Vascular Endothelial Growth Factor Polymorphism +405 G/C is Associated With Early Stage Of Diabetic Nephropathy In Patients With Type 2 Diabetes


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Rationale

One of the basic genetic factors that impact on development of diabetic nephropathy is enhanced expression of VEGF (Vascular Endothelial Growth Factor) [1].

Materials and Methods

We estimated distribution of VEGF genotype in study groups.

Results

Increased glucose levels promote activation of VEGF +405 G/C polymorphism.

<table>
<thead>
<tr>
<th>Group 1 (n=26)</th>
<th>Group 2 (n=28)</th>
<th>Group 3 (n=19)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CKD1(n)</td>
<td>CKD2(n)</td>
<td>CKD1(n)</td>
</tr>
<tr>
<td>G/C</td>
<td>4*</td>
<td>3*</td>
</tr>
<tr>
<td>C/C</td>
<td>2*</td>
<td>4*</td>
</tr>
<tr>
<td>G/G</td>
<td>13*</td>
<td>-</td>
</tr>
</tbody>
</table>

*differences are not statistically significant*

Materials and methods

73 included patients were divided into 3 groups:

**Group 1** – 26 patients with prediabetes (impaired fasting glucose and impaired glucose tolerance),

**Group 2** – 28 patients with type 2 diabetes (T2D),

**Group 3** – 20 almost healthy person.

To determine the stage of CKD we calculated glomerular filtration rate (GFR; ml/min/1.73m²) by Cockcroft-Gault equation. Patients with CKD 3-5 were excluded.

We revealed that VEGF +405 G/C polymorphism in patients with T2D was associated with decreased GFR (CKD2): 84,28 [82,59;87,38] ml/min/1.73m² compared to 106,07 [89,63;136,91] ml/min/1.73m² in control group (p=0,02). We didn’t reveal statistical significance in groups with VEGF polymorphism C/C and G/G. It can be assumed that polymorphism C/C and G/G possess nephroprotective action.

Conclusions

VEGF +405 G/C polymorphism was associated with Stages 1-2 of CKD in patients with T2D and was not associated with GFR impairment in patients with prediabetes.

References


16th European Congress of Endocrinology, Wroclaw, Poland (ESE 2014).