Comprehension of real-world events in schizophrenia: an electrophysiological perspective

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An impairment in the build-up of semantic context (meaning) has been proposed as a fundamental cognitive deficit underlying schizophrenia. Previous studies of this abnormality have focused primarily on language. Clinically, however, schizophrenia is characterized by abnormalities in both verbal and non-verbal domains. The present study examined the electrophysiological correlates of contextual integration in schizophrenia as patients viewed silent video clips of common real-world activities. The final scene in these movies was either congruous or anomalous (e.g., in a congruous movie-clip, a man smeared shaving cream on his face in front of a bathroom mirror, and then shaved; in an anomalous movie-clip, instead of shaving, he stroked a rolling pin across his face). In healthy controls, anomalous movie endings evoked an N400 followed by a late positive component (LPC) that were of greater amplitudes than the N400 and LPC elicited by congruous final scenes. This suggested that healthy participants first attempted to match incoming information with their semantic knowledge of typical real-world situations, and then undertook a second-pass reanalysis of the anomalous videos. In patients with schizophrenia, the N400 congruency effect was larger than the N400 effect in controls but there was virtually no LPC effect. These findings are consistent with previous results in the language domain and suggest that a relative dependence on stored semantic associations at the expense of a more detailed reanalysis of incoming information might contribute not only to language disorganization but also to the misinterpretation of every-day events that characterize non-linguistic symptoms (e.g. delusions).