study has evaluated blood BDNF levels and their association with cognitive impairment in patients with at-risk mental state (ARMS).
Methods: We included 13 patients with ARMS and 30 healthy controls (HC) matched by sex, age, and educational level. Plasma BDNF levels were measured in patients at baseline and six months, and in HC at baseline. Neurocognitive functions (executive functions, speed of processing, verbal learning and memory, working memory) were examined in the patients at 6 months, and in HC at baseline. Regression analyses were conducted to examine the relationship between BDNF levels and cognitive performance.
Results: BDNF levels were lower in ARMS group than in HC group both at baseline and at 6 months ($p=0.001$, $p=0.008$, respectively). ARMS group showed lower scores in global cognition, speed of processing, and verbal learning and memory compared with HC group ($p=0.002$, $p=0.001$, $p=0.005$, respectively). There were no associations between plasma BDNF levels and all of the cognitive domains in both groups.
Conclusions: Peripheral BDNF levels were not related to cognitive deficits in ARMS and HC groups while the lower BDNF level in the former persisted up to 6 months. Further research is needed in a large sample.
Keywords: Brain-Derived Neurotrophic Factor, Cognitive Function, Prodromal Psychosis, At-Risk Mental States

S202. Event-Related Repetitive TMS to Right Posterior STS (but not OFA) in Healthy Volunteers (HV) Briefly Recapitulates Face Emotion Recognition (FER) Deficits of Schizophrenia

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Background: Profound FER deficits exist in Sz, causing social disability, though can be partly remediated with computer-based training. Neurostimulation might augment remediation if critical nodes were identified. We aimed to 1) briefly recapitulate FER deficits of Sz in HV using rTMS to rpSTS, 2) identify connectivity patterns of rpSTS regressed by FER, and 3) apply TMS to rpSTS with fMRI as readout.
Methods: 1) Nine healthy volunteers had rTMS (10 Hz; 500 msec; 110% RMT) to rpSTS or rOFA (counterbalanced; 10/10 system overlay with standard MRI) concurrent (1/3 trials) with stimuli (http://faces.mpdl.mpg.de/) for emotion or gender identification (button press). 14 Sz patients completed these tasks without TMS. 2) Whole-brain resting-connectivity analyses, seeded by rpSTS, was applied in 27 Sz and 35 HV who also completed the UPenn FER task. 3) BOLD fMRI was obtained in 4 HV pre- and post-TMS to rpSTS (1 Hz; 20 minutes).
Results: 1) In HV, rTMS to rpSTS only (not OFA) significantly slowed reaction time for FER only (not gender identification): overall F test for logRT ($p=.001$) with post-hoc rpSTS vs.OFA ($p=.005$) and rpSTS vs. non-stim trials ($p=.004$). rpSTS recapitulated slowed RT ad lower FER accuracy of Sz. 2) In both HV and Sz, rpSTS had significant resting connectivity with V1 ($p= .00013$), positively modulated by FER accuracy. 3) Analyses are ongoing.
Conclusions: rpSTS is a critical node in the FER circuit with connectivity to primary visual cortex modulated by FER, whose disruption recapitulates FER deficits, making it a candidate target for remediatory neurostimulation.
Supported By: NYS OMH, Columbia and NYS pilot imaging awards
Keywords: Transcranial Magnetic Stimulation, Schizophrenia, Emotional Face Processing, Superior Temporal Gyrus, Resting State fMRI

S203. Impact of Schizophrenia on Temporal Context Versus Item Memory

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Background: Bridging temporal gaps are a core feature of episodic memory, allowing for "mental time travel" and a sense of recollection. Given evidence of disproportionate recollection versus familiarity deficits, we hypothesized that patients would have differential memory impairments for temporal versus item information.
Methods: 41 first episode schizophrenia patients and 43 healthy controls completed two tasks; 1) Temporal Order Working Memory (TO_WM), which requires individuals to maintain information about a set of 4 fractal images to respond to either item probes (old/new recognition) or temporal order probes (which was seen first?) after a 3 second delay. 2) Temporal Sequence Learning task (TS_Learn), which trains participants on a set of fixed, random, or novel sequences of visual objects. During retrieval, a continuous list - including embedded sequences, is presented, and participants quickly respond to a semantic probe on each item. Sequence learning is demonstrated by faster reaction times (RT) for fixed versus random sequences. Repeated-measures analyses of variance (ANOVA) were performed to test for group by condition interactions, which would support study hypothesis.
Results: As predicted, TO_WM showed a group by condition interaction [$F(1,70) = 5.89$, $p<0.05$], with patients showing disproportionate memory impairments for temporal order versus item information. A similar interaction was also observed for TS_Learn, [$F(1,66) = 4.87$, $p<0.05$], with attenuation of the RT facilitation effect for fixed versus random sequences in the patient sample.
Conclusions: Patients appear to have greater difficulty remembering temporal versus item information, suggesting that their disproportionate recollection deficits may relate to difficulty utilizing temporal context during memory formation.
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Keywords: Episodic Memory, Context, Early Psychosis