

Diabetes Mellitus

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Key points

- Diabetes mellitus (DM); a global health problem
- Pathophysiology of Type 2 DM
- Signs, symptoms and risk factors of DM
- Management and treatment of DM

Diabetes mellitus (DM) is characterized by chronic hyperglycemia and impaired carbohydrates, lipids, and proteins metabolism caused by complete or partial insufficiency of insulin secretion and or insulin action. There are two primary forms of diabetes, insulin dependent diabetes mellitus (type 1 diabetes mellitus, T1DM) and non-insulin-dependent diabetes mellitus (type 2 diabetes mellitus, T2DM). This Article will focus on Type 2 Diabetes (T2DM)

415 million people live with diabetes worldwide, and an estimated 193 million people have undiagnosed diabetes. 1 Type 2 diabetes accounts for more than 90% of patients with diabetes and leads to micro-vascular and macro-vascular complications that cause profound psychological and physical distress to both patients and attendants and put a huge burden on health-care systems. Despite increasing knowledge regarding risk factors for type 2 diabetes and evidence for successful prevention programs, the incidence and prevalence of the disease continues to rise globally. Early detection through screening programs and the availability of safe and effective therapies reduces morbidity and mortality by preventing or delaying complications. Increased understanding of specific diabetes phenotypes and genotypes might result in more specific and tailored management of patients with type 2 diabetes, as has been shown in patients with maturity onset diabetes of the young.

Epidemiology

T2DM has become an observably global public health problem. Analysis of recent statistical data reveals that T2DM has several new epidemiological characteristics. Firstly, diabetes keeps a steady increase in developed countries, such as United States and Japan. And it is worthy of note that T2DM has become a serious issue at an alarming rate in developing countries. It is predicted that T2DM will continue to increase in the next twenty years, and more than 70% of the patients will appear in developing countries, with the majority of them being 45-64 years old. Even today, seven out of top ten countries with the largest

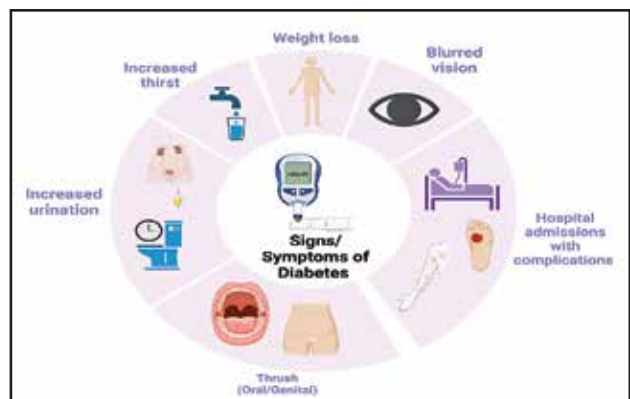
number of diabetes patients are low- or middle-income countries, including India, China, Russia, Brazil, Pakistan, Indonesia, and Bangladesh, among which the prevalence rates are 12.1% and 9.7% in India and China, respectively

Pathophysiology of Type 2 Diabetes

Glucose metabolism is normally regulated by a feedback loop including islet β cells and insulin-sensitive tissues, in which tissue sensitivity to insulin affects magnitude of β -cell response. If insulin resistance is present, β cells maintain normal glucose tolerance by increasing insulin output. Only when β cells cannot release sufficient insulin in the presence of insulin resistance do glucose concentrations rise. Although β -cell dysfunction has a clear genetic component, environmental changes play an essential part. Modern research approaches have helped to establish the important role that hexoses, amino acids, and fatty acids have in insulin resistance and β -cell dysfunction, and the potential role of changes in the micro biome.

Signs & Symptoms of Diabetes Type 2

People do not consider this as a serious problem because unlike many other diseases the consequences of hyperglycemia are not manifested immediately. People are not aware that damage can start several years before symptoms become noticeable.²



Source:-<https://www.yourhormones.info/endocrine-conditions/diabetes-mellitus/>

The main symptoms of type 2 diabetes are:

- Urinating more often than usual, particularly at night.
- Feeling very thirsty feeling very tired unexplained weight loss.
- Itchiness around the genital area,
- Regular bouts of thrush (a yeast infection), cuts or wounds that heal slowly.

Risk Factors

The prevalence of type 2 diabetes is increasing globally and poses a heavy burden on public health and socioeconomic development of all nations. Type 2 diabetes is a multifactorial disease and due to a combination of environmental and genetic risk factors. Many environmental risk factors contribute to the pathogenesis of type 2 diabetes, including lifestyles such as sedentary behavior, diet, smoking and alcohol consumption, internal environmental factors such as inflammatory factors, adipocytokines and hepatocyte factors, and external environmental factors such as environmental endocrine disruptors.²

Management through Diet

The quality of dietary fats and carbohydrates consumed is more crucial than is the quantity of these macronutrients. Diets rich in whole grains, fruits, vegetables, legumes, and nuts; moderate in alcohol consumption; and lower in refined grains, red or processed meats, and sugar-sweetened beverages have been shown to reduce the risk of diabetes and improve glycemic control and blood lipids in patients with diabetes. With an emphasis on overall diet quality, several dietary patterns such as Mediterranean, low glycemic index, moderately low carbohydrate, and vegetarian diets can be tailored to personal and cultural food preferences and appropriate calorie needs for weight control and diabetes prevention and management.

Newer Methods of Treatment

New thiazolidinedione insulin sensitizers have been recently launched.³ New approaches with mechanisms different from current therapies are being explored,

including novel ligands of peroxisome proliferator-activated receptor, glucagon receptor antagonists, dipeptidyl peptidase IV inhibitors, and insulin receptor activators.

Conclusion

Type-2 diabetes is the leading cause of premature deaths. Improperly managed, it can lead to a number of health issues, including heart diseases, stroke, kidney disease, blindness, nerve damage, leg and foot amputations, and death.⁴ Type-2 diabetes or adult-onset diabetes is most common type of diabetes, usually begins when a person is in his or her mid-50s, but diabetes is not inevitable. Minor changes in your lifestyle can greatly reduce your chances of getting this disease. Therefore, in order to prevent this condition, action should be taken regarding the modifiable factors that influence its development-lifestyle and dietary habits. However, with proper testing, treatment and lifestyle changes, healthy eating as a strategy, promote walking, exercise, and other physical activities have beneficial effects on human health and prevention or treatment of diabetes.

Reference

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