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Neuropsychological evidence of conversion from mild cognitive impairment (MCI) to dementia

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Background

The state between normal cognition and dementia is known as mild cognitive impairment (MCI) [1]. While cognitive impairment that does not meet the clinical criteria for dementia is common, it is known that MCI, is associated with an increased risk of developing dementia [2,3]. Worse performance on neuropsychological tests (>1 SD from the mean performance) is a significant marker of cognitive impairment [4]. The purpose of the present study is to assess neuropsychological functions in clinically diagnosed MCI subjects and to determine evidence of preclinical dementia.

Materials and methods

One hundred and three (N = 103) patients who met the clinical criteria for MCI were assessed and after 12 months, thirty five patients of them (N = 35) were re-assessed, since during the first examination, their performance on memory tests and other cognitive tests deviated significantly from performance of healthy controls (N = 121). All patients underwent an extensive series of neuropsychological tests, covered many cognitive domains [4].

Results

MCI subjects showed poorer performance compared to controls, especially on tests of verbal and visual memory (p.000). However, they constituted a heterogeneous group, since re-examination revealed subgroups a) with improved performance and/or no more decline because of reversible reasons, b) with stable performance without further decline and c) with progressive decrease of performance and decline in many cognitive domains. Subjects with decline in multiple cognitive domains, apart from memory, constituted a homogeneous group with distinctive neuropsychological characteristics. Between test re-test, the range of scores on neuropsychological tests was found to increase. Moreover, this group performed significantly worse (p.000) on tests that assess speed of information processing, recall of meaningful new semantic and visual material, amount and rate of verbal learning, abstract reasoning and executive functions. The above-mentioned dysfunctions progressively resulted in decline of intelligence (verbal cognitive functions and visuomotor dexterities).

Conclusions

Given their performance on an extensive neuropsychological battery, subjects with clinical MCI show a characteristic profile of dysfunctions with decline in multiple cognitive domains. Test re-test assessments provide increased evidence that these multiple cognitive impaired subjects constitute a homogeneous group with high risk of conversion to dementia.

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