PAI-1 polymorphism in patients with diabetes

Shyshko V.*, Mokhort T.*, A.Gonchar, Konstantinova E.***, Tsapaeva N.***

*Belarusian State Medical University

**Institute of Genetics and Cytology, National Academy of Science of Belarus

*** Institute of Heat and Mass Transfer, National Academy of Science

Background

PAI-1 (Plasminogen activator inhibitor-1) refers to a group of serine protein inhibitors. It inhibits fibrinolysis and contributes to angiogenesis and atherogenesis.

4G/5G polymorphism was found to be associated with increased risk for cardiovascular diseases. It was of special interest to study PAI-1 polymorphism in patients with diabetes.

Objective

Objective was to study PAI-1 polymorphism in patients with type 2 diabetes (T2D) and concomitant coronary heart disease (CHD).

Materials and methods

48 patients were included and divided into **3 groups**:

group 1 – 20 almost healthy person,

group 2 – 13 patients with T2D,

group 3 – 15 patients with T2D and CHD.

Patients were under 60 years old.

Patients with T2D were compensated by HbA1c (6,5±1,2% in group 2 and 6,5±0,6% in group 3 correspondingly).

Polymorphic variant of PAI-1 was determined by polymerase chain reaction (PCR).

Results

Table 1 – Frequencies of genotypes and alleles

Genotype, Alleles	Group 1	Group 2	Group 3
4G/4G	6	5	2
4G/5G	10	3	10
5G/5G	4	5	3
4G	22	14	14
5G	18	12	16

4G/5G polymorphism was statistically significant more frequent in patients with T2D and concomitant CHD (10 of the 15, 66,7%) compared to patients with diabetes (3 of the 13, 23,1%) (χ^2=5,32, p=0,021) and almost healthy person (10 of the 20, 50%) (χ^2=4,50, p=0,034).

In group 2 4G/4G polymorphism was recorded in 5 patients (38,5%) that was more frequent compared to group 3 (2 of 15, 13,3%), and 6 of 20 in controls (30%) bat difference was not statistically significant.

There was no difference in frequencies between groups in 5G/5G polymorphism (3 patients (15%) in group 1, 4 patients (30,8%) in group 2 and 3 patients (20%) in group 4)

There was no difference in allele frequencies between groups

Conclusions

1. 4G/5G polymorphism is associated with CHD in patients with type 2 diabetes.
2. 4G/4G polymorphism is supposed to have protective role in relation to macrovascular complication in diabetic patients

18th European Congress of Endocrinology, Munich, Germany (ECE 2016).