Mirror Neuron System Activity Does Not Differ Between Sporadic and Familial Cases of Schizophrenia: Preliminary Report

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Background Schizophrenia is a heterogenous disorder, and has often been subtyped on the basis of family history of psychotic disorders. Compared to those without, a positive family history is associated with an earlier age of onset, greater structural brain abnormalities and poorer clinical course. Given recent emphasis on mirror neuron system (MNS) in attempting to explain psychopathology in schizophrenia; present analysis tried to tease out differences in MNS functioning between these two groups.

Method With ethical approval, ten consenting right-handed patients with schizophrenia (ICD-10-DCR; M=8; Drug-naïve=2) were recruited and divided into two groups of five each (M=4,F=1): those with (age 29.40±5.85 years, duration of illness 50.80±30.84 months) and without (age 29.60±5.77 years, duration of illness 43.20±43.76 months) family history of schizophrenic illness (group difference $p>0.05$). MNS activity was assessed using event-related desynchronization of EEG Mu waves in response to biological motion on 192-channel EEG Neurofax EEG-1100K.

Results On comparison, while patients had significantly lower mu suppression compared to controls ($p<0.001$); two schizophrenia groups did not differ between themselves, neither on MNS activity nor on psychopathology ($p>0.05$).

Conclusion Present study replicates finding of a dysfunctional MNS in schizophrenia patients, and represents a preliminary attempt at comparing two groups of symptomatic schizophrenia patients. In both these groups, MNS dysfunctions were comparable, and commensurate with respect to psychopathology. Thus, MNS dysfunction in schizophrenia might either be inherited or acquired. However, this abnormality forms a common base, and ultimate vulnerability marker, for development of psychopathology during active disease states.