VIII. SUMMARY

Background

In developed countries, coronary artery disease, primarily manifested as angina pectoris, is the main cause of mortality in men over 45 years of age. Numerous scientific studies suggest that low androgen levels are associated with adverse cardiovascular risk factors such as obesity, hyperlipidemia, and insulin resistance. The relationship between plasma testosterone levels and an increased risk of coronary artery disease is attributed, inter alia, to the adverse effects of testosterone on lipid metabolism and fibrinolysis.

Objective

The main aim of the study was to analyze the effect of total testosterone concentration in patients with stable angina pectoris on the severity of atherosclerotic coronary artery changes. In addition, the study assessed the correlation of selected risk factors for cardiovascular disease with the value of total testosterone and sex hormone binding protein (SHBG).

Patients and methods

The study was conducted between 2014-2015 in a group of patients scheduled for diagnosis and invasive treatment of coronary artery disease in the Department of Invasive Cardiology of the Medical University in Bialystok

The patients were divided into a study group with significant atherosclerotic lesions in at least one coronary artery (n = 379) and control group (n= 182) without significant narrowing in coronary angiography (<50%). All patients were tested for the following biochemical parameters: total testosterone (TT), sex hormone binding globulin (SHBG), lipid profile (HDL, LDL, TG, TC) and carbohydrate metabolism parameters (glucose, glycated hemoglobin). Data from the medical history consisted of the severity of coronary artery disease symptoms, nicotine history, hypertension, diabetes, peripheral vascular disease, history of MI, PCI and CABG. In addition, the BMI body mass index was calculated to assess obesity.

Results

The study revealed that together with the severity of angina symptoms determined according to the CCS classification, the average total testosterone values decreased. Negative

nicotine history and no significant changes in coronary arteries correlated with higher total testosterone values. The results showed that men who are overweight and obese have significantly lower values of total testosterone and sex hormone binding globulin. Lower total testosterone values were found in patients with significant changes in coronary arteries and diabetes. In the analyzed male population, the higher HDL cholesterol level correlated with increase of TT and SHBG. In our study, men with significant coronary artery disease and high triglyceride levels showed lower total testosterone and SHBG levels.

Conclusions

1. In the studied population of men, the severity of coronary artery disease assessed in coronarography did not correlate with total testosterone levels. In the subgroup of people with a negative nicotine history and no significant changes in coronary arteries, significantly higher total testosterone values were found.
2. The high *Body Mass Index* showed the strongest negative relationship with total testosterone and sex hormone binding globulin. This relationship occurred both in people with significant coronary artery disease and in men without significant changes in coronary arteries.
3. Diabetes in men with coronary artery disease was associated with reduced values of total testosterone.
4. High HDL cholesterol positively correlated with TT and SHBG levels, inverse correlation was shown in relation to triglyceride concentration in the group of patients with significant coronary artery disease. There was no effect of total cholesterol and LDL cholesterol on the sex hormones tested.