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Global aetiology and epidemiology of type 2 diabetes mellitus and its complications

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Key Points

- Globally, about 1 in 11 adults have diabetes mellitus (90% have type 2 diabetes mellitus

Global aetiology and epidemiology of type 2 diabetes mellitus and its complications

Globally, the number of people with diabetes mellitus has quadrupled in the past three decades, and diabetes mellitus is the ninth major cause of death. About 1 in 11 adults worldwide now have diabetes mellitus, 90% of whom have type 2 diabetes mellitus (T2DM). Asia is a major area of the rapidly emerging T2DM global epidemic, with China and India the top two epicentres. Although genetic predisposition partly determines individual susceptibility to T2DM, an unhealthy diet and a sedentary lifestyle are important drivers of the current global epidemic; early developmental factors (such as intrauterine exposures) also have a role in susceptibility to T2DM later in life. Many cases of T2DM could be prevented with lifestyle changes, including maintaining a healthy body weight, consuming a healthy diet, staying physically active, not smoking and drinking alcohol in moderation. Most patients with T2DM have at least one complication, and cardiovascular complications are the leading cause of morbidity and mortality in these patients. This Review provides an updated view of the global epidemiology of T2DM, as well as dietary, lifestyle and other risk factors for T2DM and its complications.

- The major driving factors of the global T2DM epidemic include overweight and obesity, sedentary lifestyle and increased consumption of unhealthy diets containing high levels of red meat and processed meat, refined grains and sugar-sweetened beverages.
- Given its global influence, it is essential to break the vicious cycle of diabetes mellitus begetting diabetes mellitus over generations by implementing effective strategies to prevent gestational diabetes mellitus.
- Among patients with T2DM, cardiovascular complications are the leading cause of morbidity and mortality, and kidney complications are highly prevalent in patients in Asia with diabetes mellitus.
- Major clinical trials have demonstrated that diet and lifestyle modifications are effective in preventing T2DM in high-risk individuals.

Epidemiology of complications in T2DM

The complications of diabetes mellitus have traditionally been divided into macrovascular complications (for example, cardiovascular disease (CVD)) and microvascular complications (for example, complications affecting the kidney, the retina and the nervous system). Complications of T2DM are very common, with half of patients with T2DM presenting with microvascular complications and 27% with macrovascular complications in an observational study of 28 countries in Asia, Africa, South America and Europe[106]. On the basis of cohort studies from developed countries, the relative risk of microvascular disorders and macrovascular disorders among patients with diabetes mellitus was estimated to be at least 10–20 times higher and 2–4 times higher, respectively, than in people without diabetes mellitus[107]. In most developing countries, patients with diabetes mellitus are at a particularly increased risk of developing kidney complications and stroke (but have a reduced risk of coronary heart disease) compared with patients in developed countries[108].