Abstract: P492

Genes polymorphism and clinical course of the acute coronary syndrome associated with acute kidney injury

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Topic(s):
Acute Coronary Syndromes: Biomarkers

Citation:

Introduction: New aspects in pharmacogenetics seem to provide new ways for understanding pathogenesis and increase the effectiveness of the treatment of patients with acute coronary syndrome (ACS).

Goal: to evaluate the features of the clinical course of the ACS for in-hospital patients who suffer from acute kidney injury (AKI) taking into the influence of gene polymorphism into account: APOE, CYP2C19, SLCO1B1, NOS3.

Materials and methods:132 patients were examined, male – 60,2%, female –39,8%. The average age of patients was 62,1 ± 4,2 years. Patients were divided into 2 groups - the first (I) - 68 patients with ACS and AKI, the second (II) - 64 persons with ACS, but without AKI. Groups were comparable by sex and age. Detection of mutations of the studied genes was based on the analysis of human genomic DNA isolated from blood leukocytes by polymerase chain reaction.

Results: Distribution of gene polymorphisms: APOE Leu28Pro mutation of which potentiates hyperlipoproteinemia; CYP2C19 defines "sensitivity to clopidogrel"; SLCO1B1 affects the metabolism of statins and the gene NOS3 – important for the synthesis of NO given in the picture. Clinical presentation: Acute heart failure (AHF) Killip III-IV - 3 times more often in the I group of patients (22,1%), versus II (7,8%), p <0.05. Chronic heart failure (CHF) of the NYHA III-IV functional class in I-19,0%, in II group – 6,3%, p <0.05.

Ventricular premature beats of high gradations - more often in the group with MI and AKI: 25,0%, versus 10,9% in the control group, p <0.05. Recurrent ACS 4,7 times more often in the the I group, 14,7%, compared with 3,1% of the II group, p <0.05. In-hospital mortality: I – 16,2%, II – 4,7%, p <0.05.

Conclusions: The higher rate of the following genotypes were detected among the patients with AKI associated with ACS: the genotypes*1*2, *1*3, *2 * 2 of the CYP2C19; genotype AlaAla of the SLCO1B1; genotype LeuPro of the APOE; genotypes of CT and TT of the NOS3.

Alleles of the investigated genes were detected significantly more often among the mutant, against there was a worsening of the course of myocardial infarction in the hospital: the rate of severe AHF and CHF, ventricular arrhythmias, recurrent ACS, and in-hospital mortality increased.
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<table>
<thead>
<tr>
<th>Gene</th>
<th>Group I</th>
<th>Group II</th>
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<tbody>
<tr>
<td>APOE</td>
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<tr>
<td>CYP2C19</td>
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<td>SLCO1B1</td>
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<td>NOS3</td>
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p = 0.05