

Neuropsychiatric and cognitive disorder in cerebellar stroke patients: The Cerebellar Cognitive Affective Syndrome (CCAS)

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Question: Cerebellar Cognitive Affective Syndrome (CCAS; Schmahmann's syndrome) is characterized by deficits in executive function, linguistic abilities, spatial cognition and affect regulation. This syndrome is prevalent in patients with bilateral posterior cerebellar injury and or cerebellar vermis injury, which causes attention deficit impairments. Our aim was to test the Schmahmann syndrome scale (CCAS-scale) to patient affected by cerebellar stroke.

Methods: Consecutive patients diagnosed with cerebellar stroke have been evaluated using the CCAS scale. CCAS-scale is a specific tests to evaluate the different functions involved in CCAS Syndrome, especially focused on : executive function, visuospatial abilities, visuo-spatial memory and affect symptoms. We used the Mini-Mental State Examination (MMSE) and Montreal Cognitive Assessment (MoCA) to focus on cognitive deficits: the main exclusion criteria was dementia. The Neuropsychiatric Inventory test was used to implement the affect disorders study.

Results: Eight patients (mean age 62 ± 7) (5M3F) affected by cerebellar stroke have been consecutively studied in our Neurorehabilitation unit. The CCAS test found deficits in category switching, digit span backward, go no-go test and phonemic fluency (M: 5,4/10; cut off: ≥ 3 10). At the same time using the NPI we showed that all the patients had neuropsychiatric symptoms (M aXb: 55/144) including dysphoria (M: 8), agitation (M: 8), motor activities (M: 8), disinhibition (M: 8), irritability (M: 12) and eating disorders (M: 6). The MMSE and MoCA didn't show any cognitive disorders.

Conclusion: The cerebellar stroke is a complex syndrome that is related with behavioural and cognitive disorders. The cognitive functions typically resulted preserved are: semantic and retrograde memory, linguistic functions, agnosia and apraxia. The CCAS test is a valid scale to asses the Schmahmann Syndrome although we found a lack of focusing on affect symptoms. Future research should involve a larger sample of cerebellar stroke patients evaluated with a combination of CCAS syndrome scale with NPI to implement a new assessment tool for the affective and cognitive components of CCAS.