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### THE CONTRIBUTES OF CEREBELLUM IN HIGHER COGNITIVE AND SOCIAL BEHAVIOUR IN CHILDHOOD

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Many studies have confirmed the role of the cerebellum in the organization of superior brain functions in adults. Congenital cerebellar alterations are frequently observed in children with neurological diseases. These anatomical alterations are associated with neuropsychological or developmental disorders that often give rise to pictures of mental insufficiency of varying severity with behavioural changes even leading to autism.

**Aim:** To evaluate of cerebellum role in cognitive and social organization also during development.

We report 25 children with different kinds of acquired cerebellar lesions (12 with hemispheric astrocytoma, 12 with vermis medulloblastoma, and 1 with hemispheric stroke) who showed different clinical patterns according to the lesion localization. All subject were studied by neurological examination and MRI. Neuropsychological assessment included:

- observation of spontaneous behaviour;
- Recording of spontaneous language;
- Intelligence evaluation (WISC-test);
- Language evaluation;
- Memory evaluation;
- Assessment of frontal lobe functions (categorical memory, sequential memory, language fluency, design fluency, flexibility of reasoning and problem solving).

Lesion in the vermis, mainly in the lower lobuli, caused different degrees of behavioural disturbances ranging from irritability to psychosis; lesions in the right hemisphere impaired language processing and symbolic sequencing, categorical memory and executive functions; lesions in the left hemisphere impaired speech prosody, visual sequential memory and design fluency. These data confirm that the connections from the cerebellum to the associative cortical areas are operative very early and that the cerebellum has an essential role in cognitive and social organization also during development.