Abstract:

Background:
Diabetes mellitus both type 1 and 2 rank among the strongest predictors of cardiovascular diseases (CVD). We studied differences between type 1 and 2 diabetic women regarding association of risk factors and microvascular complications and association of cardiovascular risk factors with preclinical atherosclerosis expressed as intima-media thickness of common carotid and femoral arteries.

Patients and methods:
Women with type 1 (n=203) and type 2 diabetes (n=123) were examined. Microvascular complications were analyzed as follow: retinopathy, nephropathy, neuropathy and diabetic foot syndrome and their risk factors. Preclinical atherosclerosis markers expressed as ankle-brachial index (ABI) and toe-brachial index (TBI) and intima-media thickness of common carotic (IMT CCA) and femoral (IMT CFA) arteries meassured by high resolution ultrasound were analyzed with regard to the presence of cardiovascular risk factors.

Most important results:
No serious differences in risk factors for development of microvascular diabetic complications were found. Concerning preclinical atherosclerosis risk factors in type 1 diabetic women strong association between IMT CCA and body mass index, waist circumference, and total body fat was found in contrast to type 2 diabetic women. In type 2 diabetic women strong association between IMT CCA and fasting glucose, glycated hemoglobin, and atherogenic index of plasma (log TG/HDL cholesterol) was observed in contrast to type 1 diabetic women. In type 1 diabetic women, IMT CFA was associated with body fat in contrast to type 2 diabetic women.
We studied the influence of connexin 37 polymorphism to preclinical atherosclerosis. The polymorphism of gene for connexin 37 is strongly associated with preclinical atherosclerosis in type 1 and type 2 diabetic women and in women from general population with waist circumference above 94cm as well. The carriers of CC genotype had the lowest values of ankle-brachial index in all groups. Only mild significance was found in type 2 diabetic women and in women from general population, but very strong significance was found in type 1 diabetic women.

Most important conclusions:
Preclinical atherosclerosis in type 1 diabetic women was strongly associated with factors reflecting body fat and its distribution, while in type 2 diabetic women preclinical atherosclerosis was associated with markers reflecting glucose and lipid metabolic disorders.
In genetical part of our study results support the role of chronic hyperglycaemia as important regulator of connexin37 gene polymorphism effect on pathogenesis of cardiovascular disease in diabetic patients.

Key words: *type 1 diabetes – type 2 diabetes – microvascular complications – macrovascular complications – IMT CCA – preclinical atherosclerosis – connexin 37 gene polymorphism*