

Review Article

Comprehensive Overview of Diabetes Mellitus in Unani Medicine: A Comparative Perspective

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Article Info

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Abstract

Introduction-Diabetes mellitus (DM) encompasses a group of metabolic disorders marked by persistent high blood sugar levels caused by insufficient insulin production, impaired insulin action, or both, leading to carbohydrate, fat, and protein metabolism disruptions. If untreated, it can result in numerous complications. Unani medicine offers a rich historical perspective, defining the disease as *Dhayābītus* and identifying various synonyms based on etymology, symptoms, and pathophysiology, such as *Dhayābītus*, *Ziasaqus*, *Qaramees*, *Dawwāriyya*, *Dūlābiya*, *Zalqul Kulya*, *Istisqā-e-Anmas*, *Dipsakos*, *Mu'attisha*, *A'atisha*, and *Parkāriyya*. Greco-Arabic physicians identified four potential causes of *Dhayābītus*: *Sū'-i-Mizāj Kulya Hārr*, *Du'f-i-Kulya*, *Ittisā Kulya wa Majārī-i-Bawl*, *Burūdat Badan*, *Kabid wa Kulya*. **Methodology-** The methodology for this review includes a thorough analysis of classical texts from the Unani system of medicine, complemented by an extensive review of relevant academic literature and published studies. **Objective-** This review provides a comprehensive overview of the classification, pathogenesis, clinical features, and Complications of diabetes, emphasizing the urgency of confronting this global health crisis.

Keywords- *Dhayābītus*, Complete Overview, Diabetes mellitus, Pathogenesis, Unani Medicine

Introduction-

Diabetes mellitus is a significant lifestyle disorder, predominantly affecting urban populations. As a chronic, non-communicable disease (NCD) that is largely preventable[4], it remains a leading cause of millions of deaths annually and contributes to a variety of severe, life-threatening complications. Globally, the prevalence of diabetes is expected to rise significantly, from 171 million in 2000 to 366 million by 2030, with India experiencing the highest increase. Projections indicate that by 2030, India could have 79.4 million individuals with diabetes, while China and the United States are also expected to see notable rises, with 42.3 million and 30.3 million cases, respectively [31]. Diabetes mellitus (DM) is a metabolic disorder characterized by chronic high blood sugar levels, which disrupt the metabolism of carbohydrates, fats, and proteins. This condition arises due to deficiencies in insulin secretion, insulin action, or both. Long-term complications include retinopathy, nephropathy, and neuropathy, among others [21]. In the Unani system of medicine, diabetes mellitus is known as *Dhayābītus Shakri*. This condition is marked by the rapid excretion of consumed water through urine, similar to the expulsion of food in *Zalq al Mi'da wal-Am'a*. Consequently, *Dhayābītus Shakri* is also referred to as *Zalq al-Kulya* [7]. Rāzī was the first to introduce the term *Dhayābītus* in his medical treatise *Kitāb al-Hāwī fi'l Ṭibb*. He noted that individuals with diabetes often suffer from intense thirst, with consumed water passing through the body without absorption. He also described common symptoms, including excessive thirst, frequent urination, nocturnal urination (nocturia), and urinary incontinence [26]. Classical Unani scholars like Rāzī, Ibn Sīnā, and Majūsī attributed diabetes to a deranged temperament (*Sū'i-Mizāj*) of the kidneys, characterized by excessive heat or cold, which disrupts the balance of *Quwwat Jādhiba* (absorption), *Quwwat Māsika* (retention), and *Quwwat Dāfi'a* (expulsion). These imbalances result in polyuria and polydipsia [29,18].

Diabetes Mellitus in Unani Medicine-

The term "Diabetes mellitus" comprises two components - Diabetes and Mellitus. Diabetes originates from the Greek word "diabanein," translating to "passing through," "run through," or "siphon" (dia - through, betes - to go), indicating an excessive loss of water through urination. Meanwhile, Mellitus, derived from the Latin language, means honey-sweet. Consequently, Diabetes Mellitus is referred to as the sweet urine disease [8,9].

According to the majority of Unani practitioners, diabetes mellitus is characterized as a condition where the water ingested by the patient is expelled through the urinary passage either unchanged or with minimal alteration soon after consumption [14].

Mutradif Asma (Synonyms)

In Unani classical texts, various terms for diabetes are cited by different scholars. For instance, Rāzī, referred to it as *Dhayābītus* in *Al Hāwī* [26].

Ibn-Sīnā used terms like *Dawwāriyya*, *Dūlābiya*, *Zalq al Kulya*, and *Zalq al Majārī*. Additional names mentioned in *Al-Qānūn fi'l Ṭibb* include *Ziasqomas* and *Qramees* [30].

Other designations for diabetes found in various texts are "Illat *Parkāriyya*, and" in *Kitāb al-Taysīr* [34].

Salas al-Bawl and *Istisqā' -e-Anmas* in *Ṭibb-i-Akbar* (Arzānī, 2010).

Mu'aṭṭ isha, *Bawl Shīrīn*, *Madhumeha*, and *shahdiya* in *Iksīr-i-A'zam* [19,16].

Additionally, the term "Dūlābiya" an Arabic word signifying rehaṭ or charkha, is used to describe a situation where the patient frequently urinates, drawing a parallel to the extraction of water from a well using a charkha and thus named *Dūlābiya* [17,7]

Dawwāriyya means chakkar katna. *Parkāriyya* means roaming like a parkar. In this medical condition, the water reverses its course, leading to the alternate designations of the ailment as *Dawwāriyya* and *Parkāriyya* [17].

Zalq al-Kulya, an Arabic term, refers to the slipping of the kidneys (*Gurde ka phisalna*), as water does not retain in the kidneys and urinary

bladder; instead, it is consistently expelled as urine, similar to the continuous excretion of stool and food particles in *Zalq al Mi'da wal-Am 'ā'* [15].

Istisqā-e-Anmas" in Unani refers to the bladder, where "Anmas" is the term for the bladder, and "Istisqā" is added to it [6].

Different Views of Unani Scholars

Regarding Diabetes

Zakariyyā Rāzī [26], in his work "**Al-Ḥāwī Fit Tibb**," described diabetes as a condition where a person experiences intense thirst, and despite consuming water, it is rapidly expelled as urine. He attributed this phenomenon to a kidney-related ailment, suggesting that the kidneys' temperament becomes excessively hot, causing increased water absorption. He likened this condition to "*Zalq-al-Am 'ā'*" and explained that the heat is transferred swiftly to the bladder. Since the bladder cannot absorb urine from the kidneys, the kidneys themselves expel urine into the bladder, compelling the bladder to take in more fluid. Consequently, the kidney's retention capacity weakens, leading to the rapid expulsion of fluid. Rāzī elucidated that the kidney initially absorbs fluid from the vessels, which, in turn, draw from the liver, and the liver obtains fluid from the stomach and intestine. This cyclical process triggers heightened thirst. Rāzī, attributed the difficulty in treating this disease to a change in the kidney's *Mizāj*, causing it to become excessively hot and leading to increased fluid absorption [26,3].

Majūsī (Kāmil al-Ṣanā'a)

He refers to this ailment as '*Parkāriyya*' based on its symptoms. He explains that it arises from the overactivity of the *Quwwat Jādhiba*, causing the kidneys to absorb more fluid, leading to excessive urination. The change in the kidney's temperament, turning it *Ḥarārat*, prompts it to absorb extra fluid to counteract heat and inflammation. Consequently, fluid from the liver and other organs moves toward the kidney, resulting in a heightened thirst for the individual [1,3].

Ibn Sīnā (Al-Qānūn)

In his work "*Al-Qānūn fi'l Tibb*," Ibn Sīnā asserted that the term diabetes originates from the Greek word "diabanein," signifying "passing through" or "siphon," reflecting the excessive urine production characteristic of this ailment. This condition is not a recent discovery; ancient Greeks and Arabic physicians were well-acquainted with it. They thoroughly investigated and prescribed diverse treatments. Patients experience increased thirst, but the kidney's water absorption does not align with the amount consumed, leading to rapid excretion. The disease's causes are attributed to disordered temperament and weakness of the kidney, bladder, and liver. Ibn Sīnā also detailed various complications, including mental troubles, impotence, gangrene, and furunculosis. Notably, he was the pioneer in delineating the distinctive features of diabetes associated with emaciation, setting it apart from other causes of polyuria [30,3].

Allam'ā' Qarshī (Sharḥ al-Mūjaz)

Dhayābītus is a condition where excess fluid (*Ruṭūbāt*) is expelled from the body as water without being transformed into other forms. The underlying cause is an imbalance in the kidney's temperament (*Sū'-i-Mizāj Ḥārr*), which leads it to draw more fluid from the liver to counteract this excessive heat. Due to the resulting weakness and dilation of the urinary passages, this fluid is then excreted. This continuous cycle of absorption and excretion led to the naming of *Dhayābītus* as "*Dūlāb*" (water wheel) [18,28].

Ahmad Al-Hasan Jurjānī (Dhakhīra Khwarizm Shāhī)

Four main factors contribute to polyuria in *Dhayābītus*. First, kidney weakness prevents fluid retention in the body. Second, dilation of the urethra causes a continuous flow of urine. Third, an abnormally cold temperament of the liver and kidneys, often due to exposure to cold, such as drinking cold water, is a factor. Fourth, a hot temperament of the kidneys leads

them to absorb excess fluid, which they cannot retain, resulting in its excretion. *Dhayābītus* is considered a chronic disease, making patients vulnerable to developing *Diqq* [15].

Ibn Rushd (Kitāb al-Kulliyāt)

Ibn Rushd explained that in diabetes, the kidney's power of absorption (*Quwwat Jādhiba*) increases, while its power of retention (*Quwwat Māsika*) is weakened, causing water to be excreted without being metabolized. He referred to this condition as *Salas al-Bawl* (polyuria) and *Parkāriyya* [27].

Jam‘ā’l-Uddin-Aqsarā’ī (Al-Aqsarā’ī)

He identified a dominant cold temperament as the cause of diabetes. He also noted that prolonged diabetes leads to liver weakness and general debility [5].

Burhanuddin Nafees (Sharḥ al-Asbāb)

He cited a cold temperament as the cause of diabetes, which weakens the *Quwwat Māsika* (power of retention), leading to increased urine output. This excessively cold temperament may also contribute to certain behavioural changes in diabetes [17].

Jālīnūs (Al-A‘dā-e-Alima)

He explained that in *Dhayābītus*, the kidney's *Quwwat Jādhiba* (power of absorption) significantly increases, causing it to absorb a large amount of water from the liver. As a result, the liver draws fluid from the stomach and intestines, leading to dryness in the stomach and causing the patient to experience excessive thirst [7].

Ibn Zuhr (Kitāb al-Taysīr fi’l Mudāwā wa’l Tadbīr)

He noted that *Dhayābītus* can result from an imbalance in any of the four temperaments. When it is caused by a hot temperament combined with dryness, the symptoms are severe. However, if it is due to a cold temperament accompanied by moisture, polydipsia (excessive thirst) is not present. The urine is light in colour and has low specific gravity. If *Dhayābītus* occurs due to a cold

temperament with dryness, it is considered fatal, indicating that the patient is near death. In such cases, there is severe physical and mental weakness, but the thirst is relatively mild. It can be concluded that Ibn Zuhr was able to differentiate between the mild and severe forms of diabetes. This is particularly notable considering that the exact cause of diabetes was not yet understood at that time [34].

Akbar Arzānī (Ṭibb-i-Akbar)

This ailment is characterized by the patient experiencing intense thirst without fever or dryness. The ingested water is promptly expelled through the kidneys without undergoing any metabolic alteration, and despite drinking, the patient continues to feel thirsty [6,3].

Classification of Dhayābītus in Unani Medicine

Dhayābītus is categorized into two types based on the presence or absence of sugar in the urine [25,6,20,17].

Dhayābītus Sāda

Dhayābītus Sāda, also known as *Dhayābītus Ghayr Shakri*. It is identified by excessive thirst and increased urination without the presence of sugar in the urine. This condition arises due to disruptions in the nutritive function of the liver and vessels (*fasād-e- taghdhiya wa hadm Kabidī wa 'urūqi*) [20-25,6,17].

Dhayābītus Shakri

This condition is marked by heightened thirst, increased urination, and the presence of sugar in the urine. It is alternatively known as *Bawl Shīrīn* and referred to as *Madhumeha* in Hindi [26,6,20].

➤ According to *khiffat* and *shiddat* (intensity) of signs and symptoms, it is also divided into two types:

1. *Dhayābītus Ḥārr*

In this category, the acute symptoms of *Dhayābītus*, such as intense thirst (polydipsia) and excessive urination

(polyuria), manifest suddenly. These are accompanied by additional signs of *Sū'-i-Mizāj Ḥārr*, including bodily dryness and flank heat due to *Sū'-i-Mizāj Ḥārr Sāda* affecting the kidneys [26,6,20].

2. *Dhayabītus Bārid*

In this type, thirst and frequency of urination are comparatively less [26,6,20].

Aetiology and Pathogenesis

Aretaeus of Cappadocia first identified *Sū'-i-Mizāj Mi'da* as the cause of diabetes in the 2nd century. [8].

Sarabiyun attributed it to the intensity of heat in the kidney and kidney inflammation. (*Shiddat-e-Ḥarārat-e-Kulya wa Itihāb-e-Kulya.*) [26].

Jurjānī categorized the causes of *Dhayābītus* into four groups [15,16,9]:

1. *Du'f-i-Kulya*
2. *Ittisā kulya wa Majārī-i-Bawl*
3. *Sū'-i-Mizāj Kulya Ḥārr Mufrad*
4. *Sū'-i-Mizāj Kulya Bārid*

Unani scholars such as Majūsī, Rāzī, Ibn Sīnā, Baghdādī, and Jurjānī, extensively elaborated on the fundamental causes of diabetes. They proposed a connection between diabetes and kidney function. In the majority of classical literature, four primary causes are commonly cited as contributors to the development of diabetes [30, 7,2,15,26]

***Sū'-i-Mizāj Kulya Ḥārr* (Deranged hot temperament of the kidney):**

Due to excessive heat and imbalance in temperament, the kidneys absorb an excess of water from circulation, leading to an inability to retain much fluid and frequent passage of urine (polyuria). To compensate for this loss, the patient experiences frequent thirst (polydipsia) and drinks water regularly.

1. *Du'f-i-Kulya* (Weakness of Kidney):

The kidney's inability to effectively retain water is attributed to its weakness and the diminished *Quwwat Māsika* (retentive capacity). Moreover, the kidneys struggle to metabolize the water supplied by the liver.

2. *Ittisā kulya wa Majārī-i-Bawl* (Dilatation of Kidney and Tubules):

Water is unable to be retained for extended periods because of the expansion of the *Kulya wa Majārī-i-Bawl*, resulting in rapid passage out (polyuria).

3. *Burūdat Badan, Kabid wa Kulya* (Cold derangement in temperament):

Occasionally, diabetes arises from prolonged exposure to cold affecting the entire body, liver, or kidneys, resulting in a cold derangement in temperament known as *Sū'-i-Mizāj Bārid*.

Mahiyat-E Maraz (Pathophysiology)

According to the Unani philosophy, three faculties are crucial for the processes of absorbing, digesting, and excreting water that the kidney absorbs from the liver. These faculties include:

1. *Quwwat Jādhiba* (Absorptive capability)
2. *Quwwat-e-Māsika* (Retentive capability)
3. *Quwwat Dāfi'a* (Expulsive capability)

Unani practitioners suggest that when the kidney's temperament experiences *Sū'-i-Mizāj Kulya Ḥārr* (Hot derangement), it disrupts renal function. Consequently, the Absorptive faculty (*Quwwat Jādhiba*) of the kidneys pull water from the blood and liver, yet due to weakened Retentive faculty (*Quwwat-e-Māsika*), renal tubules struggle to retain water. This leads to increased Expulsive faculty (*Quwwat Dāfi'a*), resulting in excessive water excretion (polyuria). Despite the liver's continuous water absorption to compensate for kidney needs, the cycle persists due to the aforementioned reasons, causing repeated water excretion through the urinary system. Consequently, the liver absorbs water from the stomach and intestines to fulfil the kidney's water demands, leading to dryness in these organs and prompting frequent thirst (polydipsia) in the patient [26,2,15].

Clinical Features

In Unani texts, certain clinical characteristics of diabetes are frequently outlined [30,26,15,20]:

- Increased urination frequency
- Intense thirst (which is not easily satisfied by drinking water)

- Mouth and whole body feeling dry
- Urine attracts ants and flies

Clinical presentations can vary among individuals; typically, patients are asymptomatic and are diagnosed incidentally during routine checkups or as a result of other medical conditions.

Kabīruddīn described the gradual onset of diabetes, with patients initially unaware for weeks to months. Early symptoms include weakness, fatigue, increased thirst, frequent urination, and a healthy appetite. As the condition progresses, thirst and urination intensify, and weakness worsens. Other symptoms include nocturia, sweet-smelling urine, and attraction of ants or flies. Urine may contain albumin, and patients may later experience pain, burning in the urinary tract, elevated body temperature, constipation, skin changes, and in severe cases, complications like dizziness, irritability, albuminuria, oliguria, vomiting, and even death [17].

Complications

Ibn Sīnā observed that diabetic patients develop *Diqq* (phthisis) and *Zubuul-e-A'ḍā* (Cachexia) due to fluid loss from the body [29].

As per Ibn Sīnā, patients experience physical, mental, and sexual debilitation, along with manifestations such as boils, abscesses, and gangrene [30].

As per Rāzī, with a prolonged duration of the disease, patients develop *Nuḥūl* and severe *Huzāl-e-Shadīd* [26].

In his book, Azam Khān noted that this illness is perilous, particularly if it afflicts the elderly, becoming challenging to treat [19].

Methodology-

The traditional texts of the Unani system of medicine texts were thoroughly examined, and the literature and resources referenced in this review article were derived from those sources. Information was gathered from databases including published research articles, journals, PubMed, Google Scholar, and Science Direct.

Conclusion-

Diabetes mellitus is a major global health issue, with increasing prevalence worldwide [32,33]. It includes metabolic disorders marked by chronic hyperglycemia due to insulin deficiency or resistance. The rise in cases, particularly in India, China, and the U.S., highlights the urgent need for early diagnosis, prevention, and better management. Type 1 diabetes is autoimmune, destroying pancreatic beta cells, while type 2 involves insulin resistance, often linked to obesity [10-13]. Both types can cause severe complications, such as cardiovascular diseases and neuropathy, emphasizing the need for timely intervention. Public health strategies focusing on early detection and addressing modifiable risk factors like inactivity and poor diet are crucial. Innovations in treatments, such as improved insulin therapies and lifestyle changes, are essential for enhancing quality of life. The exploration of *Diabetes Mellitus* through the lens of Unani medicine highlights the depth of understanding ancient scholars possessed regarding this complex ailment. From its nomenclature to its etiology, pathophysiology, clinical features, and complications, Unani practitioners provided a comprehensive framework to study and manage diabetes. Unani scholars not only described the clinical manifestations of diabetes but also emphasized its systemic impact, including physical, mental, and sexual debilitation. Furthermore, the categorization of diabetes into *Dhayābītus Sāda* and *Dhayābītus Shakri* reflects a nuanced understanding of its varied presentations. Despite the absence of modern diagnostic tools, they effectively differentiated between mild and severe forms of the disease and identified complications that remain relevant in contemporary medicine. The enduring relevance of these classical insights underscores the importance of integrating traditional medical knowledge with modern practices. By revisiting and incorporating these perspectives, we can enhance our understanding of diabetes, paving the way for holistic and culturally sensitive approaches to

its prevention and treatment.

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Conflicts of interest

The author declares no conflicts of interest.

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