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Mini Review

Diabetes, Prediabetes and Cardiovascular Diseases in the Light of Updated Guideline (2019): Mini Review

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Abstract

Diabetes mellitus (DM) is a major risk factor for cardiovascular diseases. Lifestyle changes, control of risk factors, and appropriate glucose-lowering therapy may prevent disease progression and the development of undesirable cardiovascular events. Therefore, current strategies and effective current therapies are needed to diagnose, treat and prevent complications of this disease. In this review we planned to discuss the newly updated guidelines for diabetes and cardiovascular disease in 2019.

Keywords: Diabetes Mellitus; Cardiovascular Diseases; Diabetes

Introduction

Diabetes mellitus(DM) is a chronic disease that affects insulin secretion or effective use of insülin in the body. Both environmental and genetic factors are involved in the development of diabetes [1]. The number of patients with diabetes is increasing day by day. It is estimated that approximately 552 million people will be diabetic by 2030 [2]. DM is a well-defined risk factor for cardiovascular disease. Also cardiac morbidity and mortality are more common in diabetic patients [3]. In addition, the presence of risk factors such as obesity, hyperlipidemia and hypertension in diabetic patients increases the cardiovascular risk and causes the development of early, diffuse ischemic heart disease and heart failure in these patients compared to nondiabetics [3]. Therefore, multiple approaches should be applied to diabetes patients with high cardiac risks [4]. Reducing or preventing cardiovascular risks in diabetic patients increases the workforce and quality of life of patients and also decreases the treatment and financial burden of states [5]. Understanding the mechanism of cardiovascular diseases in diabetic patients, revealing cardiovascular risk and benefit potentials of glucose lowering agents play an important role in the management strategy of these patients [6].

What has been highlighted and changed in the 2019 esc guide?

The criteria for diagnosis of diabetes have not changed in the newly updated guidelines. The guideline has recommended measuring HbA1c and fasting plasma glucose for the diagnosis of diabetes and using OGTT as an additional test if necessary. This guideline divided the patients into risk groups to better determine the management strategies of diabetic patients using the cardiovascular protection guidelines published in 2016. The microalbuminuria measurements in this patient group has been recommended because of the indicator of the risk of cardiovascular development in diabetic patients. It was also stated that various imaging methods can be used for cardiovascular risk assessment. But discontinuation of the use of carotid intima thickness and biomarker measurements for risk assessment has been especially highlighted in this guideline. The importance of lifestyle modifications in preventing the risk of developing diabetes has been emphasized in this guideline. However, vitamin or micronutrient supplements has not been recommended to reduce the risk of diabetes or cardiovascular. To reduce microvascular complications in diabetic patients, it has been aimed to lower HbA1c to <7%. However, the guideline has been indicated that the target value may vary with age (a more stringent glucose control strategy in young people, more flexible strategies in the elderly). The guideline also has suggested avoiding hypoglycemia because of the high mortality risk [7].

In diabetic hypertensive patients, first choice hypertensive agents are RAAS blockers as usual in this guideline. In high/very high risk diabetic patients, the target LDL value of <70 mg/dl has been reduced to 55 mg/dl. The use of ezetimibe and PCSK9 inhibitors has been reported when target LDL levels cannot be achieved despite intensive statin therapy in high/very high-risk patients. It has been suggested that statin therapy should be considered in T1DM patients aged 30 years and over regardless of LDL level. ASA has been recommended for primary prevention, not for all diabetic patients, but only for high and very high risk groups [7].

Wherefore diabetes and prediabetes were more common in individuals with coronary artery disease, it has been recommended to evaluate glycemic levels in all patients with coronary artery disease. In patients with diabetic cardiovascular disease or in patients

with high/very high cardiovascular risk, the guideline has recommended the use of SGLT2 inhibitors such as empaglyphosine, canaglyphosine and dapaglycosine because of their effects on reduction of undesired cardiovascular events. In addition, liraglutide, semaglutide or dulaglutide (GLP1-ra) may also be used to reduce cardiovascular events in diabetic patients with cardiovascular diseases or high/very high cardiovascular risk. The use of empagliflozin and liraglutide because of reducing all-cause deaths is particularly emphasized in this guideline. Metformin has lost its importance in patients with high/very high cardiovascular risk and in patients with cardiovascular disease and the initiation of SGTL2 inhibitors or GLP-1RA is recommended in these patient groups. If the patient is under metformin treatment, the updated guideline has recommended that the new glucose lowering drugs should be added to the treatment. The long-term use of ticagelor and ASA combination therapy in diabetic post MI patients and the use of low-dose rivaroxaban in very high/high risk diabetic patients are other approaches highlighted in this guideline. In particular, SGLT2 inhibitors have been proposed in patients with heart failure and the guideline has not recommend the use of sitagliptin and thiazolidones in the treatment of diabetes [7].

Atrial fibrillation (AF) is common in diabetic patients and causes of significant mortality and morbidity so the patients with DM over 65 years of age should be screened for AF. In addition, structural heart disease should be investigated in diabetic patients with frequent premature ventricular contractions. In the CREDENCE study, because of the positive effects of canaglyphosine in diabetic patients with chronic renal disease, the new guideline recommended the use of SGTL2 inhibitors as the first choice in these patients. In addition, the combination of 2.5 mg rivaroxaban and ASA has been recommended diabetic patients with peripheral vascular diseases according to the results of the COMPASS study [7].

The author's comments

The most notable points in the guideline are the increase in the popularity of new glucose lowering agents, long-term use of antiaggregants, and the use of more rigid approaches in antihyperlipidemic treatment. New diabetic agents reduce the risk of cardiac events and some have positive effects on heart failure so these drugs are expected to find widespread use in the future. Perhaps physicians will not prescribe metformin as much as before. If positive effects of new glucose lowering therapies on non-diabetic cardiovascular patients are detected, these drugs can be used as new cardiac agents by cardiologists. Long-term use of antiaggregants will not be particularly preferred in countries where legal malpractice cases are common. Furthermore most of physicians are still concerned about drug-induced bleeding. However, due to the positive effects of long-term use of rivaroxaban on mortality, risks and benefits may be discussed with patients and their use in collaboration with patients and physicians may become widespread. I also think that the intensive treatment strategies (especially combination therapies) that decrease LDL levels can be applied only in selected patients because of the high costs.

Conclusion

Recent developments in diabetes and cardiovascular field both control and delay the development of cardiovascular risks. However, new treatment approaches and lifestyle changes should be individualized on a patient basis. Treatment success achieved with appropriate approaches will not only reduce the cost of health care but also provide a more quality patient life.

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Conflicts of Interest

There are no conflicts of interest.

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