39. ROLE OF ADIPOKINES IN CARDIOVASCULAR DISEASES

Author: Ostap Felicia

Scientific adviser: Eleonora Bors, MD, Associate Professor, Department of Pathophysiology and Clinical Pathophysiology, *Nicolae Testemitanu* State University of Medicine and Pharmacy of the Republic of Moldova.

Introduction. Obesity is considered to be a risk factor for cardiovascular diseases, the leading cause of death globally. The discovery of the fact that adipose tissue has an endocrine function secreting a series of biologically active factors called adipokines offers a better understanding of this correlation. Adipokines are involved in regulation of processes such as energy expenditure, appetite, insulin sensitivity, inflammation, endothelial function, etc.

Aim of study. The aim of this paper is to describe the implications of adipokines in the pathogenesis of cardiovascular diseases.

Methods and materials. A literature review including 100 articles published in Pubmed database between 2015 and 2021 was carried out using the key words: „adipokines", „cardiovascular diseases".

Results. Obesity is associated with several morphological modifications of adipose tissue. Its expansion is performed through two main mechanisms: adipocyte hyperplasia (differentiation of preadipocytes) and hypertrophy (increase in cell dimensions). Increased adipocyte size is associated with a shift towards an increase in the secretion of proinflammatory adipokines such as TNF-α, IL-6, IL-8, monocyte chemoattractant protein-1 and leptin, promoting the low-grade chronic inflammation associated with obesity. Leptin functions as an anorexigenic hormone by binding to its receptor located in the arcuate nucleus of the hypothalamus. However, obesity is associated with resistance to the central effects of leptin. In the immune system, it up-regulates the release of proinflammatory cytokines and stimulates the differentiation of monocytes into macrophages. Also, leptin has sympathoexcitatory effects leading to an increase in blood pressure. Some studies revealed that plasma leptin levels are positively correlated with cardiac hypertrophy. Adipose tissue mass is inversely associated with adiponectin secretion. This adipokine has pleiotropic actions with anti-inflammatory and insulin sensitizing properties. The main targets for its beneficial effects include the heart, blood vessels and pancreatic β-cells. Adiponectin represents one of the candidates for the perivascular adipose tissue derived relaxing factor due to its ability to stimulate eNOS in an AMPK-dependent manner, while hypoadiponectinemia is associated with endothelial dysfunction.

Conclusion. Obesity is associated with the decreased level of the atheroprotective adipokine adiponectin, and an increase in proinflammatory mediators. Adipokines underlie the correlation between obesity and cardiovascular diseases and might thus become useful markers of cardiometabolic disorders.