



## **Physiopathology and Management of Diabetes Mellitus (Type 2) in Unani System of Medicine**

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### **ABSTRACT**

The term *Ziabetus Shakri* is being used for Diabetes Mellitus in **Unani System of Medicine**; considered as metabolic disorder at various levels. The disease is classified as; (1) Type 1 Diabetes Mellitus (2) Type 2 Diabetes Mellitus. In former type body is absolutely unable to produce insulin while in later type body produce either insufficient insulin or glucose metabolism in the body refracts insulin. Both are metabolic disorder but type 2 has a greater relation with other metabolisms of the body than Type 1. No doubt in the modern era new drugs, better insulin, and superior monitoring techniques have been developed but cost and side effects of these interventions cannot be isolated. This is the reason to have a look on other systems of medicine which are helpful not only in controlling of the disease but also modifying its risk factors and improving quality of life. Unani System of Medicine which is one of the oldest and most popular systems of medicine can deal with this dangerous and life threatening disease in a very systemic and optimal way. In this paper an attempt has been made to explore the physiopathology of the disease and accordingly its management by Unani System, of Medicine.

**Keywords:** Diabetes Mellitus; *Ziabetus Shakri*; Regimenal Therapy; Unani System of Medicine; US; Tibb.

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## INTRODUCTION

Diabetes Mellitus (DM) is one of the oldest & recorded diseases of the world. Once regarded as a single disease entity, the disease may now be recognized as a group of disorder with far reaching health consequences resulting from diversities of etiologies, environmental and genetic factors<sup>1</sup>

It is a clinical syndrome characterized by hyperglycemia due to absolute or relative deficiency of insulin or development of resistance against insulin in the body.

### Types of Diabetes Mellitus

Basically there are two types of the disease.

Type 1 Diabetes Mellitus

Type 2 Diabetes Mellitus.

#### Type 1 Diabetes Mellitus

It is also called Insulin Dependent Diabetes Mellitus (IDDM). The type of the disease in which there is absolute cessation of insulin secretion from pancreas.

#### Type 2 Diabetes Mellitus

It is also known as Insulin Independent Diabetes Mellitus (IIDM); type of disease in which there is no absolute deficiency of insulin, rather there is relatively either low secretion of insulin from pancreas or refraction of insulin to increased blood sugar in the body. This type of the disease is more common and remains dormant for decades. Its clinical pictures are usually complicated by presence of other disease processes<sup>2</sup>. Here author is going to focus on this type of DM.

## UNANI CONCEPT ABOUT DM

The concept of Diabetes Mellitus in ancient Unani System of Medicine (USM) is as old as this system is itself but no details of its classification or pathophysiology was as clear as now, however its ancient philosophers discussed on its causes, symptoms and treatment in a very impressive way. Later on, modern Unani physicians researched on its pathophysiology and management in a very detailed and scientific way.

**Buqrat** (460-377BC) the father of medicine did not mentioned its specific term but discussed its signs and symptoms as excessive urination and wasting of the body in his writings<sup>3</sup>

**Jalinoos** (129-200) the Roman physician employed alternative terms for Diabetes “*diarrhea urinosa*” means excessive urination and “*dipsakos*” means excessive thirst<sup>4</sup>

**Zakaria Razi** (850-923) also known as *Razes* mentioned in his book *Alhawi* that DM is caused by abnormal Temperament and weakness of kidney<sup>5</sup>.

*Ibne Sina* (980-1037) famously known as Avicenna first time described accurately clinical features of Diabetes mentioning the two specific complication of the disease the libido and formation of gangrene <sup>6</sup>. Another Greek Philosopher *Aretaeus* of Cappadocia (81-138AD) is believed to use the term Diabetes first time for excessive urination. Later on, the term Mellitus was added with it. *Diabainein* means pass through and Mellitus means sweat. <sup>5,7</sup>.

### **Risk Factors**

Unani Physicians did not mention risk factors of the disease in detail, however in modern scientific era various contributing risk factors have been identified and Unani Physicians equally accepted these risk factors and mentioned them in their texts. For the purpose of understanding the management strategy of the disease the risk factors are classified into two groups:

#### **General Risk Factors**

These are general risk factors contributing in causation of IIDM without influencing general metabolisms of the body. They include:

- Ethnicity
- High Family History
- Gestational DM
- Age
- Polycystic Ovarian Syndrome

#### **Metabolism Associated Risk Factors**

These are risk factors contribute in causation of IIDM by influencing general metabolism of the body. They are called Metabolic Syndrome or Syndrome X and they include;

- Obesity
- Dyslipidaemia
- Hypertension
- Abdominal deposition of fat <sup>7</sup>

#### **Some Other Contributing Risk Factors of Type 2 DM**

- High Fat Diet
- High Sugar Intake
- Deficiency of Vit D
- Deficiency of Antioxidant
- Junk Food
- Processed Food
- Low Fiber Diet

### Pathophysiology

Glucose is an important source of energy in the body. It is generally obtained from breakdown of carbohydrates in the diet. The liver is also able to manufacture glucose from its glycogen stores. In healthy persons a feedback mechanism controls the demand of the sugar by body cells and high concentration of the sugar in the blood stream. Whenever there is a demand of sugar by the body cells, insulin secreted by beta cells of pancreas triggers the blood sugar and facilitates its transport across cell membrane to meet demands of the cells. Insulin also maintain the blood sugar by converting it into glycogen to store it in liver and body muscles whenever there is excessive level of sugar increases in blood after meal. Another hormone glucagon secreted by alpha cells of the same gland act contra indicatory to insulin to maintain normal blood sugar level.

In Type 2 DM the body either produces inadequate amount of insulin to meet body demand or insulin become resistant to high sugar level in the blood. Insulin resistance means general metabolism of the sugar hampered and liver fails to store glycogen, muscles fail to utilize blood sugar and body fat cells tend to gain energy from free fatty acids produced by breakdown of triglycerides. Obesity and lack of physical activities thought to play major role in development of insulin resistance <sup>8</sup>

### Management Strategy

In the modern system of medicine the main goal in management of Type 2 DM is emphasized on elevation of symptoms, maintaining normal blood sugar, preventing short and long term complication and improving quality of life. All of these goals can be achieved by the following strategies:

- Educating the high risk individuals
- Modification of life style
- Modification of diet
- Use of hypoglycemic drugs
- Prevention and management of complications

Healthy diet, regular physical exercise, maintaining normal body weight and avoiding tobacco use can prevent or delay the diabetes mellitus <sup>9</sup>

### Unani way of managing Diabetes Mellitus (Type 2)

Previously Type 2 DM was regarded as disease of derangement of temperament (*Sue Mizaj*) and disease of kidney failure (*Zofe Killiyah*) <sup>10,11</sup>. So they continue to treat the disease on these principles for a long time. Now they have not only considered the modern concept of the disease but also described its management accordingly.

In USM the strategy of management of Type 2 DM is categorized in the following order:

- *Ilaj bil Ghiza* / Dietotherapy

- *Ilaj bit Tadbeer*/ Regimenal Therapy
- *Ilaj bid Dawa*/ Medicinal Therapy
- *Ilaj bil Yad*/ Surgery

By assessing condition of the patients, personal and family history, nature of the disease and possible complications of the disease Unani physicians implement one or more than one of the above mentioned strategies in management of the disease.

### **Ilaj bil Ghiza**

The nutritional approach in management of IDDM consists of adequate diet; maintaining not only required daily calories of the body but also strengthening vital organs of the body including pancreas, heart, brain, liver, eye, kidney etc. For this purpose Unani physicians have categorized the dietary modules for Diabetic Patients into five groups.

- High fibers diet like whole grain flour
- Low calories-high energy diets like beans
- Low fat diets
- Fat metabolizing diets like citrus fruits
- Diet giving strength to vital and general organs of the body. This type of diet is basically some natural minerals or herbs giving strength to the body and they are called *Adviyya E Muqawwiyya*.

### **Ilaj bit Tadbeer**

Various regimenal procedures are applied to mobilize the body, to improve metabolism of the body and to modifying the general risk factors of the disease. They include:

- Regulation of daily routine.
- Regulation of proper sleep and awakesness (*Naum wa Yaqza*)
- Exercise (*Riyazat*)
- Massage (*Dalk*)
- Turkish Bath (*Hamma*)
- Cupping (*Hijamah*)
- Vaporization by heating of the body (*Taskheen*)
- Sweating (*Tareeqe*)

### **Ilaj bid Dawa**

Use of medicine comes on number third in management of IIDM. In recent days Unani scholars have discovered various natural remedies having not only good hypoglycemic effect but also improving function of beta cells and reducing insulin resistance. Some Unani medicine having hypoglycemic effect, improving secretion of insulin from pancreas or reducing insulin resistance are as follows:

- Jamun (*Syzygium cumini*)
- Karela (*Momordica charantia*)
- Neem (*Azadirachta indica*)
- Darchini (*Cinnamomum zeylanicum*)
- Methi (*Trigonella foenum*) etc.

### **Ilaj bil Yad**

They are least practical approach in USM and are reserved only for extreme conditions of IIDM. Amputation of diabetic foot and bariatric surgery are some examples of surgical procedures in management of IIDM. Basically surgery helps to minimize the complication by blocking the advancement of disease progress.

### **CONCLUSION**

Diabetes Mellitus is becoming the fastest considerable disease in the world. India has been projected by WHO as the country with the fastest growing diabetic population. The Allopathic system of medicine, in spite of tremendous advancement is not completely capable in controlling the disease. Apart from it chemical drugs are costly and exhibits known and irreversible side effects. USM has different aspects of management of the disease from dietary intervention regimental therapy. So the need of the time is to understand the concept and treatment of the disease in Unani prospective. Experience shows modification in the life style and dietary schedule with use of Unani medicine has shown tremendous effect not only in management of the disease but also improving the quality of life and limiting possibilities of both short and long term complications of the disease.

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