PAI-1 polymorphism in patients with diabetes

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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).

<table>
<thead>
<tr>
<th>Genotype, Alleles</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>4G/4G</td>
<td>6</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>4G/5G</td>
<td>10</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>5G/5G</td>
<td>4</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>4G</td>
<td>22</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>5G</td>
<td>18</td>
<td>12</td>
<td>16</td>
</tr>
</tbody>
</table>

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.