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CEREBELLUM AND SCHIZOPHRENIA: FROM CONCEPTS TO CLINICAL PRACTICE

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Introduction: The role of cerebellum in schizophrenia has been highlighted by Andreasen's hypothesis of "cognitive dysmetria". Evidence is accumulating that cerebellar dysfunction could underlay some of the clinical psychiatric and neurological symptoms as well as cognitive dysfunctions observed in schizophrenia.

Objectives: To provide an up-to-date review of the putative role of the cerebellum in schizophrenia.

Aims: To inform clinicians of the neurobiological findings involving the cerebellum and schizophrenia and its possible translational applications in clinics.

Methods: We conducted a MEDLINE search of all English articles published between 1966 and 2009 using the key words "psychosis" "schizophrenia," "cerebellum" and "cerebellar". Priority was given to controlled data; uncontrolled studies were considered if sample size was reasonable (more than 10). Case reports were included if deemed to provide therapeutical insights.

Results: Results from several neuropsychiatric and imagiological studies have documented abnormalities in cerebellar function and structure in schizophrenic patients. Moreover, pharmacologic and psychosocial therapeutic interventions for these patients have been linked with changes in cerebellar function. Some psychopharmacological approaches seem to be preferable in patients with schizophrenia-like symptoms and confirmed cerebellar pathology. Novel experimental therapeutical approaches with cerebellar transcranial magnetic stimulation in treatment-resistant schizophrenia seem promising.

Conclusion: Although different lines of research converge to suggest that a cerebellar dysfunction could exist at least in some patients with schizophrenia, the relationship with cerebellar pathology remains obscure and should be the focus of future research.