

Summary

Cognitive deficit is considered to be one of the basic symptoms of schizophrenia. It is associated with the social impairment and the long term outcome of the disorder. In addition to neuropsychological methods, event-related potentials can be used to study cognitive functions. In patients with schizophrenia an association was found between the amplitude changes of slow negative component of evoked responses to infrequent deviant stimuli in a series of uniform stimuli. This change is known as mismatch negativity (MMN) and it is assumed to be independent of the focused attention and effort that may interfere with neuropsychological testing. The recent accumulation of knowledge on MMN as a possible preattentive measure of perceptual processing supports its potential significance for diagnostic and functional evaluation of schizophrenia.

MMN elicited by visual stimuli (vMMN) was described by several research teams, but it has not been investigated in schizophrenia as yet. Using a motion-direction paradigm, we elicited visual MMN in 24 patients with schizophrenia and schizoaffective disorder. The vMMN was computed as difference in areas under curve (AUC) of visual ERPs to standard and deviant motion direction stimuli recorded from midline derivations at the interval of 100-200 msec. AUC were compared between groups of patients with schizophrenia and healthy controls. The significantly smaller vMMN indicated an impaired generation of mismatch negativity in patients with schizophrenia. In secondary analyses there was an association of vMMN impairment among patients with higher dose of medication, lower level of social functioning and the presence of deficit syndrome. This impairment appears analogous to the impairment of MMN in the auditory domain and is probably related to early visual information processing.