A systematic review of cognitive interventions to improve functional ability in people who have cognitive impairment following stroke

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CRD summary
This review concluded that there was insufficient high-quality evidence to support or refute the use of specific cognitive retraining interventions to improve functional outcomes following stroke. The review process was generally well-conducted, but the likely presence of language bias means that the conclusions should be treated with some caution.

Authors' objectives
To determine whether interventions for cognitive impairment after stroke improved functional performance of basic and/or instrumental activities of daily living.

Searching
MEDLINE, EMBASE, CINAHL, PsycINFO, Cochrane Central Register of Controlled Trials (CENTRAL), PsycBITE, OTseeker and Dissertation Abstracts were searched up to November 2009. Search terms were reported. Science Citation Index and Social Science Citation Index were searched and references of identified studies and reviews were checked. Only studies reported in English were included in the review.

Study selection
Randomised controlled trials (RCTs) and quasi-RCTs of any intervention for cognitive impairment were eligible for inclusion. Trials were required to enrol participants aged at least 18 years with a clinically defined stroke and confirmed cognitive impairment. Trials were required to report functional ability, defined as either basic or instrumental activities of daily living. Trials that assessed the impact of pharmaceutical interventions were excluded. Also excluded were trials with mixed populations except where patients with stroke comprised at least 50% of the population and had separately reported data.

Interventions assessed in the included studies were: time pressure management; cognitive skill remediation retraining of time estimation; attention process training; and provision of feedback on results of extensive cognitive testing. Patients were recruited from hospital in-patient units or rehabilitation centres and outpatients. Mean or median age ranged from 49.5 to 73.4 years. Control groups received care as usual.

Two reviewers independently assessed studies for inclusion at each stage of the assessment process. Disagreements were resolved through consensus or arbitration by a third reviewer.

Assessment of study quality
Two reviewers independently assessed the studies for validity using the internal validity items from the PEDro scale (random allocation, concealed allocation, baseline similarity, blinding, follow-up and use of intention-to-treat analyses).

Data extraction
Two reviewers independently extracted data using a form developed for the purpose.

Methods of synthesis
The authors reported that clinical heterogeneity between studies precluded meta-analysis. Studies were combined in a narrative synthesis and grouped by reported outcomes.

Results of the review
Four RCTs (n=376 participants) were included in the review. Three studies reported allocation concealment, three had baseline comparability of groups, three had adequate follow-up and two used intention-to-treat analyses. None of the studies was blinded due to the nature of the interventions assessed.
None of the studies found statistically significant differences between the groups on basic activities of daily living assessed using the Barthel Index (three studies) and the modified Rankin Scale (one study. One study also found no statistically significant difference between groups in instrumental activities of daily living assessed using the Extended Activities of Daily Living scale. Two studies reported statistically significant benefits of interventions on cognitive outcomes for attention process training (greater change from baseline on measures of visual and auditory attention) and time pressure management (greater reduction in time to complete Mental Slowness Observation Test). There were no statistically significant differences on quality of life outcomes.

Authors' conclusions
There was insufficient high-quality evidence to make recommendations to support or refute use of specific cognitive retraining interventions to improve functional outcomes following stroke.

CRD commentary
The review question and inclusion criteria were clear. The authors searched multiple databases and other sources. The limitation to studies reported in English may have led to selection bias; as four studies were excluded on this basis this was particularly likely. The authors reported using methods designed to reduce reviewer bias and error at all stages of the review process. The assessment of validity used appropriate criteria. The decision to adopt a narrative synthesis appeared appropriate.

The authors' conclusions accurately reflected the paucity of evidence included in the review. Given the probability of selection bias and omission of relevant data, some caution should be exercised in their interpretation.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that future trials of post-stroke interventions should include a measure of functional performance as an outcome measure.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.