Summary

Introduction

Cardiovascular diseases are the leading problem and cause of death developing countries. Experimental and clinical researches confirmed that inflammation play a key role In development of atherosclerosis. In recent decades researches were looking for biomarkers which would help more carefully identify persons endangered of cardiovascular disease and then implement preventive actions. Pentraxin 3 (PTX3) is an acute phase protein, smillary as CRP. As it is produced and secreted by several type of cells related directly to atherosclerosis, PTX3 appears as a specific marker of local inflammation. Data from clinical research don't allow defie clearly the role of ths protein in cardiovascular disease.

Aim

The aim of this study was to determine the role of PTX3 in development and progression of atherosclerosis. The relationship of PTX3 with cardiovascular risk fctors and determination for role of this protein as an independent marker of atherosclerosis was planned. Besides, the aim of this study was to analized the predictive role of pentraxin 3 in advancement of coronary arteries atherosclerosis and acute coronary syndrome apperance risk.

Material i methods

114 patients, hospitalised in Cardiology Department with acute coronary syndrome (STEMI, NSTEMI) was enroled, 98 patients with chronic cornorary syndrome and 40 people, properly matched for gender and age with no atherosclerosis in coronary arteries, which was confirmed by angiography of coronary arteries. The patients data were analyzed with the history of cardiovascular risk factors, selected biochemical parameters and blood samples for PTX3 measurements were taken. PTX3 serum concentration were measured with

immunoenzymatic ELISA metod. In addition, all subjects were performed full transthoracic echocardiography, ultrasonography of carotid arteries and angiography of coronary arteries.

Results

Serum PTX3 levels concentrations were higher in patients with acute coronary syndrome (3,47 ± 3,67 ng/ml), compared with subjects with chronic coronary syndrome (1,99 ± 1,87 ng/ml) and to control group (1,38 ± 1,23 ng/ml). PTX3 levels did'nt correlate with other cardiac biomarkers such as: CRP, CK, CK-MB oraz Troponin I. In ACS group PTX3 levels were reached independly from creatinine levels and GFR values. Subject with no angiographic changes in coronary arteries had lower PTX3 levels than patients with significant stenosis. PTX3 isn't useful in one-vessel and multivessel coronary artery disease differentiation. Subjects with coronary arterie stenosis (CCS i ACS) with the highest LDL-C levels and the biggest values of IMT had the highest PTX3 serum concentrations. Such as relationship has not been shown in control group. PTX3 may be useful predictive marker of atherosclerosis with 81% sensivity and 55% specificity, for cut-off point 0,93 ng/ml. In addition, patients in ACS and more advanced heart failure symptoms had significant higher levels of PTX3 than those with no symptoms of heart failure.

Conclusions

Pentraxin 3 is a novel, promissing, independent diagnostic biomarker in identification patients with coronary artery aterosclerosis. But it isn't useful indicator of atherosclerosis advancment. This protein is an independent marker of acute coronary syndrome apperance, but is worse than IMT-thicknes of common carotid artery. PTX3 has low sensivity and moderate specificity in acute coronary syndrome diagnosis.