

Epidemiology, diagnosis and screening of diabetes

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It is estimated that the prevalence of diabetes in adults were 8.5%, or 422 millions in 2014, according to the report by the World Health Organization. This number is still increasing by time. The increase is most significant in Africa. In 2045, there will be a 156% increase in the number of people with diabetes, or 41 million people, compared with the number in 2017. Most of the people with diabetes resides in western pacific region in 2017. Therefore, although there will be only a 15% increase in 2045, the number of people with diabetes, 183 million, will still be the highest among the world. It is estimated that ~50% of people with diabetes are not diagnosed, which results in significant morbidity and mortality and is associated with death before 60 years of age. Among people with diabetes, about 2/3 are within working age. In 2045, it is estimated that a significant proportion of people with diabetes were older than 65 years. Therefore, prevention and treatment of diabetes in elderly is another important issue to deal with in the future. In Taiwan, the number of people with diabetes increases continuously. In 2014-2015, it is estimated that there were 1.73-2.20 million people with diabetes. In 2016, diabetes is the 5th cause of death in Taiwan (the 3rd cause of death in female and the 6th cause of death in male). Compared with the data 10 years ago, people who died from diabetes decreased significantly, and the average age of death delayed by 3 years.

The diagnosis of diabetes can be made by the results of oral glucose tolerance test (OGTT) and hemoglobin A1c. If fasting plasma glucose is greater than 126 mg/dl, 2-hour plasma glucose during OGTT is greater than 200 mg/dl, hemoglobin A1c is greater than 6.5%, or random glucose is higher than 200 mg/dl accompanied by symptoms of hyperglycemia, then the diagnosis of diabetes can be made in the absence of equivocal hyperglycemia. Besides, pre-diabetes could be made if fasting plasma glucose is between 100-125 mg/dl, 2-hour plasma glucose is between 140-199 mg/dl, or hemoglobin A1c is between 5.7%-6.5%. There are two subtypes of diabetes introduced in the guideline of DAROC, including fulminant type 1 diabetes and latent autoimmune diabetes in adults. For the screening of diabetes, there are three different strategies suggested, including screening by age, screening by risk score, and screening by risk factors. Fasting plasma glucose and hemoglobin A1c are the suggested laboratory tests for the screening and diagnosis of diabetes.