ORIGINAL RESEARCH PAPER

Unani Medicine

PREVENTION AND MANEGEMENT OF ZIABETUS SHAKARI [DIABETES MELLITUS] THROUGH UNANI SYSTEM OF MEDICINE: AN OVERVIEW

KEY WORDS: Diabetes mellitus, Ziabetes, Sue Mizaj Haar Kulliya, Unani herbal medicine, anti-diabetic.

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ABSTRACT

Inspite of improvement in the healthcare facilities available no of diabetic cases are still increasing. Studies have shown that the conventional way to manage diabetes was not able decrease burden of disease from the society. Nowadays, researchers are looking for an alternative approach to tackle and cease the ever-increasing load of diabetes. Unani System of Medicine (USM) is one of the oldest and time proven methods to manage this kind of situation. It has unique and scientific concept of diabetes mellitus. According to the basic philosophy of Unani System of Medicine the diabetes mellitus is the result of disturbance in quantity as well as quality of Akhlat (Humors) and Mizaj (Temperament) which leads to decrease in Hararat-e-Gariziya. This concept clearly describes diabetes, its pathogenesis, complications and holistic approach towards its management. Diabetes mellitus is a common and chronic metabolic disorder characterized by increased blood glucose level. In Unani system of medicine, diabetes mellitus is known as Ziabetus Shakari. The prevalence of diabetes in India is 77 million, second highest in the world if active control measures were not taken it may get even worse [1]. There are various Unani herbal preparations having antihyperglycemic, antioxidant and protective effect of heart, kidneys and nerves.

INTRODUCTION

In modern medical science there is lot of development still various diseases are challenging to human being and efforts are being done to conquer them. In India, the prevalence is about 77 million second highest in the world if active control measures were not taken it may get even worse. [1].

Diabetes Mellitus, More commonly referred to as "diabetes" is a chronic disease associated with abnormally high levels of the sugar {glucose} in the blood. Diabetes occurs due to either of two mechanisms: 1. Inadequate insulin production (which is made by the pancreas and lowers blood glucose), or 2.Inadequate cell sensitivity for the insulin action. Diabetes is a chronic and complex metabolic disorder resulting from insulin resistance or impaired insulin secretion, therefore, a diabetic patient will suffer from chronic hyperglycemia. It leads to irreversible damage to the liver, kidneys, eyes, nervous system, cardiovascular and other parts of the body[2]. This form of diabetes is frequently undiagnosed for many years because hyperglycemia is often not severe enough to provoke noticeable symptoms of diabetes, but such patients are at increased risk of developing complications. Macrovascular complications include coronary artery disease, peripheral vascular disease, atherosclerosis. Microvascular complications like retinopathy, neuropathy, and nephropathy. Several factors are responsible for development of diabetes, which include obesity, imbalance of metabolism and diet rich in animal products, etc. Obesity especially abdominal obesity is also considered a key risk factor for insulin dependent DM.

Concept of Ziabetus [Diabetes Mellitus] in Unani System of Medicine

According to Unani System of medicine, Ziabetus is of two types –one is Ziabetus shakari [Haar or DM] and second is Ziabetus saada [Baarid or D. Insipidus]. There are several causes responsible for the development of the disease which includes: weakness of kidney, dilatation of orifices of vessels of the kidney, Sue mizaj haar kulliya [dystemperament of kidney], Buroodat Kulliya [coldness of the kidnys], Qawi Quwwat Jaziba [strong expulsive power] and zof-e Quwwat –e- Masika [Weakness of retentive power]. Because of weakness of kidneys, metabolic changes do not take place in the water and because of hot dystemperament of kidneys [Sue Mizaj Haar Kulliya] they absorbs more water from the body and it does not work properly because of excess of water, dilatation of orifice of vessels causes excretion of water[6,7].According to Unani system of medicine ziyabetus shakari occurs due to zof-e-kulliya, Sue Mizaj Haar Kulliya (dystemperament of kidney), Baroodat–e-Kulliya (coldness of the kidneys), QawiQuwat-e-Jaziba (strong expulsive power) and zof Quwate Masika (weakness of retentive power). Hence the herbal medicines having the temperament of cold and dry and properties of tonic to the liver and kidneys would be beneficial.

Ziabetes Shakri [diabetes mellitus] is one of the world's oldest known diseases. The prevalence of diabetes is rapidly rising all over the globe at an alarming rate.In Unanio " derived from Greek language of "Ziabetus", which means, "t The concept of Ziabetus also exists in ancient world; it is proved by the discovery of Eberes papyrus, written about 1550 BC. Eberes papyrus contains descriptions of various diseases including a polyuric state resembling Ziabetus Shakri. Aretaeus was the first to use the term "Ziabetus" in connection with this ailment, which means "to run through" or "Siphon" and provide the accurate description of the symptoms of Ziabetus for the first time. After Arestaeus , Jalinoos describe Ziabetus as a rare disease, and referred to the ailment as" Diarrhoea Urinosa [Diarrhoea of urine]", and "Dipsakos [the thirsty disease]". After that, during the Arabic era Ibn e Sina describe accurately the clinical features of the disease and mentioned two specific complications of diabetes, namely Gangrene and the collapse of sexual function.

Historical Background

In Unani classical text diabetes is described by renowned Unani scholars like Zakaria Al Razi, Ali Ibn abbas majoosi, Ibn sina, Ismail jurjani, Ibn zuhar, Ibn Hubbal Baghdadi with various names such as Ziabetus, Dolaab, Moattasha, Barkarya Qamamees etc. [15] In Ancient period, Clinical features similar to diabetes mellitus were described 3000 years ago by ancient Egyptians. They were the first to write papyruses about this disease, which is proved of Thabes in 1862, written by Georg Eberes about 1550 BC.

- Hippocrates (460 BC) mentioned a disease with excessive urinary flow and waste out of the body.
- The first cognized clinical description of diabetes appears to have been made by Aulus Cornelius Celsus (30 BC-50AD), but it was Areteus of Cappadocia, who plied a detailed and accurate account and introduced the

name "diabetes" from the Greek word for "siphon".

Galen (131-201 AD) defined diabetes as Diarrhea Urinosa (diarrhea of urine) and dipsakos (thirsty disease).He described it as a disease specific to kidneys because of *Ilaj bil ghiza*

- Weakness in their retentive ability.
- The Chinese (Chang chung-Ching in 229 AD) and Japanese (Li Hsuan) literature explained a disease with sweet urine, which attracted dogs and insects.
- During the 5th and 6th centuries, the sweet taste of urine in polyuric patients was also described in the Sanskrit (Indian) literature by Susruta, Charaka, and Vaghbata, and the disease was named Madhumeha

Ziabetus is mentioned in most of the Unani literature like in Al Qanoon, Al Hawi, Kamil Sana'ah etc.[6] In Unani literature it is attributed to be the disease of kidney.[7] According to Unani medicine, Ziabetus shakri is a disease in which the consumed water is passed out through the kidney immediately after intake by the patient. It is like the *Zalaqul Meda wa Ama* (irritable bowel syndrome) in which the food passes rapidly through the stomach and intestine without proper digestion. The Unani philosophy of disease causation is based on *Mizaj* (temperament) and *Saakht* (structure) deviation.

Usool-E-Ilaaj

- According to Hippocrate it is a disease of *Sue Mizaj Haar Yabis* so use of *Barid Ratab* and *Muqawwi-e-Gurda Advia* wa*Aghzia* are beneficial like *Ma'al-Sha'ir*.
- According to Jalinoos use of alkalizer and Tabreed kulliya is the sole of treatment. In *Makool wa Mashroob* use *Qabizat wa Hamizat* foods.[8]
- Weight reduction with calorie restricted diets and increased physical activity are the first line therapy of DM.[7]

Prevention of Ziabetus in Unani System of Medicine

Exercise and weight reduction

In order to control diabetes in India, the Government of India initiated the National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS) in 2010. It aims to set up outreach camps for opportunistic screening at all levels in the health care delivery system for early detection of diabetes, among other illnesses. Physical activity is an important factor in controlling blood sugar levels. Exercise and lifestyle modifications can prevent the onset of ziabetus shakari and regulates the blood glucose level for those who are already affected from diabetes. Exercise promotes the entry of glucose into the cells thereby lowers insulin resistance and blood sugar levels. Exercise also prevent cardiovascular disease, reduces cholesterol levels and weight. There is wide scope in Unani system of medicine for management and control of diabetes.

Ilaj bil giza

- Avoid sugar containing items like potato, carrot, banana, beetroot and turnip.
- Eat vegetables like beans, bitter gourd, pumpkins, fenugreek, lettuce, cucumber and broccoli.
- Consume papaya, orange, apple, guava and similar fruits.
- Include whole grains like wheat, barley, corn, oats and gram in diet.
- Eat dry fruits like almond, pistachio and walnut.
- Consume non fatty dairy-products and fish.

Ilaj bil tadbeer [Regimenal Therapy]

- *Dalak [Massage]*
- *Hijamah [Cupping]*
- *Riyazat [Exercise][27].*

Management of Ziabetus in Unani System of Medicine

More than 400 traditional plants have been reported so far, to possess hypoglycaemic activity. However, very few of them could yield confirmed activity after fractionation.The use of medicinal plants and herbal drugs have been in practice since the ancient times.

The first principle of the treatment of diabetes according to old Unani literatures is to quench the thirst, for this purpose, Arq-e-Gulab or Usara-e-Gulab should be given. Other drugs reported to control the diabetes mellitus are Ma-us-Shayeer (Barley water), Ashreba Mauttiya Mubarrida (Cold syrup), Qurs-e-Kafoor, Qurs-e-Tabasheer, Qurs-e-Ziabetus.

Single Drugs in Unani System having Anti-diabetic property:

- Tukh-e-hayaat (Withania coagulans Dunal)
- Hulba (Trigonella foenum-graecum)
- Maghz-e-neem (Azadirachta indica)
- Darchini (Cinnamomum zeylanicum)
- Chiraita (Swertia chirata)
- Tukhm-e-konch (Mucuna pruniens
- Karela khushk (Momorda charantia)
- Asghand (Withania somnifera)
- Jamun (Syzygium cuminu)
- Bael (Aegle marmelos Correa)
- Kishneez-e-khushk (Coriandrum sativum Linn)
- Shooneez (Nigella sativa)
- Sat-e-Gilo(Tinospora cordifolia Meirs)
- Gurmar booti (Gymnema Sylvestre)

Antidiabetic Unani single drugs

Karela (M.charantia) (Bitter Gourd) It is commonly used as an antidiabeticagent in India. Extract of fruit pulp, seed, leaves and whole plant was shown to have hypoglycemic effect in various animal studies. Polypeptides isolated from fruit and seeds of M. charantiashowed significant hypoglycemic effect on humans.[11]

Giloy (Tinospora cordifolia)

It is a large, glabrous, deciduous climbing shrub distributed throughout India and widely used in Unani system of medicine for treating diabetes mellitus. Oral administration of the extract of roots for six weeks resulted in a significant reduction in blood and urine glucose and in lipids in serum and tissues in diabetic rats [12–14]

Gurmar (Gymnema sylvestre)

G. sylvestre is another commonly used herb in Unani system of medicine. According to common folklore, chewing the leaves causes a loss of sweet taste, hence the popular Hindi name of the extract of Gymnema reported regeneration of islets of Langerhans, decrease in blood glucose, and increase of serum insulin in diabetic rats and rabbits. The evidence for the beneficial effect of G. sylvestre in diabetes is suggestive for the management of diabetes [15].

plant "gurmar," meaning
"destroyer of sugar." Studies of an ethanol leaf

Unani single drugs having Antidiabetic with Cardio-Protective property

Methi (Trigonellafoenum graecum)

(Fenugreek) Fenugreek seeds are found all over India andit is usually used as one of the major constituents of Indian spices. Fenugreek, when taken internally, reduces blood sugar [17] and enhances wound healing. Seeds are used for various remedies such as loss of appetite, and other digestive problems. The seeds are rich in fiber and are mainly responsible forblood-sugar-lowering effect. The seeds also contain an active metabolism and normalize creatinine kinase activity in heart, skeletal muscle and liver of diabetic rats. It also reduces hepatic and renal glucose and fructose activity. This plant also shows antioxidant activity [16].

compound called "Trigonelline" which acts as a blood-sugar-lowering agent. Administration of fenugreek seeds also improve glucose

Jamun (Eugenia jambolana) (Indian gooseberry)
Decoction of kernels of Eugenia jambolana is used as a household remedy for diabetes. This also forms a major constituent of many herbal formulations fordiabetes in Unani system of medicine. Antihyperglycemic effect of aqueous extract as well as powder shows reduction in blood glucose level. The extract of Jamun pulp showed the hypoglycemic activity in diabetic mice within 30 min of administration while the seed of the same fruit required 24 h. The oral administrationof the extract resulted in increase in serum insulin levels in diabetic rats [24].

Tulsi (Ocimum sanctum) (Holy Basil), It is commonly known as Tulsi. Since ancient times, this plant is known for its medicinal properties. The aqueous extract of leaves of Ocimum sanctum showed significant reduction in blood sugar level in both normal and alloxan-induced diabetic rats [25]. Significant reduction in fasting blood glucose, total amino acid, total cholesterol, triglyceride and totallipid indicated hypoglycemic and hypolipidemic effects of Tulsi in diabetic rats [26].

Neem (Azadirachta indica) Extract of this plant showed anti-hyperglycemic activity in rats and this effect is because of increase in glucose uptake and glycogen deposition. Apart from having anti-diabetic activity, this plant also has anti-bacterial, anti-malarial, anti-fertility, hepato-protective and antioxidant effects [18,19].

Babool (Acacia arabica) The plant extract acts as an antidiabetic agent by acting as secretagouge to release insulin. Powder of the seeds when administered 2, 3 and 4 g/kg body weight to normal rabbits induced hypoglycemic effect by initiating release of insulin from pancreatic beta cells [20].

Pyaz (Allium cepa) (Onion) Allium cepa is also known to have antioxidant and hypolipidemic activity. Various ether soluble fractions as well as insoluble fractions of dried onion powder show anti-hyperglycemic activity in diabetic rabbits. Administration of a sulfur-containing amino acid from Allium cepa, 200 mg/kg for 45 days to alloxan-induced diabetic rats significantly controlled blood glucose as well as lipids in serum and tissues [21]. When diabetic patients were given single oral dose of 50 g of onion juice, it significantly controlled post-prandial glucose levels [22].

Lahsun (Allium sativum) (Garlic) It is a perennial herb cultivated throughout India. Allicin, a sulfur-containing compound is responsible for its pungent odor and it has been shown to have significant hypoglycemic activity. This effect is thought to be due to increased hepatic metabolism, increased insulin release from pancreatic beta cells and/or insulin-sparing effect. Aqueous homogenate of garlic 10 mL/kg/day administered orally to sucrose-fed rabbits significantly increased hepatic glycogen and decreased fasting blood glucose and triglyceride levels in serum [23].

Compound Unani formulations used in Unani system of medicine
Qurs ziyabetous khas
Qurs kafoor
Qurs tabasheer
Safoof sandal ziyabetus wala
Safoof ziyabetus[27]

CONCLUSION
Unani medicines play an important role in the management of diabetes. Treating diabetes mellitus with plant derived compounds which are easily accessible without having harmful/adverse effects. Plants have played a significant role in human health and life for thousand of year. Using herbal or natural medicines for the treatment of diabetes and its complications has a long and extensive history. All these herbal drugs discussed in this review exhibit significant clinical and pharmacological activities. The potency of herbal drugs is significant and they have negligible side effects. Supplementation of these herbal drugs for diabetic patients prevents the development of oxidative stress and its associated complications.

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