A Report on Diabetes Epidemiology

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Opinion

Diabetes disease burden is high and rising in every country, fuelled by an increase in the prevalence of obesity and unhealthy lifestyles around the world. Diabetes' aetiological classification has recently become universally accepted. Type 1 and type 2 diabetes are the two most common forms, with type 2 diabetes accounting for the vast majority of diabetes cases (>85%). Microvascular endpoints such as retinopathy, nephropathy, and neuropathy, as well as macrovascular endpoints such as ischemic heart disease, stroke, and peripheral vascular disease, can all be caused by both types of diabetes. Diabetes is a serious public health problem because of its early morbidity, mortality, lower life expectancy, and financial and other expenses.

Type 1 diabetes

Type 1 diabetes mellitus has an abrupt onset and presents quickly to medical attention, making reliable registration of new cases easier. These data can be merged with population denominator data to generate age- and sex-specific occurrences if ascertainment can be validated. Type 1 diabetes can strike at any age, but it is most common between the ages of birth and 14 in most communities. Up to roughly 10-15 years of age, all populations show a consistent increase in incidence rate. In most populations, however, there is a male excess among young adults, and the peak incidence occurs around puberty [1].

Factors that cause the disease: Type 1 diabetes is caused by a combination of genetic predisposition and environmental factors. Vitamin D deficiency, which has been linked to various genetic researches, is one of the hypothesised aetiological reasons. There have also been suggestions regarding the involvement of omega-3 fatty acids.

Type 2 diabetes

The delayed development of type 2 diabetes, combined with the absence of the acute metabolic disruption seen in type 1 diabetes, makes determining the precise time of commencement problematic.

Because the ratio of identified to undetected cases varies over time and between locations, epidemiological studies aimed at determining the true incidence of type 2 diabetes have depended on specific investigations in which the presence and absence of disease are determined by the Oral Glucose Tolerance Test (OGTT).

Prevention and screening

Randomized clinical trials in multiple countries have shown that rigorous lifestyle management with diet or physical activity, as well as medication therapy with glucose-lowering drugs like metformin, can slow the progression of IGT to type 2 diabetes in high-risk persons with IGT. Complementary techniques that aim to make slight modifications in the population's food and physical activity behaviour distribution are needed.

Finding ways to integrate high-risk and population-based approaches to prevention, as well as balancing relative expenditure in the two techniques, will be a future issue [2].

Secondary prevention: screening

Given that the start of type 2 diabetes takes an average of 4-7 years before clinical diagnosis, and that a large number of people already have end-organ damage by that time, screening has been recommended in the hopes of reducing long-term burden through early detection and treatment.

However, there is no conclusive evidence that screening is beneficial, and most authorities advocate for opportunistic rather than systematic screening of high-risk subgroups.

Heart disease and stroke

In patients with diabetes, cardiovascular disease accounts for up to 65% of all deaths. Ischemic heart disease and stroke account for the majority of diabetes-related morbidity. Furthermore, as previously stated, mortality rates from cardiac disease are 2 to 4 times higher in those with diabetes than in people without diabetes. Diabetes patients are also 2 to 4 times more likely than non-diabetic patients to suffer a stroke. More than 70% of diabetics have high blood pressure or are using hypertension drugs. The function of hyperglycemia in diabetes-related cardiovascular

problems remains unclear. Hypertension, hypercholesterolemia, and smoking are all risk factors for cardiovascular disease in persons with diabetes, just as they are in people without diabetes.

Control of risk factors to reduce complications

Hyperglycemia, high blood pressure, and hypercholesterolemia are the three most significant risk factors for all of the diabetes-related problems listed above. Improvements in glycemic management, blood pressure, and cholesterol levels have been suggested as ways to lower a person's risk of problems.

For example, each percentage point reduction in glycosylated haemoglobin (Hb A1c) level can reduce a person's risk of micro vascular complications by 40%; a 10 mm Hg decrease in blood pressure can reduce a person's risk of any diabetic complication by up to 12%; and serum lipid control can reduce a person's risk of cardiovascular complications by 20% to 50%.

Adopting adequate dietary and exercise habits, as well as sticking to medication regimens, will result in tighter glycaemic control, which, when combined with blood pressure and cholesterol control, will considerably lessen the burden of diabetic complications.

Clearly, greater control of these risk factors can lead to better outcomes in patients with diabetes.

References

1   Deshpande AD, Harris-Hayes M (2008) Epidemiology of Diabetes and diabetes-related complications. Phys Ther 88: 1254–1264.

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