Stuttering treatment research 1970-2005 - II: systematic review incorporating trial quality assessment of pharmacological approaches
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CRD summary
This review found no evidence of positive results from the pharmacological treatment of stuttering. The review had methodological and reporting limitations but, overall, the authors’ conclusions are in line with the evidence presented and seem appropriate.

Authors' objectives
To review the effectiveness of pharmacological treatments for stuttering.

Searching
MEDLINE, Web of Science, PsycINFO and ComDisDome were searched from 1970 to 2005 for articles published in English; the search terms used were reported (see Other Publications of Related Interest). Articles were also identified through personal libraries, previously compiled reference lists and handsearches of four specialist journals.

Study selection
Study designs of evaluations included in the review
Studies had to adequately describe methods, but otherwise no inclusion criteria were reported for study design.

Specific interventions included in the review
Studies of interventions incorporating one or more pharmacological agents were eligible for the review, whether or not the intervention also included behavioural, cognitive or similar approaches. The interventions used in the included studies included carbamazepine, antidepressants, antipsychotics, cardiovascular agents, cholinergic agents, dopamine antagonists, botulinum toxin, and a combination of an anti-anxiety and an antidepressant agent.

Participants included in the review
Participants were required to be people with developmental stuttering (not acquired, adult-onset, neurogenic or psychogenic). No further details of the participants were reported.

Outcomes assessed in the review
Studies of interventions intended to have a clinical effect on the participant's daily life or beyond the setting of the study were eligible for the review, whether or not beyond-clinic measurements were reported. The included studies were assessed against four outcomes criteria: frequency of stuttering reduced to 5%; frequency maintained at 5% or less for at least 6 months; improvement in any social, emotional or cognitive (SEC) variable; and improvement in any SEC variable from pre-treatment to a point at least 6 months after introduction of the drug.

How were decisions on the relevance of primary studies made?
It appears that at least two reviewers were involved in assessing studies for relevance.

Assessment of study quality
Studies were evaluated against five methodological criteria covering study design, blinded data collection, data from before and after treatment, data from beyond-clinic conditions, and data about speech rate, speech naturalness and observer agreement if claims were made about stuttering frequency or severity. Studies were also assessed using the Oxford Centre for Evidence-Based Medicine’s levels of evidence and grades of recommendation, and Chambless and Hollon’s criteria for identifying empirically supported therapies.

The authors did not state how many reviewers performed the validity assessment.

Data extraction

Database of Abstracts of Reviews of Effects (DARE)
Produced by the Centre for Reviews and Dissemination
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Two independent reviewers extracted the data, with any disagreements resolved by consensus.

**Methods of synthesis**

How were the studies combined?
The studies were combined in a narrative, grouped by type of agent, with emphasis on results from studies that met at least three of the five methodological criteria.

How were differences between studies investigated?
Differences between the studies were discussed in the text.

**Results of the review**

Thirty-five ‘units of analysis’ (an evaluation of one drug or combination represented a unit of analysis) reported in 31 publications were included. The total number of participants was not provided.

Of the 35 units of analysis, 5 met none of the methodological quality criteria, 11 met one, 6 met two and 13 met three. One study found that stuttering frequency was reduced to below 5% by risperidone. Haloperidol (2 studies), propanolol [sic] and sertraline were reported to have reduced stuttering by at least half. Botulinum toxin injections (1 study), clomipramine and desipramine (2 studies each) and carbamazepine (1 study) were reported to be associated with improvements in SEC variables. However, some of these positive results came from studies that met fewer than three methodological quality criteria and the others were considered to be compromised by other factors (e.g. unusually good outcome in placebo group, contradiction by other studies of the same drug, or lack of an untreated control group).

**Authors’ conclusions**

None of the included studies met basic methodological criteria. The best available studies showed few, if any, uncomplicated reports of positive results from the pharmacological treatment of stuttering.

**CRD commentary**

This review addressed a clear question and had clear inclusion criteria for the participants and interventions. Inclusion criteria for the outcomes were broad and it appears that all types of study design were eligible. The authors searched a range of relevant sources, although the search was restricted to English language material and hence some relevant studies could have been missed. Unpublished studies were not sought and publication bias was not assessed, so the review could be at risk of publication bias. Study quality was assessed and the results were used in the synthesis. It appears that appropriate methods were used to minimise errors and bias during the review process. However, details of the included studies (other than the drug used) were not systematically reported; this makes it difficult to comment on the strength of the evidence and generalisability of the review findings.

A narrative synthesis was presented, which appears appropriate in view of the variety of included interventions and study designs. In spite of the reporting limitations of the review, the authors’ conclusions are in line with the evidence presented and seem appropriate.

**Implications of the review for practice and research**

Practice: The authors stated that none of the pharmacological agents tested can be recommended to clinicians or patients.

Research: The authors stated that issues such as participant selection and attrition should be considered in future trials, and that well-designed comparisons between pharmacological approaches and other speech therapy approaches may be necessary.

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systematic review incorporating trial quality assessment of pharmacological approaches. American Journal of Speech-
Language Pathology 2006; 15(4): 342-352

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10.1044/1058-0360(2006/032)

Other publications of related interest
review incorporating trial quality assessment of behavioural, cognitive and related approaches. Am J Speech Lang

Indexing Status
Subject indexing assigned by NLM

MeSH
Anticonvulsants /therapeutic use; Antidepressive Agents /therapeutic use; Antipsychotic Agents /therapeutic use;
Cardiovascular Agents /therapeutic use; Clinical Trials as Topic /standards; Dopamine Antagonists /therapeutic use;
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Record Status
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.