Universität Basel

Publication

Alpha oscillations underlie working memory abnormalities in the psychosis high-risk state

Working memory (WM) functioning, known to be modulated by neural oscillations, is impaired in schizophrenic psychoses. It remains unclear whether in the psychosis high-risk state, WM encoding is altered or whether patients are impaired at shielding their WM against distractors. We employed single-trial analyses of neurophysiological and behavioral data recorded during a WM paradigm, designed to include predictable distractors, on 18 patients with an at-risk mental state for psychosis (ARMS, 26.1$\pm$5.45 years) and 21 healthy controls (HCs, 25.5$\pm$3.95 years). Strong distractors were associated with reduced WM accuracy (p=0.036), but only ARMS patients required more processing time for strong distractors (p=0.002). Increased parieto-occipital alpha amplitude preceding distractor presentations was associated with enhanced accuracy only in HCs (p=0.009). During encoding, increased intertrial alpha phase locking values were associated with increased performance. Reduced shielding mechanisms against distractors in ARMS patients could lead to defective WM maintenance, which may result in significant confusion that may contribute to the formation of psychotic symptoms.