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Cognitive decline related to substance consumption in a Colombian kindred with familial Alzheimer's disease: A retrospective cohort study

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Abstract

Background: Substance use is a presumed risk factor for Alzheimer's Disease (AD). So, it would be essential to evaluate it in people who already have a high risk of dementia. Neuroscience Group of Antioquia, GNA, is a research group from Medellin, Colombia, which studies Presenilin 1 (PS1) E280A mutation carriers. These carriers will course four stages of AD: 1) asymptomatic Pre-Mild Cognitive Impairment (Pre-MCI), 2) symptomatic pre-MCI, 3) MCI; and 4) Dementia. Substance consumption could modify age-at-onset of those stages, but this association has not been deeply explored.

Method: We performed a retrospective cohort study with 163 subjects enrolled between January 25, 2019, and April 29, 2020. Of those participants, 69 (42.3%) were non-carriers, and 94 (57.7%) were carriers. A psychiatrist interviewed the subjects through the "CACoS" questionnaire, an instrument specifically designed for this research. The subjects' cognitive information included CERAD test battery, MMSE, CDR, and a subjective memory complaints checklist. We analyzed the relationship between the onset of AD stages and substance consumption through a time-to-event analysis (survival analysis and Cox proportional hazards regression).

Result: For dementia onset, there was an association with less than one time per month of alcohol consumption in the last year (HR 0.42, CI 0.18-0.96). For MCI onset, there was a relationship with less than one time per month of alcohol consumption in the last year (HR 0.39, CI 0.17-0.91), and also with consumption of 5 to 11 drinks per day of consumption in the previous twelve months (HR 0.12, CI 0.01-0.99). For pre-MCI onset, there was a relationship with daily coffee consumption throughout life (HR 2.37, CI 1.07-5.25).

Conclusion: A low frequency of alcohol consumption could be protective against MCI and dementia, but coffee was associated with Pre-MCI acceleration. It would be critical to continue exploring these substances' role as modifiable risk factors soon.