Psychoneuroimmunology

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Inflammatory cytokines and glutaminergic excitotoxicity in patients with obsessive-compulsive disorder (OCD)

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Introduction In vitro studies have demonstrated possible neuroprotective effects of the following pro-inflammatory cytokines: IL-6, IL-1β and TNF-α against glutaminergic excitotoxicity in brain through different pathways.
Objectives In the current study, we aim to correlate level of the above pro-inflammatory cytokines in serum with glutamate levels in head of caudate nucleus measured using Proton Magnetic Resonance Spectroscopy (^{1}H-MRS) in patients with obsessive-compulsive disorder (OCD), a neuropsychiatric illness with possible multifactorial aetiology including immunological and excitotoxic factors.
Method Thirty psychotropic-naïve patients with OCD and an equal number of gender and age-matched normal controls were recruited in the study. A detailed psychiatric assessment was carried out including sociodemographic and clinical variables. A 3T MR imaging and spectroscopy session was carried out in head of caudate nucleus. Further, absolute quantification of glutamate level was obtained using LC model. Simultaneously, 5 mL of blood sample was collected and assayed for the above pro-inflammatory cytokines (Siemens, Immulite^{TM}). The level of glutamate was correlated with the cytokine levels in patients with OCD.
Results The level of Glx was significantly higher in patients with OCD as compared to controls ($P < 0.05$). The Glx level negatively correlated with two of the three pro-inflammatory cytokines: IL-6 and TNF-α ($r = -0.807$; $r = -0.838$; $P < 0.05$) while no significant correlation was demonstrated with IL-1β.
Conclusions The findings provide preliminary evidence regarding possible neuroprotective effects of pro-inflammatory cytokines against glutaminergic excitotoxicity in patients with OCD. Further studies including patients with other psychiatric illnesses as controls are required for confirmation of the above findings.
Disclosure of interest The authors have not supplied their declaration of competing interest.

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Psychopharmacology and pharmacoeconomics

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Impact of DRD2 polymorphisms on prolactin level in risperidone-treated Thai children and adolescent with autism spectrum disorders

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Introduction A large number of studies have reported that the prolactin concentration was significantly increased in the Taq1A A1 allele carriers because several reports revealed that individuals with the DRD2 Taq1A A1 allele have a reduced density of brain D2 receptors.
Objective The main aim of this study was to identify the impact of pharmacogenetic markers associated with prolactin concentration in risperidone-treated children and adolescents with autism spectrum disorders.
Methods One hundred and forty-seven children and adolescents with autism, aged 3 to 19, received risperidone. The clinical data of patients were recorded from medical records. Prolactin levels were measured by chemiluminescence immunoassay. Three *CYP2D6* single nucleotide polymorphisms (SNPs), CYP2D6*4 (1846G>A), *10 (100C>T), and *41 (2988G>A), one gene deletion (*5), and *DRD2 Taq1A* (rs1800497) polymorphism were genotyped by TaqMan real-time PCR.
Results The three common allelic frequencies were CYP2D6*10 (55.10%), *1 (32.65%) and *5 (6.12%), respectively. Patients were grouped according to their *CYP2D6* genotypes. The *DRD2* genotype frequencies were *Taq1A* A2A2 (38.77%), A1A2 (41.50%), and A1A1 (19.73%), respectively. There were statistically significant differences in prolactin level of patients among the three groups ($P = 0.033$). The median prolactin level in patients with *DRD2 Taq1A* A2A2 (17.80 ng/mL) was significantly higher than A1A2 (17.10 ng/mL) and A1A1 (12.70 ng/mL).
Conclusion *DRD2 Taq1A* A2A2 polymorphisms may be a critical role in an influence prolactin elevation during risperidone treatment in ASD.
Disclosure of interest The authors have not supplied their declaration of competing interest.

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Detection of CYP2D6 polymorphism using Luminex xTAG technology in autism spectrum disorder: CYP2D6 activity score and its association with risperidone levels

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Introduction The determination of the accurate *CYP2D6* genotyping is essential in the clinical setting and individualization of drug therapy.
Objectives In this study, was to apply the Luminex xTAG technology to detect significant *CYP2D6* polymorphisms and copy number variation, including assessment the relationship of *CYP2D6* polymorphisms and risperidone plasma concentration in autism spectrum disorder children (ASD) treated with risperidone.
Methods All 84 ASD patients included in this study had been receiving risperidone at least for 1 month. The *CYP2D6* genotypes were determined by luminex assay. Plasma concentrations of risperidone and 9-hydroxyrisperidone were measured using LC/MS/MS.
Results Among the 84 patients, the most common genotype was *CYP2D6*1/*10* (26.19%). The most common allele was *CYP2D6*10* (51.79%) and the second most allele was *CYP2D6*1* (27.98%). There were 46 (55.42%) classified as EM, 33 (39.76%) as IM, and 4 (4.82%) as UM. The plasma concentration of risperidone and risperidone/9-hydroxyrisperidone ratio in the patients were significant differences among the CYP2D6 predicted phenotype group

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