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Keywords: Obsessive Compulsive Disorder (OCD), Thalamus, Neuroimaging, Mega Analysis, Meta-Analysis

P464. Magnetoencephalographic Examination of Neural Synchronization in Gamma Frequency Ranges in Pediatric Subjects With Obsessive Compulsive Disorder in Response to an Auditory Chirp Stimulus

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Background: Obsessive compulsive disorder (OCD) is a common psychiatric disorder that may be related to an impaired inhibitory process. Reduced local circuit inhibition leading to an inability to synchronize neural responses to sensory input is hypothesized to lead to increased gamma activity. Oscillating auditory stimuli have previously been used to demonstrate a reduced ability of subjects with other developmental disorders (e.g., Autism Spectrum Disorder) to synchronize neural activity at higher gamma frequencies. Because there may be a common developmental phenotype amongst these disorders, we hypothesized that subjects with OCD may exhibit similar deficits in neural synchronization.

Methods: 5 typically developing youth and 5 youth with OCD aged 7-17 years were exposed to an auditory CHIRP stimulus generated using a 1000Hz tone that was amplitude modulated by a sinusoid increasing linearly in frequency from 0-100Hz over 2000ms. During stimulus presentation, MEG activity was recorded using a 275-channel whole-cortex MEG system. Phase-locking or stability of responses to the CHIRP stimulus was quantified through inter-trial coherence (ITC) across 200 trials.

Results: For each group, ITC values for each brain region (right/left temporal, occipital, frontal, parietal, and central) were compared to the CHIRP stimulus. The ITC values of the normally developing group correlated significantly more with the CHIRP stimulus than the OCD group in the temporal region.

Conclusions: Subjects with OCD had difficulty phase-locking to the CHIRP signal as compared to typically developing subjects. Therefore, measurement of phase-locking to a CHIRP stimulus may have use as a neurophysiological marker for OCD in pediatric patients.

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Keywords: Obsessive Compulsive Disorder (OCD), Gamma Oscillation, CHIRP Stimulus, Neural Entrainment, Magnetoencephalography

P465. The Effects of Cognitive-Behavioral Therapy on Hoarding Disorder Brain Activity

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Background: Cognitive-behavioral therapy (CBT) is efficacious for hoarding disorder (HD), though results are modest. This study's goal was to determine whether CBT's benefits arise from improvements in previously-identified HD dorsal anterior cingulate (dACC) dysfunction and abnormalities in other brain regions.

Methods: A convenience sample of 58 HD patients of at least moderate severity and 39 healthy control participants (ages 20-65) were studied before and after 16 weeks of manualized group CBT for HD delivered weekly. Patients were randomized to active CBT or wait-list control arms. fMRI was used to examine brain activity during simulated decisions about whether to discard possessions. Clinical outcome was assessed by the Saving Inventory-Revised (SI-R), a self-report HD severity measure.