P41: Loss of Fornix White-Matter Integrity is Associated with Impulse Dyscontrol in Cognitively Normal Older Adults

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Introduction: Mild behavioral impairment (MBI), and particularly its impulse dyscontrol domain, has been linked to brain alterations suggestive of Alzheimer's disease (AD) in subjects without dementia. We aimed to analyze the association of impulse dyscontrol with the loss of integrity in white-matter brain tracts in a group of cognitively normal older adults.

Materials and Methods: Using linear regression models, we analyzed the effect of impulse dyscontrol scores (using the MBI-Checklist, MBI-C) on diffusivity metrics (fractional anisotropy, FA; mean diffusivity) controlling for age and sex in five white-matter regions of interest: cingulum, fornix, hippocampus, superior fronto-occipital fasciculus, and uncinate fasciculus. A total of 48 cognitively normal older adults were included in the study.

Results: The mean age of the subjects was 67.5 years, and 28 (58.3%) were female. The mean impulse dyscontrol score was 2.9 (SD: 4.8, Rng: 0 –22). The effect of the impulse dyscontrol score, controlling for age and sex, in the diffusivity measures of regions of interest was only significant in the fornix FA after multiple-comparison correction (weighted least squares model $\beta = -3.65 \times 10^{-3}$, SE = 1.27×10^{-3}, corrected p = 0.03, R2 = 0.31).

Discussion: To our knowledge, this is the first time that an MBI domain is linked to MRI diffusivity measures in a group composed exclusively of cognitively normal older adults. Our findings add to the growing understanding of MBI, and particularly the impulse dyscontrol domain, as a potential behavioral marker indicating a higher risk for developing neurocognitive disorders.

Materials and Methods: A prospective cross-sectional observational study was conducted on patients who underwent a cognitive evaluation between May and October 2022 at the memory unit of the Favaloro Foundation (Buenos Aires, Argentina) who had undergone a neuropsychological evaluation during the current year and were under the care of our cognitive neurology service. During the medical interview, patients were asked to show the objects they carry in their pockets (wallet, candy wrapper, cellphone, thread, loose coins, tickets, receipts, etc.). Each item was counted independently. The total number obtained was compared. The total number obtained was compared with the FAQ and CDR values of each patient. A correlation between these data was sought, and it was determined whether this relationship (number of items carried in the pocket / scale value) has predictive value to determine if the patient meets dementia criteria according to functionality (FAQ: 6 or more, CDR: 1 or more).

Results: The sample consisted of 26 male patients (n = 26) with an average age of 69 years and MMSE Mean: 27.73. Within this group, 80.7% had a diagnosis of dementia (of any etiology) and the rest were either healthy patients or patients with mild cognitive impairment. The non- parametric MANN WHITNEY test was performed using the R statistical program. A statistically significant difference was found when comparing the dementia group and

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objects in the pocket (wilcox_test p 0.00854). When comparing the group of patients with more than three objects and the presence of dementia, significant p values were also found (wilcox_test p 0.0363).

Conclusions: The number of objects in the pocket of patients with cognitive impairment could be a valuable tool for predicting dementia.

The presence of 3 or more objects in the pocket of a patient with cognitive impairment could correlate with a low score on the functionality scales (FAQ less than 6, absence of dementia stage).

P42: Neuropsychological Impact of Mandatory Preventive Social Isolation (Lockdown) on Older Adults with Cognitive Decline

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Objectives: Various studies described the psychological impact of the mandatory preventive social isolation (lockdown) caused by COVID-19 across different age groups. However, no research had specifically analyzed the effects of lockdown on the cognitive performance of older adults with preexisting cognitive decline. This study aimed to determine the impact of lockdown on the cognitive functions of individuals with cognitive decline.

Methods: Argentina was one of the countries with the longest lockdown periods. Older adults in Argentina experienced extended lockdowns lasting several months, significantly limiting their social interactions and routine activities. Cognitive reevaluations were conducted on 16 patients who had attended a memory clinic with cognitive complaints and were evaluated before the lockdown (group 1). Their progression was compared with 16 patients evaluated and reevaluated over a similar period but without undergoing a lockdown (group 2). To compared the progression of both groups a “change index” (CI) were calculated for each test ((score assessment 1 – score assessment 2)/number of months between assessment 1 and assessment 2))

Results: Patient from group 1 and 2 were paired by age (M group 1 = 77.2, DS group 1 = 6.2, M group2 = 77.3 DS group2 = 6.6, p = .98), years of education (M group 1 = 13.6, DS group 1 = 2.8, M group2 = 13.9 DS group2 = 3.0, p = .81), Beck depression inventory score (M group 1 = 12.2, DS group 1 = 7.2, M group2 = 13.9 DS group2 = 7.4, p = .54) and Addenbrooke’s Cognitive Examination (ACE. M group 1 = 76.2, DS group 1 = 14.4, M group2 = 76.0 DS group2 = 20.7, p = .97) score at the first assessment. Group 1 showed a significant and greater increased of false positive than group 2 in Rey Auditory Verbal Learning Test recognition (M CIgroup 1 = –.31, DS CIgroup 1 = .38, M CIgroup 2 = –.01, DS CIgroup 2 = .44, p < .05). Results indicated that patients who experienced the lockdown exhibited a greater cognitive decline compared to the control group.

Conclusions: The findings suggest that the lockdown accelerated cognitive deterioration in individuals with memory complaints.

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