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Mild cognitive impairment with and without lacunes

Amici, Serena[1]; Reed, Bruce R[2]; Mungas, Dan[2]; Weiner, Michael[3]; Wetzel, Margaret[3]; Johnson, Julene[3]; Gorno-Tempini, Maria Luisa[3]; Miller, Bruce[3]; Kramer, Joel H[3]
[1]Memory and Aging, University of California San Francisco, Neurology, San Francisco, United States; [2]University of California Davis, Davis, United States; [3]University of California San Francisco, San Francisco, United States

Background: Mild Cognitive Impairment (MCI) defines a heterogeneous group of patients with impairment in a single or multiple cognitive domains. Recent studies suggest that cerebrovacular disease contributes to this heterogeneity.
Aim of the study: To evaluate the role of lacunes in a population of MCI patients.
Patients and Methods: One hundred and sixty-three patients with MCI (61% male) were consecutively studied at their first visit. Clinical diagnosis was based on the presence of cognitive complaints and symptoms without functional impairment severe enough to warrant a dementia. All the patients underwent a detailed neuropsychological evaluation and structural magnetic resonance imaging (MRI). The structural images were analyzed to define number and location of lacunes. We divided our patient's population in two groups using the MRI: with (n=82) and without lacunes (n=81).The patients with lacunes included subjects with 1-2 lacunes (63%), 3-5 (28%) and greater than 6 (8%).
Results: The two groups did not differ in age, sex and education, MMSE, verbal and visual memory, visuosaptial functions, naming and auditory comprehension. The two groups differed on various measures of phonemic fluency and motor control. The MCI with lacunes performed worse than MCI without lacunes on the phonemic fluency task as a result of generating fewer words and perseverating on the same words. Across all cognitive tasks, MCI with lacunes were more likely to make errors. Finger tapping speed was also slower in MCI with lacunes when compared to MCI without lacunes. On neuroimaging the group with lacunes also had significantly more subcortical white matter disease while hyppocampal volume and total cortical gray matter volume did not differ in the two groups.
Conclusion: The patients with MCI and lacunes performed worse than the MCI without lacunes on measure of executive functions and processing speed, suggesting disruption of subcortical-frontals circuits.