Abstract

Diabetes mellitus is a group of metabolic disorders sharing the common feature of hyperglycemia. In Unani system of medicine, it is known as Ziabetus Sukkari. Etiopathogenesis of Ziabetus Sukkari is complex and still partially unknown. In the genesis and development of Ziabetus Sukkari, in the great majority of subjects, the contemporary lifestyle characterized by inadequate physical activity and an excessive energy intake is of basic importance. Sedentary life style and stressful mental conditions nowadays have called for many distressing diseases, foremost amongst them being Ziabetus Sukkari - a perfect example for a lifestyle disorder. Greco-Arab physicians believed that Sue Mizaj Kuliya Haar (Hot derangement in temperament of kidney), Zo’fe Kuliya (Weakness of Kidney), Ittesae Kuliya wa Majra-e-Baul (Dilatation of Kidney and Tubules), Burudate Badan, Kabid wa Kuliya (Cold derangement in temperament) were the factors responsible for the disease. The various classical textbooks of Unani medicine contain detailed descriptions of this disease. In this review paper, an attempt has been made to discuss the etiopathogenesis of Ziabetus Sukkari described by ancient physicians.

Keywords: Sue Mizaj Kuliya Haar, Siphon, Urine, Ziabetus Sukkari

Introduction

As we know our body is continuously influenced by our surroundings, the condition we live in, the food we eat, and the activities we perform, while at the same time it maintains its balance or equilibrium. Therefore, sedentary life style, disorganized eating pattern, and stressful mental conditions nowadays have called for many distressing diseases, foremost amongst them being Ziabetus Sukkari - a perfect example for a lifestyle disorder.

The World Health Organization estimates that as many as 346 million people suffer from diabetes worldwide, with India and China being the largest contributors to the world’s diabetic load.\(^1\)

The word “Diabetes mellitus” consists of two words - Diabetes and Mellitus. The word diabetes is derived from Greek word “diabanein” which means “passing through” or “run through” or “siphon” (dia - through, betes - to go). It refers to excessive loss of water by urination. The word mellitus derived from the Latin means honey-sweet. Thus, Diabetes Mellitus is known as sweet urine disease.

As per the WHO, diabetes mellitus (DM) is a heterogeneous metabolic disorder characterized by common features of chronic hyperglycemia with disturbance of carbohydrate, fat, and protein metabolism.\(^2\)

As per the Canadian Diabetic Association (CDA), diabetes mellitus is a metabolic disorder characterized by the presence of hyperglycemia due to defective insulin secretion, defective insulin action or both.\(^3\)

According to the American Diabetic Association (ADA), diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action or both.\(^4\)

Historical Background of Ziabetus

History of diabetes is as old as the age of antiquity. The symptoms resembling diabetes were described during that period. Historians believed that the ancient Egyptians were the first who documented a condition of too great emptying of urine resembling diabetes mellitus. It is proved by the discovery of the Ebers Papyrus in the graves of Thabes.
by famous German Egyptologist Georg Ebers in 1862 AD. The Ebers papyrus (so called because it was purchased in Luxor by Georg Ebers) is one of the oldest surviving medical records known. It is thought to be written in approximately 1500 BC, which contains nearly 700 “prescriptions” (some dating from 3000 BC) for the treatment of maladies. It also contains descriptions of a polyuric state resembling Diabetes Mellitus.

Although the renowned Unani physician Buqrat (460 BC) “The father of medicine” did not specifically mentioned Diabetes in his writings, there are accounts in the Buqrat’s writings that are consistent with the sign and symptoms of Diabetes, like excessive urinary flow with wasting of the body.³

Aretaeus and Jalinoos (Galen) were disciples of Buqrat. Aretaeus (81-138 AD) provided the first accurate description of the symptoms of diabetes. He was the first to use the term “diabetes” in connection with this ailment. Aretaeus stated that the diabetes is a dreadful affliction, not very frequent among men, being a melting down of the flesh and limbs into urine.

Jalinoos (131-201 AD) the most influential medical writer of all time, discussed diabetes in a number of his works. He described the condition as rare, as he had only seen two cases. He referred to the ailment as “Diarrhoea Urinosa (Diarrhoea of urine) and dipsakos (the thirsty disease)”.⁴

Ancient Indian physicians Sushruta, Charaka and Vaghbata (5th and 6th A.D.) described sweet taste of urine in polyuric younger patients and named it as “Madhumeha (honey urine)” and were able to identify two types of diabetes, later to be named type-I and type-II diabetes. During the same era, Chinese and Japanese physicians also described diabetes and the sweetness of urine of diabetes patients, which apparently attracted dogs.

During the 9th-11th centuries AD Arab physicians translated the work of Buqrat and Jalinoos and offered significant modifications. Two prominent physicians of this era who contributed to the knowledge of diabetes (Ziabetus) were Shaikh-Ul-Rais Bu Ali Ibne Sina (960-1037 AD) and Musa Bin Maimoon (1135 AD).⁵

Ibne Sina compiled an exhaustive medical text “Alqanoon Fil Tibb”, which included a detailed description of diabetes. Its clinical features, such as sweet urine and increased appetite, and complications, such as diabetic gangrene and sexual dysfunction, were described by him in detail. Ibne Sina was the first to write differentiating feature of diabetes associated with emaciation from other causes of polyuria.

Musa Bin Maimoon claimed to have seen more than 20 cases of diabetes. He proposed that diabetes was caused by the sweet waters of the Nile and the prevailing heat that spreads over the kidneys.⁶ ⁷

Aureolus Theophrastus Bombastus von Hohenheim, a Swiss physician better known as Paracelsus (1494-1541), allowed the urine of patients with diabetes to evaporate and observed a white residue. He incorrectly thought that this residue consisted of salt and proceeded to attribute excessive thirst and urination in these patients to salt deposition in the kidneys. Thomas Cawley in 1788, was the first to suggest the link between the pancreas and diabetes after he observed that people with pancreatic injury developed diabetes.

It was Thomas Willis’s observations of diabetes in 1674 and Matthew Dobson’s experiments in 1776 that conclusively established the diagnosis of diabetes in the presence of sugar in the urine and blood.⁵ ⁷ In 1815, Eugene Chevreul in Paris proved that the sugar in urine of individuals with diabetes was glucose. Von Fehling developed quantitative test for glucose in urine in 1848. Thus, in the nineteenth century, glucosuria became an accepted diagnostic criterion for diabetes.

Claude Bernard (Early 18th century AD) hypothesized that glycogen was stored by the liver and secreted as a sugary substance into the blood. Overproduction of glucose was considered to be the cause of diabetes.

In 1889 AD Joseph von Mering and Oscar Minkowski discovered that the removal of pancreas from a dog led to diabetes.

In 1893 AD Gustave Edouard Laguesse suggested that pancreatic islet cells were involved in diabetes, and named them the Islets of Langerhans.

In 1894 AD Moses Barron linked damaged Islets of Langerhans to the cause of diabetes and summarized that the substance from these cells was the treatment for diabetes.

In 1910 AD Edward Albert Schafer and Jean De Meyer named the substance insulin.

In 1923 AD Friderick Banting and John Macleod won noble prize for the discovery of insulin and production of insulin injection.

In 1936 AD Herold Percival Himsworth made the distinction between type 1 and type 2 diabetes.

In 1977 AD Herbert Boyer genetically engineered synthetic human insulin.

In 1980 AD insulin analogs were developed and the research continues.⁸

**Concept of Diabetes in Unani Medicine**

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Zakariya Razi stated in his book:

“In this disease the temperament of kidney becomes hot due to which it absorbs water, but due to weakness of its retention power (Quwwat-e-Masika) it eliminates Rutubat towards bladder. The bladder does not absorb water from kidney. Kidneys tend to suck fluid from vessels and absorb it. The vessels suck fluid from liver and the liver absorbs it from stomach and intestine. Consequently, the patient feels excessive thirst and drinks plenty of water. It resembles Zalaqul Me’da Wa Alama‘ in which food passes rapidly through the stomach and the intestine without proper digestion, so the name Zalaqul Kuliya”.\(^{11}\)

Jurjani revealed in his book that the causes of Ziaabetus may be of four types i.e. Sue Mizaj Kuliya Haar (Hot derangement in temperament of kidney), Zo’fe Kuliya (Weakness of Kidney), Ittesae Kuliya wa Majra-e-Baul (Dilatation of Kidney and Calyces), Burudate Badan, Kabid wa Kuliya (Cold derangement in temperament).\(^{12}\)

Majoosi advised Tabreed (Cooling down) in Ziaabetus as it occurs due to Sue Mizaj Kuliya Haar.\(^{15}\)

Mohammad Akbar Arzani writes that it is also known as Istsqa-e-Anmas. Anmas has been derived from Greek which is used for bladder. In Ziaabetus fluid accumulates in the bladder, hence the name Istsqa-e-Anmas.\(^{17}\)

Azam Khan stated that Zo’fe-Kuliya causes Ziaabetus in majority of the cases.\(^{13}\)

**Classification of Ziaabetus in Unani Medicine**

According to the Unani physicians there are two kinds of Ziaabetus:

- **Ziaabetus Haar, Ziaabetus Sukkari (Diabetes mellitus):** In this type the patient feels excessive thirst (polydipsia) and passes colorless urine frequently (polyuria) and the urine contains sugar with the symptoms and signs of other Sue Mizaj Haar like heat in flanks and dryness of the body.

- **Ziaabetus Barid, Ziaabetus Sada, Ziaabetus Ghair Sukkari (Diabetes insipidus):** In this type the patient feels acute thirst and passes out yellow color urine in large quantity but it does not contain sugar.\(^{18}\)

**Causes of Ziaabetus**

The causes of Ziaabetus mentioned by Unani physicians are:\(^{10-12,14,16}\)

- **Sue Mizaj Haar Kuliya (Hot derangement in temperament of kidney):** Kidneys absorb water from circulation due to excessive hotness or derangement in temperament. Therefore, they cannot retain much amount of fluid and pass frequently in the form of urine (polyuria) to overcome the thirst.

- **Zo’fe Kuliya (Weakness of Kidney):** Water cannot be retained properly due to weakness in kidney and its Quwwate Masika (retentive faculty) and kidneys are unable to metabolize the water which is coming from liver.

- **Ittesae Kuliya wa Majra-e-Baul (Dilatation of Kidney and Tubules):** Water cannot be retained for longer duration due to dilatation of Gurda wa Majra-e-Baul. So, it passes out rapidly (polyuria).

- **Burudate Badan, Kabid wa Kuliya:** Sometimes Ziaabetus develops due to excessive exposure of cold in whole body or liver or kidney, which leads to Sue Mizaj Barid (cold derangement in temperament)

**Pathogenesis**

In Unani Medicine the development of Sue Mizaj Haar Kuliya (abnormal hot temperament in the kidney) is prerequisite for Ziaabetus. This Sue Mizaj Haar renders the renal blood vessels dilated. The morbid hot temperament disturbs the normal functioning of kidney and reduces the Quwwate Masika (Retentive power) of kidney. It is to explain that Quwwate Ghaziya (nutritive faculty) is responsible for ingestion, digestion, absorption, transformation (metabolism), assimilation of food and excretion of waste products. The nutritive faculty of all the organs and body as a whole performs three functions, such as Tehseel (acceptance), Ilsaaq (adherence), and Tashbeeh (assimilation). These three functions are served by four other faculties i.e. Masika (retentive), Dafi’a (eliminative), Jaziba (absorptive), and Hazima (digestive). These functions are mediated by four Kaifyyat (quality) of Mizaj, i.e. Hararat, Burudat, Rutubat and Yabusat. So, deviation in these Mizaji Kaifyyat (temperamental quality) by any cause hampers the function of Quwwate Ghaziya.

The morbid hot temperament increases the Quwwate Jaziba (Absorptive power) of kidney. The intensity of Quwwate Jaziba pulls and absorbs the large amount of water from the liver. As the kidney is not able to digest and retain the fluid due to weak Quwwate Masika and strong Quwwate Dafia, the fluid passes out towards the urinary bladder and finally in the form of urine, a large amount of fluid excretes out. The deficit of fluid thus created in the liver is compensated by excessive absorption of fluid from the Urooqe Masariqa (Mesenteric vessels). The Urooqe Masariqa absorbs the fluid from intestine and demands plenty of fluid from outside in form of excessive thirst. This continuous demand and supply thus established between the organs, produces a vicious cycle resulting in large intake of fluid and frequent urination.\(^{8,10,11,13,16}\)

**Conclusion**

It is concluded that Greco-Arab physicians described Ziaabetus Sukkari in their writings. They believed that Sue
Mizaj Kuliya Haar and Zo’f-e-Kuliya were the frequent causes of the disease. They also described its pathogenesis in detail.

**Conflict of Interest:** None

**References**