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SPATIAL NAVIGATION IN NONAMNESTIC MILD COGNITIVE IMPAIRMENT



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Background: Alzheimer's disease dementia (ADD) and amnestic mild cognitive impairment (aMCI) are characterized by spatial navigation deficits in unfamiliar environments mainly due to early hippocampal impairment. Spatial navigation abilities in individuals with non-amnestic MCI (naMCI) are, however, less understood. We aimed to evaluate real-space navigation performance in individuals with naMCI and to compare it with performance of cognitively normal (CN) older adults, individuals with ADD and aMCI. **Methods:** In all, 126 participants: naMCI with mainly attentional and executive dysfunction (n=38), aMCI (n=40), mild ADD (n=25) and CN (n=23) underwent clinical and neuropsychological evaluation, MRI brain scan and examination of spatial navigation in the real-space human analog of the Morris Water Maze (hMWM). The hMWM is designed to assess two separate types of spatial navigation (body-centered [egocentric] and world-centered [allocentric]). The participants were asked to search for a hidden place using a start position and two orientation cues (first training – ego+allo task), start position (second – egocentric task), orientation cues (third – allocentric task) and to recall the position of a hidden place after 30 minutes using orientation cues (fourth – allocentric delayed task). The analyses of covariance controlled for age and years of education with post-hoc Sidak's correction were used. The ROC analysis was performed to assess the sensitivity and specificity of hMWM in discriminating the naMCI group from the aMCI and ADD groups. **Results:** There were no differences between the naMCI and CN groups in any hMWM task ($p \geq .467$). The naMCI group had more accurate performance than the ADD group in all hMWM tasks ($p < .001$). The naMCI group had more accurate performance than the aMCI group in the allocentric tasks ($p < .001$). The size of the area under the ROC curve for allocentric performance discriminating the naMCI group from the aMCI and ADD groups was ≥ 0.77 ($p < .001$) and the values of optimal sensitivity and specificity were $\geq 82\%$ and 63% , respectively. **Conclusions:** Spatial navigation in naMCI is relatively spared compared to subjects with ADD and aMCI. Spatial navigation testing of allocentric navigation in the hMWM may reliably distinguish individuals with naMCI from individuals with aMCI and ADD, where hippocampal impairment plays a prominent role.

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THE UCSF BRAIN HEALTH ASSESSMENT: A CULTURALLY APPROPRIATE AND SENSITIVE SCREENING TOOL TO DETECT COGNITIVE IMPAIRMENT IN SPANISH SPEAKERS



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Background: Widely used cognitive screening tools often do a poor job of identifying mild cognitive impairment in Spanish-speaking individuals, especially those with low to moderate educational attainment. The BHA was designed to minimize language / ethnicity and education-related biases in the detection of cognitive impairment. This 10-minute, tablet-based screen includes subtests of memory, executive function / speed, visuospatial, and language skills, and an informant survey. It has previously been shown to correctly identify MCI in English speakers. **Methods:** The BHA and the Spanish Montreal Cognitive Assessment (MoCA) were administered to a Spanish-speaking group of 16 neurologically healthy older controls and 13 individuals with MCI or dementia of similar age and gender, with low to moderate levels of education (11.3 +/-4.6 years). Discriminant function analyses and receiver operating characteristic curves were calculated to compare how accurately these assessments classified the subjects as cognitively healthy versus impaired. **Results:** The MoCA correctly classified 75% of subjects. The BHA correctly classified 90% of subjects. The area under the curve for the MoCA was .77 and for the BHA was .96. At 80% specificity, the sensitivities were 73% for the MoCA and 100% for the BHA. **Conclusions:** Preliminary analyses indicate that the Spanish version of the BHA accurately discriminates cognitively impaired subjects. A larger population is needed to strengthen our analyses, and to conduct further investigations into concurrent and anatomical validity of BHA subtests.

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MONTREAL COGNITIVE ASSESSMENT: DATA FOR SENIORS WITH HETEROGENEOUS EDUCATIONAL LEVELS IN BRAZIL



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Background: The Montreal Cognitive Assessment (MoCA) was created as a screening test to detect mild cognitive impairment (MCI). Studies have shown that the MoCA test has high diagnostic accuracy for MCI and dementia among individuals living in high income countries who frequently have around 12 years of education. The aim of the study was to provide MoCA norms and accuracy data for seniors within a lower education band, including illiterates. **Methods:** Data originated from an epidemiological study conducted in the municipality of Tremembé, Brazil. The Brazilian version of the MoCA test was applied as part of the cognitive assessment in all participants. Of the 630 participants, 385 were classified as cognitively normal (CN) and were included in the normative data set, 110 individuals were diagnosed with dementia and 135 were classified as having cognitive impairment no dementia (CIND). We have excluded 8 patients who had severe dementia with Clinical Dementia Rating (CDR) equal to 3. Among 102 demented participants, 92% were diagnosed as mild dementia with CDR = 1. **Results:** MoCA norms were provided with the sample stratified into age and education bands. The total scores varied significantly according to age and education among the three diagnostic groups: CN, CIND and dementia. Total MoCA scores did not vary significantly between sex only in the dementia group