M46. BIOMARKERS IN SCHIZOPHRENIA: A FOCUS ON BLOOD BASED THERANOSTICS

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Background Identification of biomarkers that can be used as predictors of treatment response in schizophrenic patients might be an important step towards development of personalized treatment approach to this disease. Currently, there is a growing body of research on blood-based biomarkers to monitor the effects of pharmacological treatment of the neuropsychiatric diseases (including schizophrenia). However, studies on the longitudinal changes in peripheral monoamine related molecules necessary to address this hypothesis are scarce. The dominant «dopamine hyperfunction hypothesis» has been supported by molecular, pharmacological and clinical evidence for over 40 years. Dopamine receptors are key elements of the dopaminergic system. Serotonin 5-HT2 receptors modulate the dopamine function. Moreover, most antipsychotics have an affinity for these receptors. Therefore, the purpose of this study was to explore the relations between mRNA levels of genes of dopamine D4 receptors and 5-hydroxytryptamine receptor 2A in peripheral blood mononuclear cells on the one hand, and treatment effect of antipsychotics in schizophrenic patients on the other hand.
Methods Study sample: 52 men with first episode of schizophrenia according to ICD-10 treated with olanzapine or haloperidol (monotherapy) (mean age 26,4 ± 6,2 and 29,4 ± 8,1, respectively). Total mRNA was isolated from unfractionated PBMCs and was performed to cDNA by using kits Qiagen. mRNA expression was determined by the fluorogenic TaqMan approach. The efficacy of treatment was assessed with PANSS. Assessments were done before treatment (V1) as well as by days 14 and 28 after administration of antipsychotic (V2, V3). Statistical analysis was performed using statistical software SPSS version 21 (IBM, USA). As the data on mRNA levels was not normally distributed, non-parametric tests were employed. The Kruskal-Wallis or Mann-Whitney tests were performed to compare expression levels of DRD4, 5HTR2A mRNA among the both groups of patients and various visits. Spearman`s correlation analysis was used to analyze the relationship between the mRNA levels of the two target genes and the five factor scores of the PANSS. The data is show as the mean ± SEM.
Results Positive response to treatment (reduction of general assessment on PANSS, $p<0.001$) was registered in both groups – regardless of the medication. No significant differences in mRNA expression levels of DRD4 and 5HTR2A in PBMCs were found between patients treated with olanzapine and on haloperidol at V1: 8,31 ± 2,39 vs 10,34 ± 2,85, p= 0,74 and 4,69 ± 1,64 vs 4,6 ± 1,22, p= 0,25, respectively. Against the background of antipsychotic therapy a significant positive correlation between baseline (V1) 5HTR2A mRNA levels on the one hand and score of the PANSS on the

other hand were found only in patients treated with olanzapine (r= 0,375, p=0,049 and r=0,442, p=0,024, for V2, V3, respectively).

Discussion These finding suggest that 5HTR2A mRNA levels in PBMCs of schizophrenic patients before treatment might be a potential diagnostic biomarker of the efficacy of olanzapine therapy.

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