Therapeutic interventions for aphasia initiated more than six months post stroke: a review of the evidence

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CRD summary
The authors concluded that there was evidence to support the use of several treatments for chronic aphasia post-stroke, but further research was required. Most individual interventions were assessed by only one small study, reducing the reliability of the results, but the authors’ overall conclusion is supported by the limited evidence available.

Authors’ objectives
To assess the effectiveness of therapeutic interventions for aphasia, initiated more than six months post-stroke.

Searching
Multiple databases were searched for English language studies, including MEDLINE, EMBASE, CINAHL and Scopus; search terms were reported. Search dates were not reported. Reference lists of included studies and the Evidence-Based Review of Stroke Rehabilitation (see Other Publications of Related Interest) were searched for additional relevant studies.

Study selection
Randomised controlled trials (RCTs) of aphasia treatments initiated more than six months after a stroke were eligible for inclusion. At least 50% of study participants had to have acquired aphasia as a result of a stroke. Only studies in adults were eligible for inclusion. Studies in which the mean time post-onset was unknown were not included in the review.

The included studies assessed 15 distinct interventions that fell into five treatment categories: language and communication therapies; technological interventions; pharmacotherapies; brain stimulation techniques; and constraint-induced aphasia therapy. There was a high degree of variation between treatment protocols, study populations and outcomes assessed. The mean age of participants ranged from 36 to 70 years, where reported. The mean time of post-stroke onset ranged from nine to 102 months. Participants suffered from both non-fluent and fluent aphasia types.

One reviewer assessed studies for inclusion in the review.

Assessment of study quality
Methodological quality was assessed using the PEDro scale, with a total maximum score of 10. Studies with a score of 9 or 10 were rated "excellent" quality, a score of 6 to 8 was rated "good", 4 to 5 was rated "fair" and below 4 was rated "poor". The authors did not report how many reviewers assessed study quality.

Data extraction
Changes in linguistic/communication skills, measured using a range of scales, were extracted. The authors did not report how many reviewers performed data extraction.

Methods of synthesis
Studies that examined the same or similar interventions were grouped together and a narrative synthesis was presented.

Results of the review
Twenty-one RCTs were included in the review (496 participants, range seven to 66). Fifteen studies were rated "good" quality and six studies were rated "fair" quality. Most studies utilised blinding to reduce bias, and attrition was low in most studies. Treatment groups were comparable at baseline in most studies.

Four RCTs assessed language and communication therapies (including group communication therapy, intense language therapy and therapy involving trained volunteers); all of which found that the therapies were effective.
Six RCTs assessed technological interventions; three RCTs found that computer therapies were effective at improving naming ability and verbal communication. One RCT found that the B.A.Bar portable electronic language learning device was effective. One RCT demonstrated that the Oral Reading Language Therapy for Aphasia (ORLA) program was as effective when delivered by a computer as when delivered by a trained therapist. One RCT found no significant improvement in speech and language recovery using filmed language instruction.

Six RCTs assessed pharmacological therapies; piracetam, donepezil, memantine and galantamine were found to be effective in one RCT each. However, two RCTs demonstrated that bromocriptine was not effective.

Three RCTs assessed brain stimulation techniques and found that both repetitive transcranial magnetic stimulation (rTMS) and anodal transcranial direct current stimulation (tDCS) improved naming abilities and lexical production.

Two RCTs demonstrated that constraint-induced aphasia therapy was effective.

**Authors’ conclusions**
There was evidence to support the use of several treatments for chronic aphasia post-stroke.

**CRD commentary**
The review question and inclusion criteria were reasonably clear. Several electronic databases were searched, but search dates were not reported. The authors did not appear to have searched for unpublished literature and only studies in English were included, therefore publication and language bias may have been present and some relevant studies may have been missed.

One reviewer undertook study selection. The authors did not state how many reviewers undertook data extraction and quality assessment, so there was potential for reviewer error or bias. The assessment of study quality was appropriate, and the included studies were rated as fair or good quality. However, most studies had very small sample sizes and studies were heterogeneous in terms of the interventions, participant characteristics and outcomes assessed. A narrative synthesis was appropriate.

Most individual interventions were assessed by only one small RCT, which reduces the reliability of the results of the individual interventions assessed; however, the authors’ overall conclusion is supported by the evidence presented.

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

**Research:** The authors stated that more RCTs were needed to assess the efficacy of various interventions for chronic aphasia, since most of the interventions assessed in their review were supported by only one RCT. Also, there are additional therapies that have been demonstrated to be effective in the acute stage, which have not been evaluated in the chronic phase (such as tele-rehabilitation, levodopa and other pharmacological interventions).

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