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STRESZCZENIE I SŁOWA KLUCZOWE W JĘZYKU ANGIELSKIM

Cognitive dysfunction in isolated cerebellar diseases.

Abstract

Cerebellar diseases are considered rare. Most often pathology is cerebellar infarction, then cerebellar atrophy and tumor. Motor deficits have been well known for decades. Cognitive impairments have been observed and described lately but the results are not consistent. Cognitive deficits include speech, attention, memory, visuospatial abilities, executive functions and emotions. No clear impairment pattern of cerebellar pathology has been described so far. The cerebellum exerts its functions in close communication with the cerebral cortex by exploiting two main pathways: the efferent cerebello-thalamo-cortical pathway and the afferent cortico-ponto-cerebellar pathway. Also, crossed cerebellar cortex diaschisis (CCCD) has also been proposed as an explanation to mutual symptomatology of cerebellar pathology and cerebral cortex. Both mechanisms seem insufficient in explaining differential and heterogeneous picture of cognitive deficits in cerebellar pathology. Defining the profile of cognitive impairment in cerebellar pathology and a possible constant cognitive deficit manifested in cerebellar pathology may be helpful in the process of diagnosing cerebellar infarct as well as further therapeutic recommendations.

The objective of the work was to find the pattern of cognitive deficits in cerebellar pathology. Patients with cerebellar pathology were diagnosed with battery of neuropsychological tests, including 45 patients with cerebellar infarct, 5 patients with atrophy and 2 with tumor. Patients with cerebellar infarct were divided into two groups – with left cerebellar lesion and with the right one. The results were compiled with the results of the control group, consisting of 52 patients with negative CNS pathology.

All patients were diagnosed with the same battery of standard neuropsychological tests commonly used for cognitive assessment of speech, attention, memory, visuospatial abilities, executive functions. Also, patients with cerebellar atrophy were diagnosed with Beck's Depression Inventory to assess depression.

All patients with cerebellar pathology manifested cognitive decline, mostly mild cognitive impairment, occasionally with more profound deficits in selected domains. Statistical differences were found within domains such as visuospatial abilities, executive functioning, verbal fluency and attention, in comparison to control group. The profile of cognitive deficits was found as subcortical. It was partly possible to highlight the core cognitive deficits in cerebellar pathology due to the lesion side. Patients with right cerebellar pathology manifest more deficits in speech, fluency, attention, executive deficits and some visuospatial impairment. Patients with left cerebellar pathology show more visuospatial deficits, visual memory, executive and emotional deficits.

Cerebellar pathology evokes differential and heterogenic cognitive impairment, due to left or right localization. All patients, despite the localization have executive disfunctions, debilitating cognition and quality of life. Therefore, patients with isolated cerebellar pathology should always been referred to neuropsychological assessment to have a chance for adequate neuropsychological therapy.

KEY WORDS: cognitive deficits, cerebellar infarct, executive functions, cerebro - cerebellar crossed diaschisis, Purkinje cells, kalbindine D28k, dopaminergic system.