

Diabetes in Elderly Patients with Cardiovascular Disease

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Introduction

Lifestyle changes related to an increase in caloric intake, reduced physical activity and an increase in life expectancy have developed an ageing population with obesity, diabetes and their comorbidities. It has contributed to an exponential increment of healthcare costs during the last decades. In 2020, 650 million people were living with obesity and 460 million with diabetes. Some registers have defined differential diabetes-associated risk factors with respect to sex. While education and ageing were diabetes-risk factors in male, physical inactivity and obesity were risk factors in female. The prevalence of diabetes varies in different age groups, posing a higher risk to the old compared to the young population [1].

Description

The main causes of this accelerated diabetes prevalence in ageing societies are similar to those in younger people, which include unhealthy obesogenic diets and reduced physical activity. Since incidence of diabetes increases with ageing, diabetic older adults represent the largest population of diabetic subjects, this group being particularly vulnerable to cardiovascular disease (CVD) [2]. The relationship between CVD, diabetes and ageing is explained, in part, by the negative impact of these conditions on vascular function. Given the current increase in life expectancy, there is also a higher prevalence of obesity. Both conditions are the leading cause of health problems, disease risk and death. Ageing increases abdominal obesity, independently of body weight, sex or race, which is one of the major contributors to insulin resistance and metabolic syndrome [3]. The visceral fat accumulation is strongly associated with ectopic fat deposition in skeletal muscle, heart, liver, pancreas or blood vessels, a trend leading to lipotoxicity and an increase in pro-inflammatory cytokines.

Cardiovascular disease (CVD) is the leading cause of death in the world. In 2019, 550 million people were suffering from CVD and 18 million of them died as a result. Most of these people had associated risk factors such as high fasting glucose, which caused 134 million deaths, and obesity, which caused 5.02 million deaths. In addition, 75% of type 2 diabetes mellitus (T2DM) patients die as a consequence of CVD, including coronary artery disease (CAD). Their risk of myocardial infarction is comparable to those nondiabetic patients with previous myocardial infarction [4].

Elderly patients with uncontrolled diabetes have higher risk of HF progression, as observed in a study on atherosclerosis risk in communities (ARIC). Another important CVD associated with diabetes is atrial fibrillation (AF). This is the most common sustained cardiac arrhythmia, and its prevalence is expected to double over the next three decades. One of the reasons might be explained by increased survival. Obesity and epicardial adiposity can

enhance the AF risk and reduce the ablation efficiency. Some of the described mechanisms of obesity associated with CVD are related to hemodynamic alterations that make the subjects predisposed to changes in cardiac morphology and ventricular dysfunction and hypertrophy, neurohormonal and metabolic abnormalities, such as increased sympathetic nervous system tone, activation of the renin-angiotensin-aldosterone system, insulin resistance with hyperinsulinemia, leptin resistance with hyperleptinemia, adiponectin deficiency, lipotoxicity and lipoapoptosis [5].

Conclusion

Patients with chronic diseases can decrease physical activity (PA) and adopt sedentary behavior without the possibility of attenuating inflammatory profiles and iNOS protein contents, obtained by physical training. Long-term exercise is able to upregulate glucose transporters and insulin receptors, resulting in a reduction in insulin resistance associated with T2DM. Aerobic training can also reduce body weight. Diet also has important beneficial effects on cardiac death or myocardial infarction, as was demonstrated the Mediterranean diet intervention (fruit and vegetables). PA and fitness might reduce diabetes and cardiovascular risk and, in patients with myocardial infarction, modulate the cardiovascular risk factors, functional capacity and reduction in mortality. In patients with HF, exercise training improves exercise tolerance, health-related quality of life and all-cause hospitalizations. These benefits were also observed in non-permanent patients with aerobic interval training for three months because it improves Vo2peak, ventricular and left atrial function, QOL and lipid levels.

References

1. Ayah, Richard, Mark D. Joshi, Rosemary Wanjiru and Elijah K. Njau, et al. "A population-based survey of prevalence of diabetes and correlates in an urban slum community in Nairobi, Kenya." *BMC Public Health* 13 (2013): 371.
2. Palmer, Allyson K., Birgit Gustafson, James L. Kirkland and Ulf Smith. "Cellular senescence: At the nexus between ageing and diabetes." *Diabetologia* 62 (2019): 1835-1841.
3. Pischon, T., H. Boeing, K. Hoffmann and M. Bergmann, et al. "General and abdominal adiposity and risk of death in Europe." *N Engl J Med* 359 (2008): 2105-2120.
4. Kuk, Jennifer L., Travis J. Saunders, Lance E. Davidson and Robert Ross. "Age-related changes in total and regional fat distribution." *Ageing Res Rev* 8 (2009): 339-348.
5. Roth, Gregory A., George A. Mensah, Catherine O. Johnson and Giovanni Addolorato, et al. "Global Burden of Cardiovascular Diseases and Risk Factors, 1990-2019: Update From the GBD 2019 Study." *J Am Coll Cardiol* 76 (2020): 2982-3021.

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