Triglycerides:** Measurement of triglyceride levels in the blood, which are another type of lipid.
- 3. HDL Cholesterol:** High-density lipoprotein cholesterol, often referred to as "good" cholesterol due to its protective effects against cardiovascular disease.
- 4. LDL Cholesterol:** Low-density lipoprotein cholesterol, often referred to as "bad" cholesterol because elevated levels are associated with an increased risk of cardiovascular disease.

These lipid profile tests help in assessing an individual's risk of developing cardiovascular disease and guide treatment decisions. Additionally, other tests may be performed to evaluate underlying conditions contributing to dyslipidemia, such as fasting blood glucose levels to assess for diabetes mellitus.

### Management

- 1. Therapeutic Lifestyle Changes:** Initial treatment for dyslipidemia involves lifestyle modifications, including dietary changes, regular physical activity, smoking cessation, and weight reduction. These lifestyle interventions aim to improve lipid profiles and reduce the risk of cardiovascular events.
- 2. Drug Therapy:** Pharmacological interventions are often necessary, especially in cases of moderate to severe dyslipidemia or when lifestyle changes alone are insufficient. Various synthetic lipid-lowering agents are commonly used in the treatment of dyslipidemia, including.<sup>[19]</sup>
  - Statins:** Atorvastatin, Lovastatin, Pravastatin, Simvastatin, and others. Statins are the cornerstone of dyslipidemia treatment and are highly effective in reducing LDL cholesterol levels.
  - Bile Acid Sequestrants:** Cholestyramine and Colestipol work by binding to bile acids in the intestine, preventing their reabsorption and promoting their excretion, thereby lowering cholesterol levels.
  - Niacin:** Also known as vitamin B3, niacin can increase HDL cholesterol levels and decrease LDL and triglyceride levels.
  - Fibric Acid Analogues:** Bezafibrate, Fenofibrate, and Ciprofibrate primarily target triglyceride levels but can also increase HDL cholesterol levels.
  - Ezetimibe:** Acts by inhibiting cholesterol absorption in the intestine, leading to reduced LDL cholesterol levels.



**3. Adverse Effects of Drug Therapy:** Long-term use of lipid-lowering medications may lead to various adverse effects, including hepatotoxicity, dyspepsia, myopathy (muscle weakness or pain), bloating, constipation, renal dysfunction, flushing, pruritus, skin rashes, acanthosis nigricans, urticaria, myalgias, fatigue, headache, and impotence, anemia, and hair loss. Monitoring for these adverse effects is essential during treatment.<sup>[20]</sup>

#### UNANI MODALITIES OF TREATMENT

Unani medicine offers safe, cost-effective, and easily available treatment modalities for dyslipidemia management. These modalities include.<sup>[21]</sup>

- **Dietotherapy (Ilaj Bil Ghiza):** Dietary interventions tailored to individual patients' needs to improve lipid profiles.
- **Regimental Therapy (Ilaj Bil Tadbir):** Therapeutic measures such as massage, cupping, and exercise to promote overall health and well-being.
- **Pharmacotherapy (Ilaj Bil Dawa):** Use of herbal remedies and formulations to address dyslipidemia and associated symptoms. Unani pharmacotherapy aims to rebalance humors and restore health.

Combining lifestyle modifications with appropriate drug therapy, along with consideration of Unani treatment modalities, can provide comprehensive management of dyslipidemia, reducing the risk of cardiovascular events and improving overall health outcomes. Regular monitoring and follow-up are essential to assess treatment effectiveness and address any adverse effects.<sup>[22]</sup> In the Unani system of medicine, several renowned physicians such as Hippocrates, Galen, Zakaria Rhazi, Ali Ibn-e-Abbas Majoosi, Ibn-e-Sina, and Ismail Jurjani have recommended various herbal drugs that are considered hot in temperament to modulate liver functions and have been scientifically reported to possess anti-dyslipidemic activity. Some of these herbs include.<sup>[13,23,17,24,25,26,27]</sup>

- 1. Sadkofi (Cyperus rotundus):** Known for its hepatoprotective properties and potential to regulate lipid metabolism.
- 2. Balchhar (Nordostachys jatamansi):** Exhibits hepatoprotective effects and may help in reducing lipid levels in the blood.
- 3. Muquil (Commiphora mukul):** Commonly used in Unani medicine for its lipid-lowering properties, particularly effective in reducing LDL cholesterol and triglyceride levels.
- 4. Chhal Arjun (Terminalia arjuna):** Known for its cardio-protective effects, including the regulation of lipid levels and prevention of atherosclerosis.

**5. Badranjboya (Melissa officinalis):** Has been studied for its potential to reduce LDL cholesterol levels and improve lipid profiles.

**6. Abresham (Bombyx mori):** Known for its hepatoprotective and anti-hyperlipidemic effects.

**7. TukhmMethi (Trigonella foenum-graecum):** Possesses hypolipidemic properties and may help in reducing cholesterol and triglyceride levels.

**8. Garlic (Allium sativum):** Well-known for its lipid-lowering effects and ability to improve overall cardiovascular health.

**9. Halela Zard (Terminalia chebula), Balela (Terminalia bellerica), Aamla (Phyllanthus officinalis):** These three herbs, known collectively as Triphala, are used in Unani medicine for their hepatoprotective and lipid-lowering properties.

**10. Chaube Zard (Curcuma longa):** Turmeric has been studied for its anti-inflammatory and lipid-lowering effects.

**11. Tukhm Kalonji (Nigella sativa):** Possesses antioxidant and lipid-lowering properties, beneficial for dyslipidemia management.

**12. Gurmar Booti (Gymnema sylvestere):** Known for its hypolipidemic and anti-obesity effects.

**13. Post Anar (Punica granatum):** Pomegranate has been shown to have lipid-lowering effects and may reduce cardiovascular risk factors.

**14. Kundur (Boswellia serrata), Kanduri (Coccinia indica), Zeera (Carum carvi), Badiyan (Foeniculum vulgare), Ajwain (Trachyspermum ammi):** These herbs have various properties that contribute to dyslipidemia management, including anti-inflammatory, hepatoprotective, and lipid-lowering effects.

Additionally, there are several Unani formulations that have been scientifically proven to have anti-dyslipidemic activity on human subjects, such as Safoof Kalonji, Habbe Sundarus, Qurs Luk, Itriphal Sagheer, Majoon Sheer, Safoof Muhazzil, safoof e Darchini, etc. These formulations combine various herbs and ingredients in specific ratios to target dyslipidemia effectively while considering the principles of Unani medicine.<sup>[28,29]</sup>

#### CONCLUSION

The description of dyslipidemia in modern medicine aligns closely with the concept of Dasumat- e -Dam in the Unani system of medicine. Unani medicine offers a comprehensive treatment approach for dyslipidemia, encompassing dietary modifications, regimental procedures, and various herbal drug therapies. The therapeutic goal in Unani medicine is to restore the

balance of humors, particularly blood, through targeted interventions.

The holistic approach of Unani medicine provides a promising avenue for the management of dyslipidemia, addressing both the underlying imbalances in the body and the associated symptoms. By incorporating dietary changes, specialized procedures, and herbal formulations, Unani medicine offers a packaged treatment strategy that considers the individual's constitution and aims to promote overall health and well-being.

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