

Global Trends in Diabetes and Epidemiology of Diabetes Complications

Abstract

In nearly every region of the world, significant rises in diabetes prevalence have been observed over the past few decades. Due to the higher prevalence of diabetes-specific complications like kidney failure and peripheral arterial disease, an increase in the number of people with diabetes or who have had diabetes for a longer period of time is likely to alter the disease profile in many populations worldwide. Other conditions that is frequently associated with diabetes, such as infections and cardiovascular disease, may also change in their epidemiology, which will have an immediate impact on quality of life, demands on health services, and financial costs. The prevalence and variation of diabetes-related complications around the world are poorly understood at this time. According to the data that are currently available, the mortality rate and rates of myocardial infarction, stroke, and amputation among diabetics are both declining. However, the majority of these data come from studies conducted in a select few high-income nations. There is less research on trends in other diabetes complications like cancer, end-stage renal disease, and retinopathy. In nearly every region of the world, significant rises in diabetes prevalence have been observed over the past few decades. Due to the higher prevalence of diabetes-specific complications like kidney failure and peripheral arterial disease, an increase in the number of people with diabetes or who have had diabetes for a longer period of time is likely to alter the disease profile in many populations worldwide. Other conditions that is frequently associated with diabetes, such as infections and cardiovascular disease, may also change in their epidemiology, which will have an immediate impact on quality of life, demands on health services, and financial costs. The prevalence and variation of diabetes-related complications around the world are poorly understood at this time. According to the data that are currently available, the mortality rate and rates of myocardial infarction, stroke, and amputation among diabetics are both declining. However, the majority of these data come from studies conducted in a select few high-income nations. There is less research on trends in other diabetes complications like cancer, end-stage renal disease, and retinopathy.

Keywords: Elderly diabetes • Epidemiology • Complications • Public health burden • Peripheral arterial disease • Diabetes-specific complications • Retinopathy and cancer • Cardiovascular disease

Introduction

A high number of older people have abnormal glucose states. Diabetes affects one third of the elderly, and pre-diabetes or diabetes affects three quarters of the elderly. However, many older people with type 2 diabetes are not diagnosed. 45.6% of patients with diabetes who are 65 years old or older have not been diagnosed. Men were more likely to have undiagnosed diabetes, and those who did were more positive about their health [1].

Nearly all parts of the world have seen significant rises in diabetes prevalence over the past few decades, with 415 million people worldwide currently suffering from the condition. This is extremely concerning due to the fact that an increase in diabetes prevalence will result in an increase in the overall population's prevalence of both chronic and acute diseases, which will have profound effects on quality of life, demand for health services, and financial costs [2].

Diabetes is more than twice as common in elderly people as it is in middle-aged or young adults. In addition to the high prevalence of diabetes among older individuals, the incidence of new cases continues to rise. The data from the National Health Survey show that the prevalence of diabetes in this older population has increased over time. In 1990, the prevalence of diabetes among people aged 65 to 79 per 1,000 people was 6.0, in 2000, it was 11.6, and in 2010, it was 12.4. From 2005 to 2050, according to forecasts, the number

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of people diagnosed with diabetes who are 65 years old or older will increase by more than fourfold due to an aging population and high disease prevalence [3]. Because older people have a higher incidence of diabetes, it's wise to compare the risk of developing complications from diabetes in this age group to that of younger patients. Many of the traditional micro and macro vascular complications that younger patients experience are also present in older patients. Additionally, the risk of developing geriatric syndromes is increased when a person has comorbid diabetes at an older age.

Diabetic Complications

Due to the possibility of a longer duration of the disease, vulnerable older adults with diabetes may be at a significantly increased risk of both micro and macro vascular complications. Due to aging and concurrent illnesses, these elderly patients with abnormal glucose metabolism may have less end organ reserve [4]. This could lead to end-organ disease that is more severe and abrupt than in younger patients.

Neuropathy

Due to a lack of data from repeated population surveys, there is virtually no information on trends in the prevalence or incidence of neuropathy [5]. Between 2000 and 2014, the rate of neuropathy-related hospitalizations increased by 42.1 percent, according to USDSS surveillance data; despite the fact that changes in the coding of neuropathy and an increased awareness of neuropathy among diabetics are likely to have influenced these data. Distal symmetrical polyneuropathy is less common in participants with type 1 diabetes who were diagnosed between 1970 and 1974 than in those who were diagnosed between 1965 and 1969, according to Pittsburgh Epidemiology of Diabetes Complications Study data [6].

One of diabetes's most common long-term complications is distal sensorimotor polyneuropathy. Falls are extremely common in diabetic peripheral neuropathy (DPN) patients. About half of older diabetics with diabetes older than 25 years have comorbid DPN, which can lead to functional impairment and lower quality of life. Female sex, a longer duration of diabetes, retinopathy, stroke, hypertension, dyslipidaemia, and a history of foot ulcers are all associated with an increased risk of DPN

among elderly diabetics [7]. The functional impairment gets worse and the quality of life can be affected as neuropathy gets worse. Reduced walking speed, cadence, and step length in diabetic patients are examples of functional limitations. Additionally, peripheral sensation, reaction time, and balance are impaired in DPN patients.

Discussion

Several important conclusions can be drawn from this examination of global trends in diabetes-related complications (see the text box); first, diabetes populations are experiencing a decline in rates of LEAs, acute complications, CVD, and all-cause and CVD-related mortality [8]. However, there is a lack of data on trends in ESRD, diabetic retinopathy, neuropathy, non-CVD-related causes of death, and "emerging" complications in these populations, so there are few conclusions. Second, despite significant declines in a number of diabetes-related complications, people with diabetes continue to face a significantly higher risk than people without diabetes. Thirdly, the decrease in all-cause and CVD-related mortality is correspondingly increasing other forms of morbidity, such as renal disease, infections, cancers, and physical and cognitive disability [9]. This has significant repercussions for the burden of diabetes on both the clinical and public health fronts. Last but not least, comparable data on trends in diabetes complications rates are scarce, particularly from low- and middle-income nations [10]. Because only about a dozen high-income nations in North America, Europe, and East Asia are included in this study, the status of global trends in diabetes complications is unclear.

Conclusion

Diabetes's burden continues to rise. The proportion of elderly diabetics will continue to rise as the population ages and diabetes patients live longer. Traditional micro vascular and macrovascular diabetes complications are more likely to occur in this elderly diabetic population. Diabetes makes older adults particularly vulnerable to retinopathy, nephropathy, neuropathy, stroke, and heart disease due to the disease's prolonged duration and diminished end organ reserve. Geriatric syndromes are also a possibility for this vulnerable group. Falls, incontinence,

dementia, depression, and vision and hearing loss are all increased by diabetes. Additionally, older diabetics are more likely to report disability and functional limitations. Although it is evident that this older diabetic population is at high risk for conventional and geriatric-specific complications, further research is required to identify subpopulations of the elderly that are most at risk. This vulnerable group may benefit from more targeted screening and prevention efforts made possible by this.

We have emphasized in this review that there is a lack of data outside of North America, Europe, and high-income countries in the Asia-Pacific region. As a result, the global status of diabetes complications rates is unclear, particularly in low- and middle-income nations. Because surveys and cohort studies are typically insufficient for assessing diabetic complications, the lack of population-based systems that quantify healthcare utilization is largely to blame for this data gap. Variable reporting methods, definitions of complications, and methods for identifying diabetics have also hampered comparisons of trends in complications. Standardized reporting methods and practical registries that meet the dual needs of population monitoring and providing feedback and decision support for clinical systems could improve future monitoring of global trends in diabetes complications.

Acknowledgement

None

Conflict of Interest

None

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