PT614
Altered Serotonin transporter mRNA expression in the peripheral leukocytes of obsessive-compulsive disorder
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Abstract
Object: Selective serotonin reuptake inhibitors (SSRI) are well-established first-line pharmacological treatments for obsessive-compulsive disorder (OCD), and serotonin transporter (5-HTT) may be the target of antidepressants and involved in the pathophysiology of OCD. In this study, we determined mRNA expression levels of the 5-HTT gene in the peripheral blood leukocytes of patients with OCD and control subjects (n = 53, each). Methods: Total RNA was extracted from the peripheral leukocytes of whole blood samples using the PAX gene Blood RNA kit. Real-time quantitative reverse transcriptase polymerase chain reaction (qRT-PCR) analysis was performed with the ABI 7500 Fast Real-Time System. Expression differences between OCD patients and controls were tested using Student’s t-test. All subjects signed written, informed consent forms that were approved by the institutional ethics committees of the University of Tokushima Graduate School. Results: The 5-HTT mRNA levels in patients were significantly higher than in healthy controls (P = 1.77 x 10^-10). Conclusion: Our result may suggest that the elevated mRNA levels of 5-HTT might be implicated in the pathophysiology of OCD.

PT615
Altered White Matter Fronto-Striatal Connectivity in Obsessive-Compulsive Disorder
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Abstract
Objective: Obsessive-Compulsive disorder (OCD) is a chronic psychiatric disorder defined by recurrent thoughts, intrusive and distressing impulses, or images and ritualistic behavior; fronto-striatal pathways are hypothesized to be involved in the major pathophysiology of Obsessive-Compulsive Disorder. Although focal regional abnormalities of white matter integrity have been studied in populations with OCD, alterations in the structural connectivities among them, especially non-medicated patients, remain poorly understood.

Method: A total of 92 patients with non-medicated OCD and 92 matched healthy controls underwent diffusion-weighted (DWI) and T1-weighted magnetic resonance imaging. Bilateral orbitofrontal cortex (OFC) and two subcortical ROIs (caudate and putamen) were extracted from their own T1 image using Freesurfer. Using AFNI mini-probabilistic tractography on the DWI data with the extracted ROIs, connectivities between OFC and each subcortical region were calculated.

Results: RD value between the right OFC and putamen was significantly increased in OCD compared to that of healthy controls. No significant group differences in FA or MD value.

Conclusion: The current study suggested evidence providing that individuals with OCD show demyelination in orbitofrontal-putamen white matter tract compared with controls. The results are consistent with previous research on abnormal fronto-striatal function and demyelination in the frontal lobe in OCD. Further study is needed to explore tracts from dorsal frontal regions to the dorsal striatum, and the relationship between fronto-striatal structural connectivity and clinical/neuropsychological function.
Abstract

Obsessive-compulsive disorder (OCD) is a psychiatric condition characterised by intrusive thoughts and repetitive acts. Numerous studies have focused on adult patients, while adolescent OCD is rarely investigated. The few neuropsychological studies on adolescent OCD show inconsistent results, possibly due to small sample sizes and comparabilities of the subjects. The aim of this study was to investigate memory, discrimination learning, set-shifting, and goal-directed control in adolescent OCD.

Thirty-six juvenile OCD patients (25 females) without additional Axis-I disorders and 36 healthy volunteers matched for age, gender, and intelligence were recruited. The Cambridge Neuropsychological Test Automated Battery was used to assess visual episodic memory (Paired Associates Learning) and discrimination learning/cognitive flexibility (Intra-Extra Dimensional Set Shift). Moreover, the balance between goal-directed and habitual control was tested using an instrumental learning task, in which subjects respond to stimuli to gain rewarding outcomes. They are then instructed to adjust their behaviour after outcome devaluation.

Adolescent OCD patients made significantly more errors than the healthy volunteers on the visual episodic memory task. Patients did not show a specific deficit in set-shifting, but a general impairment in discrimination learning, especially in acquiring an attentional set. In the instrumental learning task, youths with OCD differentiated less between valuable and devalued outcomes, but their outcome knowledge was intact. Incorrect responses towards devalued outcomes were correlated with total errors on the paired associates learning task in the patient group.

The data suggest impairments in learning and memory to be core deficits in adolescent OCD. These deficits could preclude patients from forming a stable attentional set and thus exhibiting cognitive flexibility. Furthermore, this dataset suggests that a learning impairment in goal-directed learning could contribute to an overreliance on habits. Follow-up studies will need to investigate if learning and memory impairments are clinically significant and contribute to the progression of OCD.

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PT619

A Double-Blind, Placebo-Controlled Trial of N-Acetyl Cysteine in the Treatment of Excoriation Disorder

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Abstract

Importance: Excoriation (skin-picking) disorder (SPD) is a disabling, under-recognized condition in which individuals repeatedly pick at their skin, leading to noticeable tissue damage. To date there has been no clearly effective pharmacological or psychological treatment for SPD.

Objective: To determine whether N-acetyl cysteine (NAC), an amino acid that appears to restore extracellular glutamate concentration in the nucleus accumbens, will be more effective than placebo in reducing compulsive picking behavior.

Setting: Ambulatory care center.

Participants: Sixty-six adults with SPD (59 [89.4%] women; mean age = 34.8 ± 11.0 years).

Intervention: N-acetylcysteine (dosing range, 1200–3000 mg/d) or placebo was administered for 12 weeks.

Main Outcome Measures: Participants were assessed using measures of skin picking severity and selected cognitive tasks. Outcomes were examined using a linear mixed-effects model.

Results: Compared to placebo, NAC treatment was associated with significant improvements in Yale Brown Obsessive Compulsive Scale total score, Clinical Global Impression Severity, and Extra-Dimensional Set shifting performance. These effects were significant both in terms of treatment x time interactions and post hoc tests at one or more individual time points. At study endpoint, 47.1% of participants were “much or very much improved” on NAC compared to 19.2% on placebo (p<0.031). There were no significant differences between active and placebo arms in terms of psychosocial functioning.

Conclusions: This study found that NAC treatment resulted in demonstrated statistically significant reductions in skin picking symptoms along with improvement in set-shifting performance, and was also well tolerated. The glutamate system may prove a beneficial target in treating this and other compulsive behaviors.

PT620

A pilot study of bilateral thermal capsulotomy with focused ultrasound for treatment-refractory (MRgFUS) obsessive-compulsive disorder

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Objective: Although cognitive-behavioral therapy and SSRIs is standard therapeutic approach, many OCD patients do not respond adequately. For those patients, an alternative approach of various neurosurgical interventions has been applied. In recent, a new thermal lesioning approach of MRgFUS was introduced to various neurological and psychiatric conditions. Therefore, we evaluated the efficacy and adverse effects of MRgFUS for refractory OCD.

Methods: Eleven refractory OCD patients were treated with MRgFUS to ablate the anterior limb of the internal capsule. Patients underwent neuropsychological evaluations at 1 week, 1, 3, 6, and 12 months follow up. Outcomes were measured with the Yale–Brown Obsessive–Compulsive Scale (Y-BOCS), the Hamilton Rating Scale for Depression (HAM-D) and the Hamilton Rating Scale for Anxiety (HAM-A), and adverse events were evaluated.

Results: The Y-BOCS (ϒ2=43.13, p<0.001) HAM-D (ϒ2=28.67, p<0.001), and HAM-A (ϒ2=24.66, p<0.001) scores decreased