Working memory (WM) and executive functions (EF) in aphasic patients

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Objective.— To assess WM and EF in aphasic patients with original non-verbal tasks, suitable for their expression and comprehension deficits. We explored the relationship between their WM/EF abilities and communication disorders.

Methods.— The scores of 33 aphasic patients in forward, backward digit span, forward visuospatial span, inhibition, flexibility, updating and fluency tasks were compared with those of 43 controls (Student’s t-tests). In patients, using Bravais–Pearson R, we assessed the relationship between the cognitive scores and the scores on questionnaires measuring the WM complaints [1], on the one hand and the communication disorders [2], on the other hand.

Results.— Analyses revealed lower scores for patients for all the WM and EF tasks (P from .014 to <.001). Patients had also significantly more complaints and communication disorders than controls. Scores on the communication disorder scale were correlated to those on the WM/EF tasks.

Discussion.— This study showed genuine deficits in aphasic patients in all the WM/EF domains. These deficits were observed beyond their language disorders and could contribute to their communication difficulties.

References


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Interactions between language and executive functions: Elaboration of new tests to assess the impact of executive functions on language comprehension

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Keywords: Executive functions; Brain damage; Comprehension.

Background.— Brain damaged patients may suffer language troubles attributable to cognitive functions different from aphasia. The aphasic tests do not bring out these specific troubles.

Objective.— The aim of this study is to evaluate the sensibility in assessing the troubles in verbal comprehension for the proposed tests (Token Test and three new tests to assess Working Memory, Flexibility, Updating).

Methods.— We start a normalization of the tests on control population, and a validation on brain damaged patients, without aphasia. Each verbal task has a matched non-verbal test. For patients, we submit complementary tests: Sentence Comprehension (MT86) and DEX survey (therapist).

Results.— We submitted the tests to brain damaged patients. Results show the higher sensibility of the new tests (compared to the standard aphasic tests) in the assessment of the “executive” comprehension troubles.

Discussion.— The proposed tests allow to refine the assessment of comprehension troubles in brain damaged patients targeting at the altered function: Working Memory, Flexibility, Updtaing. They bring sensibility and relevance where the standard aphasic tests have limits.


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