108. NEUROCOGNITIVE PREDICTORS OF FUNCTIONAL DECLINE IN POOR-OUTCOME SCHIZOPHRENIA

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Although cognitive abilities have been shown to be directly related to social, occupational, and adaptive functioning in patients with schizophrenia, there is no evidence indicating that a specific neuropsychological index can predict decline in functional status. Impairments in verbal learning and memory, verbal skills, and executive functions correlate with functional impairments, and are predictive of functional ability over time. Yet, there is no evidence that impairment on a specific neurocognitive index is associated with functional decline, or whether these measures are all associated with functional impairments due to a global or specific cognitive deficit. In order to test whether any of these neuropsychological measures (Verbal Learning and Memory, Praxis, and Confrontational Naming) is most associated with functional decline, 68 subjects were chosen from a long-term study of the effects of aging in schizophrenia. Subjects were chosen specifically because they declined functionally from a mildly impaired level of functioning to a moderate or severely impaired level of functioning across two assessments (mean interval = 1.89 years, sd = 1.42 years), based on a global rating of functioning on the Clinical Dementia Rating Scale (CDR). Age and education corrected z-scores were derived for measures of verbal learning, delayed memory, praxic ability, and confrontational naming, based on performance of healthy controls on these measures as part of the Consortium to Establish a Registry of Alzheimer’s Disease (CERAD). Change in performance on these neuropsychological measures was calculated by subtracting the standardized z-score of each measure at the follow-up assessment from the standardized score obtained on each measure at the initial assessment. A repeated measures ANOVA was used to determine if any of these measures were specifically associated with functional decline. Whereas the overall ANOVA was significant (F(1, 67) = 14.49, p < .001), no specific measure of neurocognitive functioning was able to account for the decline in functional ability (Rao’s R (3, 65) = 1.19, p < .321). These data suggest that the cognitive decline seen in these patients is generalized, rather than selective. It may be that this functional decline is related to low levels of cortical decline in patients with poor premorbid functioning and a chronic clinical course of illness.

109. N100 and P300 ERP ABNORMALITIES IN SCHIZOPHRENIA AND EPILEPSY

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The occurrence of schizophrenia-like symptoms in patients with epilepsy has led to speculations regarding the commonalities between the two disorders, particularly with regard to temporal lobe abnormalities. The N1 and P300 components of the auditory event-related potential (ERP) elicited by infrequently occurring task-related stimuli are commonly reduced in patients with schizophrenia. Whether these reductions are related to the pathophysiological processes specific to schizophrenia or to psychotic symptoms more generally was addressed by comparing patients with schizophrenia (SZ, n = 25), epilepsy with interictal schizophrenia (SZ-EPI, n = 7), epilepsy without psychotic symptoms (EPI, n = 16), and normal controls (n = 32). ERPs were elicited using visual and auditory oddball paradigms involving a task (effortful) and an auditory non-task (automatic) paradigm. SZ-EPI and EPI patients had mixed foci, including right and left, frontal and temporal, unlocalized, partial, and generalized primary epilepsy. Auditory P300 at Pz was reduced in SZ and SZ-EPI, but not in the EPI group as a whole. In contrast, N1 was only reduced in SZ. While automatic P300 was not lateralized in the controls of schizophrenics (SZ and SZ-EPI), it was more reduced at left compared to right temporal lobe sites regardless of epileptic focus in the EPI group. Visual P300 was not reduced in any clinical group. These data suggest that reductions in N1 are specific to the pathophysiological process of schizophrenia, while P300 reduction is more generally associated with psychosis, whether it occurs in schizophrenia or epilepsy.

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110. VISUAL CONTRAST DETECTION TO EVALUATE THE DOPAMINE SYSTEM IN SCHIZOPHRENIA

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The hypothesis of abnormal dopamine activity in schizophrenia remains viable even after decades of extensive pharmacological research in past decades. Dopaminergic mechanisms are known to be involved in visual contrast processing, such that dopamine deficiency in Parkinson’s disease leads to increased contrast detection thresholds. Schizophrenia, on the other hand, is hypothesized to be associated with excessive dopamine activity. Based on this hypothesis contrast detection thresholds are expected to be decreased in unmedicated schizophrenic patients. Typical antipsychotic medication is more potent than atypical antipsychotic medication in blocking dopamine receptors. Thus, the treatment of patients with typical antipsychotic medication should produce normalized contrast detection thresholds. We measured contrast detection thresholds in schizophrenic patients (n = 30) and normal controls (n = 32) with a psychophysical paradigm (a two-alternative-forced choice staircase method). During testing, the subjects’ task was to indicate which of the two intervals in a trial contained a sinusoidal grating (0.5 cycle/degree and 5 Hz), the visual target to be detected. Contrast detection thresholds in schizophrenic patients were similar to those of normal controls (p = 0.48). Among the schizophrenic patients, contrast detection thresholds did not differ significantly regardless of the type (typical, atypical or non-antipsychotic) or the dosage (chlorpromazine-equivalent) of neuroleptic medication. Unlike the situation in Parkinson’s disease, dopaminergic modulation (via drug treatment) in schizophrenia appears to have little effect on contrast detection, a visual task that is primarily accomplished at the subcortical levels in the brain.