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Diet, diabetes and Unani medicine: An evidence based approach

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Abstract
Diet is a substance, which after administration and *Istihala* (metabolism), becomes the part of the body or organ and provides *Badl Ma Yatahallal* (Replacement for wear and tear). It has been documented for over long years ago as being vital to the overall management of diseases. Today dietary advice for the persons with diabetes continues to play just as an imperative role as antioxidant, immunomodulator, hepatoprotective, nootropic activity and also for control and prevention of complications. The diet containing all the essential nutrients such as vitamin, protein, fat, carbohydrates and minerals in balanced proportion is known as balance diet which is beneficial to reduce the complication of Diabetes. Diabetes Mellitus may lead to many acute and chronic complications. Such type of chronic complications are mainly due to the result of longstanding damage to blood vessels. These complications are mainly classified as microvascular due to basement membrane thickening or macrovascular due to accelerated atherosclerosis. The major microvascular complications are diabetic retinopathy, diabetic neuropathy and diabetic nephropathy. The diabetic foot ulcer is due to the result of longstanding peripheral neuropathy, if untreated it may lead to the amputation. Good glycaemic control is challenging for the physicians and patients. Complications of diabetes are totally due to poor glycemic control. Unani Medicine is the thrust area for research to control or reduce the complications of diabetes. Various Unani drugs (*mufrad* and *murakkab*) exhibit anti-diabetic activity, nootropic activity, antioxidant activity and immunomodulator activity such as *Post Kachnar, Darehald, Aqerqarha, Beesh, Azaraqui, Saadkofi, Balchhar, Tukhme Khurfa, Dammul Akhwain, Kabab Chini, Filfil Daraz, Darchini, Tukhm Methi, Gurmar Booti,* or *Asgand* etc. and some compound drugs are *Qurs Gulnar, Habbe Asab, Habbe Azaraqui, Safofe Ziabetus, Qurs Tabsheer, Qurs Ziabetus* and *Kushta Qalai* etc. Aim of this review is to explore the benefits of diets and Unani drugs on the scientific parameters to reduce the burden of diabetes associated complications.

Keywords: Ghiza, diet, Unani drugs, diabetes, Unani medicine

Introduction
Lifestyle and medical nutrition therapy are considered as the key of type 2 diabetes prevention and treatment, but there is no definite consensus on how to treat this disease with these therapies. The American Diabetes Association has made several recommendations regarding the medical nutrition therapy of diabetes; these emphasize the importance of minimizing macrovascular and microvascular complications in people with diabetes. Four types of diets were reviewed for their effects on diabetes: the meterranean diet, a low carbohydrate/high protein diet, a vegan diet and a vegetarian diet [1].
Diabetes mellitus (DM) is a metabolic disorder characterized by hyperglycemia resulting from defects in insulin secretion, insulin action or both [2]. Worldwide prevalence of diabetes was estimated to 387.0 million in 2014, but in India alone 65.0 million and in China 98.4 million in 2013. 77 % of people with diabetes live in low- and middle income countries. every 7 seconds 1 person dies from diabetes [3].

Historical Background
The term diabetes is derived from Greek-Siphon or '*diabainein*' which means passing through and which for the first time was coined by *Areteus* of Cappodocia (81-133AD) [4, 5]. He is believed to be the first to use the name "diabetes" indicative of intense thirst due to excessive emission of fluids from the body [6] while the name is attributed to Demetrios of Apamaia (2nd Century BC) derived from the word '*diabainein*' as a substantive at that time

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which meant to be a circle and double siphon for passage of fluid [7]. Several distinct types of DM are caused by a complex interaction of genetics and environmental factors.

Prevalence and Management
Depending on the etiology of DM, factors contributing to hyperglycemia include reduced insulin secretion, decreased glucose utilization and increased glucose production [8]. Type 2 DM has a high rate of genetic penetrance and is associated with obesity and a lack of physical activity [9]. It accounts for the majority of DM encountered in clinical practice [8]. Most of the times the diagnosis can be made only after the development of vascular or neuropathic complications [9]. There are a very few non specific symptoms in the early years which the patients experience, but it may not be attributed to being related to diabetes. Although type 2 DM has recently been found with increasing frequency in children, adolescents and young adults, it is usually associated with advancing age; most cases are diagnosed after the age of 45 years [8, 10]. The reason behind it is preferably the inactivity.

Worldwide, people are less physically active and this has become a leading risk factor for ill health as millions of lives are lost per year due to physical inactivity which leads to a host of disorders and DM is one of the four major NCDs (Cancer, Diabetes, Chronic respiratory and Cardiovascular diseases) [11] which account for most of the disease burden and premature mortality in the European Region. The WHO has projected that diabetes will be the 7th cause of death by 2030.

According to the International Classification of Diseases, Type 2 DM has been coded as E 11.

The following are the definitions of Type 2 DM:
1) A heterogeneous group of disorders characterized by hyperglycemia and glucose intolerance.
2) A metabolic disorder characterized by abnormally high blood sugar levels due to defective production of insulin or insulin resistance.

Further, the WHO estimates that globally, high blood glucose is the third highest risk factor for premature mortality, after high blood pressure and tobacco use. Many governments and public health professionals however, remain largely unaware of the current impact of diabetes and its complications [14].

So in 2012 it was seen that DM was the direct cause of 1.5 million deaths. More than 80% of the deaths occur in low and middle income countries due to economic constraints and inaccessibility to standard health care. In 2014, 9% of adults aged 18 years and older had DM [15].

The latest scenario is that around 415 million people worldwide or 8.8% of adults aged 20-79 years are estimated to have DM. About 75% of diabetics live in low-and middle income countries. If the same trend continues then by 2040 about 642 million people i.e; one adult in every ten will have DM. The largest increase will take place in the regions where economies are moving from low-income to middle-income levels.[16] According to a survey conducted in 2009 in India, more than 70 million individuals were diagnosed with the disease[17] but at present the number of diabetics according to IDF 2015 is 69.2 million.

DM has a substantial economic impact on countries and national health systems [16]. Most of the countries spend between 5% and 20% of their total health expenditure on diabetes. This is because of an increase in use of health services, loss of productivity and the long term support needed to overcome its complications, such as kidney failure, blindness or cardiac problems. With such a high cost, the disease is a significant challenge for healthcare systems and an obstacle to sustainable economic development [16].

Unani Approach
In Unani Classical text of Unani Medicine Diabetes is known with different names such as *Zalqul kulia, dulabiah, duwarah, burkariah, muattesha, ziasqumas* and *qaramis* [18]. In Unani classical books like *Al-Qanoon fit Tib, Al-Hawi, Moalajat-e-Buqratiya, Kamil- us-San'a, Zakheera Khwarzam Shahi, Al-Mukhtarat Fit Tibb* [19] and a lot of others there are adequate indications about the efficient use of many single drugs for DM since the Greeco-Arab period. As an alternative approach single as well as compound formulations are sought after by the patients. Hence the need for alternative therapies for DM has increased globally because the patients worldwide have become aware of the fact that oral anti-hyperglycemics produce unfavourable effects in the long run. The first line of treatment adopted in modern medicine is the use of Biguanides and Sulfonylureas for reducing hyperglycemia [8]. Many of the drugs mentioned in Unani literature have enough evidence regarding their effective use in DM since long but they need clinical assessment in the light of scientific approach.

The diet and drugs, to name a few, which would provide *ghiza, tabreed* and *tarteeb* are *Methi, Bathwa, Palak, Cholai, Kahu, Khashkhaash, Khurfa, Kafoor, Neelofer, Aab-e-Kkaddu, Aab-e-khayaar, Aab-e-anaar tursh, Aab-e-toot,Aqaqiya and Samghe-e-arbi* etc.[20,] Out of these some drugs act as DPP_4 inhibitors, α-glucosidase inhibitors and β-cells stimulators etc.

Because, diet constitutes a key element of culture. Health education aimed at influencing the diet of the people must begin by understanding the predominant compositions of the current diet. Those who have had their traditional diets modified through dietary acculturation with exotic combinations, frying of foods and the acquisition of new tastes leading to a high intake of saturated fat, oils, and salts and a reduced consumption of vegetables and fibers, must be educated in a culturally relevant manner to adjust their dietary habits in order to live healthily. Dietary guidelines for public-health intervention are necessary. The onus is on policy makers, health professionals, nutritionists, health educators, and communicators. Basic survival is still a problem for most people living in developing countries. Therefore, traditional perceptions and cognitive imagery about the risk factors of diabetes, especially obesity, is unlikely to alter in any way significantly unless aggressive health-promotion campaigns are conducted.

Diet and other lifestyle factors form the basis of treatment of diabetes-especially type 2 diabetes. The traditional diet in most developing countries, especially of Africa, is rich in staples consisting of cereals (rice, cornmeal, or flour, sorghum and millet) roots and tubers (yams, plantains, potatoes, and cassava), accompanying meat, fish, or vegetables, and is ideal for patients with diabetes [21].

Conclusion
Diabetes is a common metabolic disorder which is greatly associated with lifestyle and dietary pattern because most of the diet *viz*; carbohydrate containing, proteinious, fatty or

non-vegetarian diets aggravate the process of gluconeogenesis and hamper the function of pancreas which are augmented into different diseases and complications. Bulky, fibrous, greenish diet which are beneficial for diabetic patients. Some of them delay the intestinal absorption, convert glucose to glycogen and help to increase the level of incretins.

Acknowledgement

References

1. Khazrai YM, Defudis G, Pozzilli P. Effect of diet on type 2 diabetesmellitus:a review. DiabetesMetab Res Rev. 2014; 1:24-33.
2. Shah NS. API text book of medicine. Jaypee Brothers. New Delhi. 8th edition; 2009; 2:1042-1081.
3. Anonymous. International Diabetes Federation. Diabetes Atlas; 6th edition, 2013.
4. Anonymous. International Diabetes Federation. Diabetes Atlas; 6th edition, 2014.
5. Kallikazaros IE. Diabetes Mellitus: A Sweet-And-Sour Disease. Hellenic J Cardiol. 2013; 54:153-154.
6. Ali H, Anwar M, Ahmad T, Chand N. Diabetes Mellitus from Antiquity to Present Scenario and Contribution of Greeco Arabic Physicians. JISHIM. 2006; 5:46-50.
7. Ahmed IS. History of diabetes Mellitus. Saudi Med J. 2002; 23(4):373-8.
8. Engelhardth Von D. Diabetes its medical and cultural history. Springer.
9. Harrisons Principals of internal med. 18 edition. Chapter, 344.
10. Silvio E, Robert S, Sherwin. Goldman: Cecil Medicine, 23rd edition chapter, 248.
11. Hasan MQ, Jamiul Hikmat. New Delhi: Idara Kitab-us-Shifa, 2011, 866.
12. IDF UN High Level Summit on NCD's, 2011.
13. Anonymous. Definition and Diagnosis of DM and Intermediate Hyperglycemia. WHO/IDF, 2006.
14. Akhter S, Rahman MM, Abe SK, Sultana P. Bulletin of WHO, 2014; 92:204-213A.
15. Anonymous. Who fact sheet, 2015.
16. Anonymous. IDF, 2015.
17. Narayan P. Times of India survey. 2009.
18. Khan MA. Al-Iksir (Urdu translation by M Kabiruddin). New Delhi: Idara Kitab-al-Shifa. 2011, 705-709.
19. Fazil M, Nikhat S, Akram M. Diabetes from Ancient to Modern Era. Hamdard Medicus, 2012; 55(1):27-31.
20. Sina I, Al-Qanoon Fit-Tib. (Urdu translation by Kanturi G.H). New Delhi: Idara Kitab-al-Shifa. 3(2):1031-1033.
21. Opara E. Nutrition Diabetes and Pathophysiology and Management. Published by Taylor & Francis Group. 2005, 256-257.