Limb or motor apraxia, which can occur after a stroke, is a disturbance of the conceptual ability to organize actions to achieve a goal. It can disrupt a person’s ability to perform everyday activities and to live independently but is not due to muscle weakness or sensory loss. This systematic review examined the effectiveness of cognitive rehabilitation aimed at apraxia after stroke. The primary outcome was at the level of disability (restricted activity), specifically whether any benefits were maintained beyond the end of the intervention. Short-term effects, impairment, mood, and quality-of-life measures were also investigated.

A thorough literature search up to November 2006 identified just 3 small randomized trials totaling 132 participants with left hemisphere lesions after stroke. Smania et al1 randomized the first 10 of 13 participants to gesture training or standard care but did not report at the level of disability. Edmans et al2 provided data for the 9 eligible participants in a larger study of “transfer of training” versus functional training approaches. Reported outcome included Barthel scores at the end of intervention but not beyond. Donkervoort et al3 randomized 113 participants to usual therapy with or without the addition of strategy training. Reported outcome included Barthel at the end of the 8-week intervention period and 3 months later. All 3 studies investigated the delivery of therapy several times a week, although the overall amount varied (Donkervoort et al, 25 sessions over 8 weeks; Edmans et al, 2.5 hours per week for 6 weeks; Smania et al, 50 minutes 3 times a week up to a maximum of 35 sessions).

The risk of bias was not high. The largest study reported adequate allocation concealment and blinded outcome assessment. The review did not find evidence of a lasting difference in functional performance 6 months poststroke (mean difference [95% CI] = -0.17 [-1.41 to 1.75]; P = 0.83) in favor of the experimental group. There was, however, some evidence of a difference at the end of the intervention period (mean difference [95% CI] = 1.28 [0.19 to 2.38]; P = 0.02) in favor of the experimental group (Figure). There were no data on mood or quality of life and nonsignificant findings from the one small study that provided impairment-level data.

Several types of rehabilitation strategies are now described in the literature, only 3 of which have been investigated through randomized, controlled trials. They can improve performance on activities of daily living when measured immediately postintervention and warrant further investigation in high-quality randomized, controlled trials. Future trials need to be adequately powered and to measure functional outcome beyond the end of the intervention. Because we did not review whether patients with apraxia benefited from rehabilitation input in general, they should continue to receive general stroke rehabilitation services. This Cochrane Review is ongoing and the authors would be grateful to receive information about ongoing trials.

Note: This review is published as a Cochrane Review in the Cochrane Library 2009, Issue 1. Cochrane Reviews are regularly updated as new evidence emerges and in response to comments and criticisms, and The Cochrane Library should be consulted for the most recent version of the Review.

Disclosures

None.

References


Key Words: activities of daily living ■ apraxia ■ rehabilitation ■ systematic review
1.2.1 Strategy training
Donkervoort 2001 2.44 3 45 1.15 2.5 48 93.9% 1.29 [0.16, 2.42]
Subtotal (95% CI) 45 48 93.9% 1.29 [0.16, 2.42]
Heterogeneity: Not applicable
Test for overall effect: $Z = 2.24$ (P = 0.02)

1.2.2 Transfer of training
Edmonds 2000 4 3 3 2.8 3.5 6 6.1% 1.20 [-3.29, 5.69]
Subtotal (95% CI) 3 6 6.1% 1.20 [-3.29, 5.69]
Heterogeneity: Not applicable
Test for overall effect: $Z = 0.53$ (P = 0.59)

Total (95% CI) 48 54 100.0% 1.28 [0.19, 2.38]
Heterogeneity: Chi$^2 = 0.00$, df = 1 (P = 0.97); I$^2 = 0$
Test for overall effect: $Z = 2.31$ (P = 0.02)
Test for subgroup differences: Chi$^2 = 0.00$, df = 1 (P = 0.97), I$^2 = 0$

Figure. Short-term improvements in activities of daily living.
Rehabilitation for Apraxia: Evidence for Short-Term Improvements in Activities of Daily Living
Audrey Bowen, Carolyn West, Anne Hesketh and Andy Vail

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