Diabetes a global epidemic.

Jakeer Hussain*

Assistant Professor Department of Pharmacology, Jadavpur University, Kolkata, India

Abstract

Diabetes is one of the oldest disease described. Egyptian manuscript dated back 1500 BC clearly speaks much about it. The Eber Papyrus includes a recommendation to take a special kind of drink to take it. The word Diabetes was known and described by Greek Apollonius in 230 BCE and disease was known to many great civilizations also, but it was in the last century that we knew many interesting facts about this common disease.

In the last two centuries diabetes had become a common disease and has spread in the world as epidemic much in developing countries like India. With the coming o newer medicines and latest clinical trials, we had made progressive knowledge about its pathogenesis and management. Research had shown that in India Diabetes is more prevalent in urban areas as compared to rural areas and Indians even with less Body Mass Index are more vulnerable as compared to the Caucasian races. According to world Diabetes Atlas, India is projected to have around 62 million people with diabetes. India has highest number of diabetes patients as compared to China and United States. It is predicted that by the year 2030, India would have more than 80 million people suffering from Diabetes while China would have 42.5 million and United States would have 30.5 million. Diabetes can be managed by keeping Body Mass Index lower than 25, by cessation of smoking, exercise and yoga. Government of India should take some initiative to curb this menace.

Keywords: Insulin, glucose, sulphonyl urea.

Accepted on April 04, 2018

Introduction

Diabetes is one of the first recorded disease in the history of mankind. It founds its description in Egyptian manuscript dated back to 1500 BCE and the disease was first described by Greek Apollonius in 230 BCE. This disease was very rare during the Roman empire because of exercise, lifestyle and balanced diet of Roman people. Type 1 Diabetes were identified a separated condition for the first time by Indian physicians Sushruta and Charka in 500BCE. Modern Day Diabetes Mellitus commonly referred to as Diabetes is a group of metabolic disorders in which blood sugar level is high. If left untreated can cause major complications like Hyperosmolar, Diabetic Ketoacidosis, Diabetic Neuropathy, Diabetic Nephropathy, Hyperglycemic state or even death.

Pathogenesis of Diabetes

Over the past two centuries, we have learned that diabetes is a complex, heterogeneous disorder. Type 1 diabetes occurs in young people and is due to selective autoimmune destruction of the pancreatic beta cell, which leads to insulin deficiency. Adults have more likely to have type 2 Diabetes. Genetic factors play a crucial role in the development of Diabetes. Type 1 and 2 are polygenic disorders. A few forms of diabetes (e.g. maturity-onset diabetes) are single gene disorders that affects the pancreatic beta cells. Understanding the pathogenesis of type 2 diabetes is a complex thing by many factors [1]. Patients present with a combination of varying degrees of insulin resistance and relative insulin deficiency, and it is likely that both contribute to type 2 diabetes [2]. Furthermore, each of the clinical features can arise through genetic or environmental influences, making it difficult to determine the exact cause in an individual patient. Moreover, hyperglycemia itself can impair pancreatic beta-cell function and exacerbate insulin resistance, leading to a vicious cycle of hyperglycemia causing a worsening metabolic state [3].

Type 2 diabetes is often accompanied by other conditions, including hypertension, high serum low-density lipoprotein (LDL) cholesterol concentrations, and low serum high-density lipoprotein (HDL) cholesterol concentrations that, like type 2 diabetes, increase cardiovascular risk. This group of clinical conditions is referred to as the metabolic syndrome [4].

Present Scenario of Diabetes

Different studies in different parts of India have demonstrated a high prevalence of Diabetic population in both cities and villages. A total of 2000 adult aged 18 and above (1000 males and 1000 females) were tested for diabetes and IGT (Impaired Glucose Tolerance by 2-hour post-glucose challenge). Demographic, Anthropometric dietary and occupational detail were recorded. In the present study group the age standardized prevalence of Type 2 Diabetes was 6.2% which was intermediate to the urban population (12%) and rural population (2.5%). According to Worlds Diabetes Atlas, India is projected to have around 62 million people with diabetes, but these data are based on small size studies done in only some parts of India. We can say that Diabetes is a potential epidemic in India. In the year 2000, India topped the world with the highest number of people (31.7 million) followed by China (20.8) and United States (17.7) million [5]. Now the things are rapidly changing with sedentary

life style, lack of exercise and as a result according to world et al., the prevalence of Diabetes will globally be double from 171 million in 2000 to 366 million by the end of 2030 with maximum increase in India. It is predicted that by the end of 2030, 80 million people will from Diabetes, while China 42.5 million in China and 30.4 million in United States. A research conducted by the Indian Council of Medical Research that South Indian states like Tamil Nadu, Andhra Pradesh, Telangana have more diabetic patients as compared by Northern Indian States of Jharkhand, Bihar, Haryana, Punjab. The main reason behind this is obesity and diet. Similarly, Indians are having higher prevalence of Diabetes as compared to Western countries suggesting that Diabetes may occur at a much lower body mass index in Indians as compared to Europeans. Therefore, relative lean Indian adults with a lower BMI may be equal risk as those who are obese. Furthermore, Indians are more genetically predisposed to the development of coronary artery disease due to dyslipidemia and low levels of high density lipoproteins. These factors make Indians prone to the development of the complications of diabetes at an early age of (20-40 years). Compared with Caucasians (>50 years).

Management of Diabetes

With the advent of newer medicines, sophisticated tests and production of artificial insulin in other mammal's body like in pig's body completely changed the treatment scenario. Advances in kidney transplantation have extended the lives of patients with advance diabetic kidney disease and laser photo coagulation has resolved the vision of millions of patients with diabetic retinopathy. Advancement in islet-cell and pancreas transplantation is quite interesting and clinical tails have shown that improved glucose control reduces microvascular complications in type 1diabetes. Present drugs used in diabetes treat diabetes type 2 mellitus by lowering glucose level present in the blood whereas Diabetes type 1 is treated by administering insulin injection in the body of the patient. Diabetes type 2 mellitus is a disease of insulin resistance by cells and so the treatment includes-

1. Agents that increases the amount of insulin secreted by the pancreas.
2. Agents that increase the sensitivity of target organs to insulin.
3. Agents that decrease the rate at which glucose is absorbed from the Gastrointestinal tract.

These includes Sulphonyl Urea's like Glipizide, Glimepiride, Glyburide, Biguanides like Metformin, Thiazolidinediones like Pioglitazone, Actosgeneric. And Meglitinides like Nateglinide.

References

1. Zimmet PZ, Magliano DJ, Herman WH, et al. Diabetes a 21st century challenge. Lancet Diabetes Endocrinol. 2014;2:256-64.
2. Lu DY, Che JY, Yarla NS, et al. Diabetes prevention and treatment, a specific topic for modern medicines. J Metabolic Syndrome. 2017;8:231-35.
3. Atkins R. Dr. Atkins' new diet revolution, Rev edn. Avon books, New York. 1998.
4. Bernstein RK. Dr. Bernstein's Diabetes solution: The Complete Guide to Achieving Normal Blood Sugars. Little, Brown US, New York. 2007.
5. Nanri A, Mizoue T, Noda M, et al. Rice intake and type 2 diabetes in Japanese men and women: the Japan Public Health Center-Based Prospective Study. Am J Clin Nutr. 2010;92:1468-77.

***Correspondence to:**

Jakeer Hussain
Assistant Professor
Department of Pharmacology
Jadavpur University
Kolkata
India
Tel: +918981292931
E-mail: jakeer1047@gmail.com