

elevated in patients with Panic Disorder (PD). The objective of this study is to investigate the White Matter (WM) correlates of anxiety sensitivity in PD.

Methods: 112 right-handed patients with PD and 48 Healthy Control (HC) subjects were enrolled in this study. All patients were examined by means of magnetic resonance image at 3 Tesla. The Anxiety Sensitivity Inventory-Revised (ASI-R) and the Albany Panic and Phobia Questionnaire (APPQ) were administered. Tract-based spatial statistics were used for image analysis. **Results:** Among the patients with PD, the fractional anisotropy values of the genu of corpus callosum, superior longitudinal fasciculus, sagittal striatum (including inferior longitudinal fasciculus and inferior fronto-occipital fasciculus), posterior corona radiata, and parieto-temporal WM regions showed significant positive correlations with scores of ASI-R. These WM regions were also significantly correlated with APPQ scores in the panic patients. Conducting correlation analysis among HC subjects showed no significant results.

Conclusion: The current study suggests that the neural correlates of anxiety sensitivity in PD may be associated with parieto-temporo-limbic WM regions in patients with PD, and it could be used as a neural correlate of PD.

Key Words: Panic disorder, Anxiety sensitivity, Neural correlates, White matter connectivity, Neuroimaging

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White matter connectivity related to medication treatment response in patients with panic disorder

See-Woong Kim, Borah Kim, Sang Hyuk Lee

Bundang CHA Medical Center, Republic of Korea

Abstract

Introduction: Although progress has been made in the development of effective pharmacological and psychotherapeutic interventions, about 20-40% of all patients with panic disorder still do not respond to treatment. There are no neuro-imaging studies that have predicted pharmacotherapy treatment outcome in Panic disorder. The objective of this study is to compare the brain WM connectivity between treatment responder in patients with panic disorder (RPD) and treatment non-responder in patients with panic disorder (NRPD).

Methods: 64 right-handed patients with PD (RPD, n=37; NRPD, n=27) enrolled this study. All patients were interviewed and diagnosed with the diagnostic criteria in Structured Clinical Interview for DSM-IV and examined by means of MRI at 3 Tesla. Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Panic Disorder Severity Scale (PDSS), Albany Panic and Phobia Questionnaire (APPQ) and Anxiety Sensitivity Inventory-Revised (ASI-R) were administered. Fractional Anisotropy (FA) data were compared using tract-based spatial statistics (TBSS).

Results: TBSS results showed that the FA values of patients in NRPD were significantly higher than RPD in cluster of white matter such as near right precentral gyrus, posterior corona radiata, posterior thalamic radiation, precuneus, splenium of corpus callosum, inferior parietal lobe, para-hippocampal gyrus. Conducting correlation analysis among RPD showed significant positive correlations between ASI public scales and FA of right posterior corona radiata. Conducting correlation analysis among NRPD showed significant positive correlations between ASI cognition and FA of right middle frontal lobe.

Conclusion: These results suggest that structural changes such as fronto-limbic network and precuneus, which are related to default mode network, could influence the response of medication in panic disorder. Further studies with a larger numbers of patients should be replicated to confirm our findings.

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Effect of placebo and lorazepam on functional connectivity in fearful vocal processing: an fMRI study

Michihiko Koeda¹, Takeshi Hase^{2,3}, Tomoko Hama^{1,4}, Yumiko Ikeda⁵, Noriaki Yahata⁶, Amane Tateno¹, Hidehiko Takahashi⁷, Masato Matsuura⁸, Hidenori Suzuki⁵, and Yoshiro Okubo¹

¹ Department of Neuropsychiatry, Nippon Medical School ² The Systems Biology Institute ³ Laboratory of Disease Systems Modeling, Center for Integrative Medical Sciences, RIKEN ⁴ Bunkyo Gakuin University ⁵ Department of Pharmacology, Nippon Medical School, ⁶ Department of Psychiatry, Tokyo University ⁷ Department of Psychiatry, Kyoto University ⁸ Tokyo Medical and Dental University

Abstract

Background and purpose: In clinical practice, lorazepam is commonly prescribed to reduce anxiety. Functional MRI studies have demonstrated reduced cerebral activation in the emotional circuit by the anti-anxiety effect on decision-making and facial affective processing. However, to our knowledge, the effect on functional connectivity in affective processing by anti-anxiety drug has not been fully investigated. We investigated the effect of the anti-anxiety drug lorazepam and a placebo on cerebral functional connectivity during listening to affective vocalizations.

Methods: Twenty-four right-handed subjects participated in this study. After acquiring informed consent, each subject participated in a randomized controlled trial for 3 days. The subjects were scanned by functional MRI (fMRI) at non-drug, placebo, and lorazepam. They took the drug/placebo 2 hours before fMRI. Subjects performed judgement of emotional valence (positive, negative, neutral) to selected vocal sets from Montreal Affective Voices during fMRI. We analyzed functional connectivity while subjects listened to fearful vocalizations under 3 conditions: non-drug, placebo, and 1mg lorazepam. In this study, we compared functional connectivity among the 3 conditions.

Results: Compared with non-drug, the conditions of placebo and lorazepam showed significantly decreasing functional connectivity in the anterior-middle cingulate and left-right primary visual cortex ($p < 0.05$). Compared with non-drug and lorazepam, the condition of placebo showed significantly increased functional connectivity between inferior temporal gyrus (ITG) and inferior parietal lobe (IPL) ($p < 0.05$). Compared with non-drug and placebo, the condition of lorazepam showed significant decrease of functional connectivity between left precentral gyrus and left middle cingulate ($p < 0.05$).

Conclusions: Our findings demonstrated that cerebral functional connectivity by affective processing was susceptible by anti-anxiety drug. Especially, these were suggested: 1) decreasing connectivity in anterior cingulate and primary visual cortex by anti-anxiety effect, 2) increasing left tempo-right parietal connection by placebo effect, and 3) decreasing left precentral-cingulate connectivity by lorazepam.

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Brain regional homogeneity underlying asthma with health anxiety

Short title: asthma, HA and brain

Yuqun Zhang^{1#}, PhD, Yingying Yin^{1#}, PhD, Yuan Yang², PhD, Rongrong Bian¹, Master, Zhenghua Hou¹, PhD, Yingying Yue¹, PhD, Yonggui Yuan¹, PhD

¹ Department of Psychosomatics and Psychiatry, ZhongDa Hospital, School of Medicine, Southeast University, Nanjing, China ²

Department of Respiration, ZhongDa Hospital, Southeast University, Nanjing, China # Yuqun Zhang and Yingying Yin contributed equally