

and mortality secondary to dyslipidemia. Statin therapy is considered as the standard dyslipidemia therapy. Except lipid-lowering effect, it is known that statins have cholesterol-independent effects (pleiotropic effects).

Aim of the study. This review was undertaken to investigate the pleiotropic effects of statins on the metabolism of patients with cardiovascular disease.

Material and methods. To identify relevant articles, HINARI and ScienceDirect databases were searched using the key-words: „statins”, „pleiotropic effects statins”, „lipophilic statins”, „rosuvastatin”, „atorvastatin”.

Results. This study concluded that the pleiotropic effects of statins differ based on lipophilic properties. Hydrophilic statins (rosuvastatin, fluvastatin, pravastatin) are liver specific. Lipophilic statins (atorvastatin, lovastatin, simvastatin) are widely distributed in different tissues and determine a lot of side effects. Statins exhibit numerous pleiotropic effects as inhibition of inflammation response and oxidative stress, modulation of cell proliferation, improvement of endothelium function, suppression of platelet activity, plaque stability, normalization of sympathetic outflow, etc. The multiple pleiotropic effects of statins are due to multiple mechanisms, the most important one being the reduction of circulating isoprenoids and hence inactivation of signaling proteins. These multiple lipid-independent effects of statins are utilised for research in multiple treatment domains.

Conclusions. Pleiotropic effects of statins are of major relevance in the treatment of the major cardiovascular conditions and diseases, such as atherosclerosis, acute coronary syndrome, chronic heart failure, postoperative atrial fibrillation and others.

Key words: statins, pleiotropic effects, cardiovascular diseases

47. THE EFFECT OF THE METABOLIC SYNDROME ON RIGHT VENTRICULAR DIASTOLIC FUNCTION

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Introduction. The importance of right ventricle (RV) structure and function has been always underestimated by physicians in their daily practice. Diastolic function of RV generally represents a complex process and its dysfunction is associated with pressure and volume overload pathologies, primary lung disease, ischemic heart disease, left ventricle dysfunction etc. According to the last studies, metabolic syndrome (MS) also has impact on RV structure and function and represents important marker of cardiovascular risk.

Aim of the study. The aim of this study was to examine the impact of MS on RV remodeling and mechanics, especially diastolic function and to determine the most important parameters of MS for right heart remodeling.

Materials and methods. The study included 68 subjects: 34 subjects with MS (21 women and 13 men) and 34 controls (17 women and 17 men). There was no statistically important difference in the mean age between the subjects with MS and controls ($p > 0.05$). MS was defined by the presence of ≥ 3 IDF, AHA/NHLBI (2009) criteria. All subjects underwent complete two-dimensional echocardiography and laboratory blood tests. We determined the ratio of early and late diastolic tricuspid flow velocities (E/A) and the ratio of early diastolic tricuspid and septal tricuspid annuli flow velocity (E/e'). Assessment of RV systolic or diastolic function was based on the recommendation of the European Society of Echocardiography 2015. Also anthropometric measures (height, weight, waist circumference) were taken from all the subjects included in the study.

Results. Parameters of RV diastolic function indicated the RV diastolic dysfunction in patients with MS (E/A ratio 1.20 ± 0.27 in subjects with MS and 1.30 ± 0.33 in controls, $p < 0.001$; E/e' ratio 6.50 ± 1.43 in subjects with MS and 5.11 ± 1.03 in controls, $p < 0.001$). According to multiple regression analysis systolic blood pressure ($\beta = 0.105$, $P = 0.022$), waist circumference ($\beta = 0.092$, $P = 0.031$), plasma glucose level ($\beta = 0.088$, $P = 0.043$) showed independent association with E/e'.

Conclusions. MS plays an important role in RV diastolic dysfunction. The most important parameters that provoke RV remodeling are systolic blood pressure, waist circumference and glucose level, that need special attention of the physicians due to their frequency of occurrence in general population.

Key words: metabolic syndrome, right ventricle, diastolic function

48. THE LEVEL OF KNOWLEDGE ABOUT NON-PHARMACOLOGICAL MEASURES OF TREATMENT IN PATIENTS WITH CHRONIC HEART FAILURE

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Introduction. Chronic heart failure (CHF) is considered a worldwide pandemic that requires a complex regimen of drug and non-medical treatment for a lifetime. The European Society of Cardiology Guidelines recommends applying self-care management, patient ductility to reduce morbidity, mortality and to improve quality of life and patients' adherence to treatment.

Aim of the study. To study the level of knowledge of patients with chronic heart failure regarding non-pharmacological measures for the elaboration of the education program.

Materials and methods. A transverse study that included 20 patients with CHF was conducted. The patients completed a questionnaire that included 5 behavioral considerations in CHF, before and after a schooling program in the study ($n=10$).

Results. The group of 20 patients with mean age of 60.2 ± 0.05 (range 30-90) years, included 7 (35%) women and 13 (65%) men. 6 (30%) of the analyzed patients had high-education, 9 (45%) - with middle-education and 5 (25%) patients - with incomplete middle studies. According to the NYHA classification 6 (30%) patients were included in functional class II and 14 (70%) - functional class III (NYHA). Before schooling only 8 (40%) patients responded correctly to 4 from 5 questions while after schooling 20 (100%) patients responded to 4 and 7 (70%) patients correctly answered all 5 questions. An increase in the rate of high-level patients with non-pharmacological measures in the CHF by 30% was observed, also noticed that patients with higher education have a higher level of knowledge compared patients with secondary education.

Conclusions. Scheduled training of patients with chronic heart failure significantly increased the level of knowledge about non-pharmacological treatment measures.

Key words: heart failure, non-pharmacological measures, level of knowledge.

49. ASSOCIATION OF METABOLIC SYNDROME AND HYPERTENSION WITH LEFT VENTRICULAR GEOMETRY IN CHILDREN

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