P.3.c.016 The relation between insulin receptor substrate-1 gene and olanzapine-induced weight gain and smoking in schizophrenia patients

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Introduction: Insulin receptor substrate-1 (IRS-1) mediates the metabolic and growth promoting effects of insulin and insulin growth factor-I by acting as a docking protein between the insulin receptor and intracellular signaling molecules (Clausen et al. 1995)). The common IRS-1 Gly972Arg polymorphism is among the most extensively studied genetic variants in relation to Type 2 diabetes. Antipsychotic induced weight gain is a major problem for second generation antipsychotics which may lead to diabetes and metabolic syndrome. In last years there were studies mentioning the relationship between polymorphism of different genetic variants and antipsychotic induced weight gain. Smoking was another serious problem for schizophrenia patients. Patients with schizophrenia have a ratio of smoking between 45–92% (Breslau et al. 2004). Although there were many studies about IRS-1 polymorphism and diabetes but the relationship between IRS-1 and antipsychotic induced weight gain or smoking was not studied yet.

Objective: Primary objective of this study is evaluation of the correlation between IRS-1 polymorphism and olanzapine induced weight gain. Its also aimed to evaluate the relationship between smoking and IRS-1 polymorphism.

Method: Total of 95 patients whom were diagnosed as schizophrenia by DSM-IV criteria were included to study. All patients were evaluated with SAPS, SANS and BPRS. Blood for DNA analysis were obtained from patients and analyzed as mentioned in literature (Ohara et al 2003). SPSS 13.0 program was used for evaluation of data.

Results: 84 of patients had Gly/Gly polymorphism of IRS-1 Gly972 and 11 had Gly/Ala polymorphism. We couldn't find patients with Ala/Ala polymorphism. Patients were using olanzapine between 5–30 mg/day (11.2±6.14 mg). We couldn't find statistically significant difference between Gly/Gly and Gly/Ala groups for weight gain change and body mass index change ($p > 0.05$). There was also no difference for blood glucose level. Interestingly there was statistically significant relation between Gly/Ala genotype and cigarette smoking. The patients with Gly/Ala (8 of 11) genotype were significantly more smoking than the Gly/Gly (33 of 84) genotype.

Conclusion: The antipsychotic induced weight gain and metabolic syndrome are two important factors that must be considered for the patients. The number of studies focusing the genetic side of antipsychotic induced weight gain are increased in last years. We aimed find a relationship between olanzapine induced weight gain and IRS-1 gene polymorphism but we found any difference between Gly/Gly and Gly/Ala variants of IRS-1 gene.

The only difference between two groups was found in cigarette smoking. There were many studies about smoking in schizophrenia but genetic studies of smoking in schizophrenia were limited and most of them were about genetic variants of hepatic enzymes. There weren't any reports about relationship between IRS-1 gene polymorphism and smoking in diabetes and other diseases. Our finding can be independent from schizophrenia may be a premise finding for further studies

References

[1] Breslau N, Scott P, Kessler R, 2004, Psychiatric disorder and stages of smoking. Biol Psychiatry 55, 69–76.
[2] Clausen JO, Hansen T, Bjorbaek C, Echwald SM, Urhammer SA, Rasmussen S, Andersen CB, Hansen L, Almind K, Winther K, Haraldollir J, Borch-Johnsen K, Pedersen O, 1995, Insulin resistance: interactions between obesity and a common variant of insulin receptor substrate-1. Lancet 346, 397–402.
[3] Ohara K, Tanabu S, Yoshida K, Ishibashi K, Ikemoto K, Shibuya H, 2003, Effects of smoking and cytochrome P450 2D6*10 allele on the plasma haloperidol concentration/dose ratio. Prog Neuropsychopharmacol Biol Psychiatry 27(6), 945–9.

P.3.c.017 Influence of atypical neuroleptic quetiapine on the serum dehydroepiandrosterone/cortisol ratio in schizophrenia

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Introduction: Hypercortisolaemia has been suggested to be both a causal and exacerbating factor of clinical symptoms and neurocognitive impairment in schizophrenia. The adrenal steroid dehydroepiandrosterone (DHEA) has antiglucocorticoid properties that may have regulatory effects on glucocorticoid action in the brain [1,2]. DHEA is invovlved into a number of pathophysiological processes in schizophrenia, is associated with clinical symptoms and conducted treatment. However, there is a paucity of data on the association of these steroids and their ratio in schizophrenic patients with response to antipsychotic treatment with atypical neuroleptic quetiapine.

Purpose: To assess serum DHEA-sulphate and cortisol levels along with DHEA/cortisol ratio in schizophrenic patients during the atypical neuroleptic quetiapine therapy.

Material and Methods: 20 patients with residual schizophrenia (6 men and 14 women at age from 26 to 58 years old) have been examined in dynamic of 6 week atypical neuroleptic quetiapine therapy along with 30 mentally and somatically healthy age-matched controls. Duration of schizophrenia was more than 5 years. At baseline and after 6 week treatment the concentration of serum cortisol and DHEA-sulphate has been measured by immunoenzyme method.

Results: Before treatment trend toward increase of serum cortisol concentration has been observed in whole group of schizophrenic patients (543.52±17.05 nmol/l) in comparison with the control (445.13±21.45 nmol/l) while DHEA concentration (1.79±0.52 pcg/ml) did not differ from the control (2.33±0.14 pcg/ml). After treatment no difference in serum cortisol concentrations has been found in control persons and schizophrenic patients. Analysis of efficacy of conducted pharmacotherapy assessed according to the Clinical Global Impression Scale (CGI) allowed dividing patients into two groups. First group included 15 patients with high efficacy of the therapy and second group consisted of 5 patients who showed insignificant improvement.

In patients with low efficacy of the therapy reliable decrease of DHEA concentration (1.32±0.07 pcg/ml) has been revealed as