Critical Review:
Improving effectiveness of speech-language therapy in post-stroke aphasia recovery: Pharmacological options

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This critical reviews examines the use of Piracetam, Memantine, Levadopa, and Dextroamphetamines alongside speech-language therapy in patients with poststroke aphasia. A literature search using computerized databases was

size at week 24. When the WAB subtests were analyzed individually the spontaneous speech, auditory comprehension and naming sections showed improvement but no improvement was observed in the repetition subtest.

This study featured participants, therapists and assessors that were blindly and randomly allocated to their treatment groups, point and variability measures were completed for each subtest and between group scores were analyzed. Adequate follow-up was also completed. It should be noted that participants in the placebo group tended to be at a longer time post stroke at baseline. The level of evidence offered by this study is compelling, featuring a level 8 PEDro scale rating.

Levadopa

Levadopa is a dopamine prodrug used in the treatment of Parkinson's disease. It is available via prescription only in Australia, Canada, the UK, and the US (Wishart et al., 2008).

Seniów et al. (2009) completed a randomized double-blind placebo control trial on 39 aphasia patients. Participants were all right-handed Polish speakers who had stroke between two and eight weeks prior to study commencement. Subjects were randomly assigned to groups receiving either 100mg of levodopa or placebo before each therapy session for a total of 15 days over a period of three weeks. Pre and post therapy subjects completed the Boston Diagnostic Aphasia Assessment (BDAE). The BDAE subtests focusing on verbal fluency, naming, repetition, and comprehension were used for the purpose of this study. Therapy sessions were tailored to each participant based on their apparent deficits and focused verbal expression and comprehension. Pre and post treatment scores were analyzed within groups separately using a Wilcoxon signed rank test, and between groups using the Mann-Whitney U test. Following therapy both the experimental and control groups scored significantly higher on all BDAE subtests than baseline. Scores in the drug group were significantly higher ($p < 0.05$) than the placebo group in subtests measuring naming and repetition (Animal Naming, Repetition of Phrases and Sentences, and Repetition of Words). Differences between groups in the remaining subtests did not reach levels of statistical significance.

This study featured participants, therapists and assessors that were blindly and randomly allocated to their treatment groups, point and variability measures were completed for each subtest, and between group scores were analyzed. The level of evidence offered by this study is highly suggestive, featuring a level 7 PEDro scale rating.

Breitenstein et al. (2015) conducted a prospective randomized double-blind placebo control trial with 10 chronic aphasia patients. Participants were all right-handed German speakers with moderate to severe aphasia as defined by the Aachen Aphasia Test. The study featured a cross-over design with two 10 day therapy phases combined with either daily 100mg levodopa/25mg carbidopa or placebo administrations. Following the completion of each phase participants underwent a four week washout period before undergoing the other condition. Outcomes were measured based on a 50-item word naming task taken from a standardized set by the researchers, and the Amsterdam Nijmegen Everyday Naming Task (ANELT). The ANELT has participants complete theoretical conversational scenarios that are rated on two numerical scales of understandability and intelligibility. Testing was completely after each therapy phase, and again at four weeks post. Analyses were completed in the intention-to-treat popp4(-)-5.00.49(e)-2.64358(r)-5.00129(a)-2.64358(

completed the Porch Index of Communicative Ability (PICA) pre-intervention and at 7 days post treatment. The PICA contains 18 cross modal subtests yielding an overall percentile score. Significant changes in PICA scores were determined by a 15 percentile point gain at post treatment. Following treatment both groups made significant improvements, with significantly greater gains ($p < 0.01$) in the experimental group.

This study featured participants, therapists