P16: Hippocampus Atrophy due to Treatment Resistant Depression in an Older Adult

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Introduction: Recurrent major depressive disorder (MDD) has been associated with cognitive impairment and hippocampus atrophy. Additionally, in older adults it is related to increased dementia risk, as well as being dementia's prodromal syndrome.

Case Report: A 68-year-old female patient, with a history of MDD beginning in 2014, has been under the care of the Psychogeriatrics service at HC-UFMG. In 2015, she was 60-year-old and underwent her first MRI scan. At that time, the Medial Temporal Atrophy Score (MTA) was 2 and she had a treatment resistant depression (TRD). She began multimodal treatments, including ECT, achieving only partial remission. Since then, the patient had recurrences of depression without the remission of cognitive impairment. In 2021, her MTA Score was still 2 with TDR symptoms. Currently, she is on Venlafaxine 150mg, Mirtazapine 30mg, Lithium 300mg, Olanzapine 5mg, Clonazepam 0.25mg and maintenance ECT every 45 days. The patient remains with cognitive impairment that leads to disabilities but had not significantly progressed. On the other hand, the main impact in functionality is related to depressive symptoms, especially to the loss of interest and apathy.

Discussion: This case stands out due to the combination of hippocampal atrophy at a relatively young age and severe depression with cognitive impairment that has not progressed to dementia in 9 years. Severe depression can lead to significant cognitive deficits, as well as, hippocampus atrophy. While depression is related to hippocampus atrophy, it has not been related to TRD in a review study with Voxel-Based Morphometry. Conversely, Alzheimer's Disease is related to MTA ≥2 scores, as well as depressive symptoms. MTA 2 in a person of 60 years of age is not considered normal. When combined with cognitive impairment, these findings are generally related to neurodegeneration. Since both MTA and cognitive deficits were relatively stable, the hypothesis of a cognitive impairment and hippocampus atrophy due to depression were more likely.

Conclusions: MDD leads to cognitive impairment in older adults, as well as hippocampus atrophy. Nevertheless, depression and age are important risk factors for dementia and, therefore, a progression to dementia due to a neurodegenerative disease is still possible.

P17: Confirmatory Factor Analysis of the Cognitive Domains and Functional Assessment Questionnaire (CDFAQ)

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Background: The Cognitive Domains and Functional Assessment Questionnaire (CDFAQ) assess cognitive and functional decline based on the DSM-5 criteria for Neurocognitive Disorders. Its accuracy has been assessed and was translated and validated into English. The informant version (CDFAQ-IV) is a 30-item questionnaire that assesses six cognitive domains with 5 items each: Complex Attention (CA), Executive Functions (EF), Learning and Memory (LM), Language (L), Perceptual-Motor (PM) and Social Cognition. The development of CDFAQ-IV was based on theDSM-5 cognitive domains, but its factor analysis has not been done yet.

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Objectives: To perform a Confirmatory Factor Analysis of the CDFAQ-IV to assess the six-factor cognitive domain model.

Methods: Older adults and their informants were invited to participate in this study. The CDFAQ-IV was applied in 292 older adults' informants. We used the JASP for a Confirmatory Factor Analysis based on Lavaan R Packages. The confirmatory factor analysis was chosen to manual six-factor model. This study was approved by the ethics committee of UFMG.

Results: Concerning model fitness in the confirmatory factor analysis the X2 was significant ($p < .001$), standardized root mean square residual (SRMR) was .059 (accepted < .08) and the goodness of fit index (GFI) .984 (accepted > .9). However, the root mean square error of approximation (RMSEA) was marginal to the accepted fitness .066 (accepted < .06) and the comparative fit index CFI was .839 under the accepted cutoff (accepted > .9).

Conclusions: The six-factor model of the showed a good fit for three parameters, marginal for one and negative for the CFI. These results point to a convergence of the questionnaire and factors the DSM-5 cognitive domains. These are still preliminary results and we aim to increase our sample to further assess the confirmatory factor analysis.

P18: BDNF levels and affective disorders as a marker of vulnerability to developing cognitive impairment in the Chilean adult population

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Summary: Disorders related to progressive cognitive decline constituting an important cause of global death and disability-adjusted life years because conditions are also associated to impairment of several brain functions, psychological and behavioral changes, regardless of economic status. Brain-derived neurotrophic factor (BDNF) is a neurotrophin highly relevant in memory, learning and neuroplasticity processes in adults. The amount of plasma BDNF has been considered to partly reflect its secretion in the brain. Its deficiency is associated with affective disorders and neurodegenerative pathologies such as Alzheimer disease and Parkinson'sdisease.

The aim of this study was to identify quantifiable biomarkers (serum levels of BDNF) and clinical marker (state of depression and anxiety) that allow early detection of cognitive impairment risk. We made an analytic and transversal study with a representative sample (n:307) of the population over 50 years old in the south of Chile (X region). We determine the cognitive condition of the population by applying cognitive functionality tests, such as the minimental status examination (MMSE) test and identify demographic and psychosocial characteristics that constitute impairment cognitive risk. Subsequently, we determined depression status (scale of Yesavage) and anxiety status (Beck inventory), and finally we made a quantitative determination of human BDNF at the blood level using ELISA technique.

Our results revealed that 26.7% of the participants exhibited some degree of cognitive impairment, being higher in women (55.7%) with average age of 70,7. A 18,2% of subjects manifested indicators of depression and 33,2% have a very hight level of anxiety. The correlation analysis revealed a significant positive correlation between MMSE test ($p < 0.001$) and both BDNF plasma levels ($p < 0.001$) and education level ($p < 0.001$) scores. The results additionally indicated a negative correlation between cognitive functions and age range/anxiety state, suggesting low age level/hight level of anxiety in subjects with more pronounced cognitive decline ($p < 0.001$),. In consistent, the results of our study point towards decreases plasma BDNF levels and hight levels of anxiety in cognitive

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