

Symposium I. Prevention in Cardiometabolic Disorder

Diabetes and Cardiovascular Disease: The Continuum. How to Prevent ?

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Abstract

Cardiovascular disease still tops the cause of death and morbidity in both developed and developing countries. It was suspected to be due to the increasing number of cardiometabolic risk factors in the population. Cardiometabolic risk is a condition in which the possibilities of developing atherosclerotic cardiovascular (CV) disease and diabetes mellitus are significantly enhanced as a consequence of the presence of insulin resistance and atherogenic dyslipidemia, the latter being characterized by the presence of low high-density lipoprotein (HDL)-cholesterol and high triglyceride levels. Cardiometabolic risk is diagnosed by the identification of an enhanced waist circumference, accompanied by the alterations in lipid profile quoted above (low HDL and increased serum triglycerides), high blood pressure and hyperglycemia.

Diabetes mellitus is a group of diseases characterized by insufficient production of insulin or by the failure of the body to appropriately respond to insulin, resulting in hyperglycemia. Vascular complications, the principal clinical risk associated with diabetes, are classified as microvascular (diabetic retinopathy, nephropathy, neuropathy) and macrovascular (ischemic heart disease, cerebrovascular disease, peripheral vascular disease). This was caused by endothelial dysfunction, prothrombotic state, and diabetic dyslipidemia. Action to prevent diabetes focus on people with metabolic syndrome (MetS) and pre-diabetes, consist of ; weight reduction; physical activity – exercise and medication. Based on evidence, weight reduction 5-7%, moderate intensity endurance exercise 30min/day, and metformin can reduce risk to have diabetes. Based on several metaanalysis, comprehensive cardiac rehabilitation programme also confirmed to resolve MetS and improve most of the cardiovascular risk factors associated with the MetS.

Furthermore, after developed to an establish cardiovascular disease, prevention strategy should not stopped. The concept of cardiovascular continuum as an etiopathophysiology model, directs the development of interventionist measures in the prevention of cardiovascular diseases. By observing the existence of ischemic myocardial diseases in populations with low incidence of coronary artery atherosclerosis, studies have shown that ischemic heart disease is not only associated with atherosclerosis, but also to vascular aging. This propose an additional model to cardiovascular continuum — “*vascular aging continuum*”, emphasizing the pathobiological processes that lead to aging/hardening of the great arteries and abnormalities of microcirculation. The importance of this additional insight on vascular aging continuum lies in the use of medications that reduce blood pressure, especially central pressure, thereby reducing vascular damage.

Keywords: Cardiometabolic risk; Diabetes and cardiovascular continuum; Diabetes prevention; Cardiovascular prevention; Vascular aging continuum.