

Clinical markers of functional outcomes in cognition

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Detection of pre-clinical markers and predictors of cognitive behavior has become an area of research, mainly to establish those individuals with higher risk of cognitive decline. Developing of scalable, repeatable, and relatively inexpensive strategies to detect earliest markers of cognitive decline have proved an interesting field to perform critical appraisals for the early detection and intervention¹, not only in terms of diagnosis but also in monitoring asymptomatic individuals with several factors related to cognitive compromise^{2,3}. In this area, cognitive reserve (CR) has been proposed as a determinant factor related to the susceptibility of developing cognitive decline and dementia; this concept refers to the capability of a brain to cope with brain damage/ degeneration using pre-existing cognitive processing approaches, which could be roughly translated in clinical practice to the concept that individuals with high reserve, will not demonstrate disease-related clinical symptoms as early as those with lower CR⁴.

In the present number of *Revista Mexicana de Neurociencia*, two studies have explored interesting approaches related to cognitive evaluation, and its relationship with clinical cognitive decline. In the study of Martínez et al., the authors explore a narrative review on variables related to improve CR in Oaxacan population, determined by their sociocultural, economic, and health characteristics. Some concerns related to education, bilingualism, cognitive and leisure activities, physical activity, lifestyle, and diet explained by the

authors in Oaxacan inhabitants, put the elderly of this state in disadvantage compared to elderly people from high-income countries, and therefore, a lower CR and higher risk of cognitive decline and dementia.

In Hernández-Cortés et al. study, the evaluation of imaging markers of brain volume, mainly in lateral ventricles, was analyzed using computed tomography processing method of homogeneous texture indices in 320 Cuban subjects with normal neurocognitive and neuropsychiatric evaluation, which proved a linear relationship between age and total volume of the lateral ventricles, which also was analyzed on each individual side of the brain. These findings can be used as a standardized morphometric patterns in a population with normal neurocognitive functions, and a possible method for further classification of brain atrophy, which should be validated in prospective studies comparing with those individuals with cognitive decline and/or dementia⁵. Integrating structural and functional imaging could lead to improve predictions of brain function, age-related changes, and risk of developing dementia; therefore, including data as baseline “normal” parameters enable a better understanding and characterization of brain aging, with a higher predictive possibility in imaging markers.

We hope the readers find useful these manuscripts related to markers of structural and functional cognitive tasks, and their possible role for prediction of cognitive decline.

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