Betahistine in the treatment of vertiginous syndromes: a meta-analysis

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CRD summary
The authors of this review reported a therapeutic benefit of betahistine in the treatment of cupulo-canalolithiasis and in forms secondary to vertebrobasilar arterial deficit. This conclusion reflects the findings of the included studies but the evidence base was small and of uncertain quality and there was potential for publication bias so the conclusion may not be reliable.

Authors' objectives
To assess the efficacy of betahistine in the treatment of vertiginous syndromes other than Meniere's disease.

Searching
MEDLINE, EMBASE and CINAHL databases were searched for relevant studies. Search terms were reported but dates were not. Reference lists of retrieved studies were searched for relevant publications.

Study selection
Double-blind randomised placebo-controlled trials (parallel or cross-over designs) were included in the review if they evaluated betahistine in patients with cupulo-canalolithiasis or vertigo secondary to arterial insufficiency of the posterior circle.

Selected studies included patients with vertiginous syndromes or benign paroxysmal vertigo receiving daily doses of betahistine ranging from 32mg to 48mg for between five weeks and three months.

The authors did not state how many researchers selected studies for inclusion.

Assessment of study quality
The authors did not state that they assessed study quality.

Data extraction
A dichotomous outcome of "improved" or "not improved" was derived for each study group, based on patient and physician evaluations and the number and duration of vertiginous episodes. Relative risks (RR) and odds ratios (OR) with 95% confidence intervals (CI) were calculated for this outcome.

The authors did not state how many researchers performed data extraction.

Methods of synthesis
Pooled relative risks and odds ratios with 95% CI were calculated. Statistical heterogeneity was assessed using $\chi^2$ and $I^2$ statistics. Subgroup analyses were conducted for study design, dose and treatment duration.

Results of the review
Seven trials (367 participants) were included in the review. All studies were double blind and three were cross-over trials.

The trials reported a statistically significant benefit in favour of betahistine over placebo in terms of vertiginous symptomology (OR 3.52, 95% CI 2.40 to 5.18; $I^2=0\%$ and RR 1.78, 95% CI 1.48 to 2.13; $I^2=63.3\%$)

There were no statistically significant differences between subgroups on the basis of study design (parallel versus crossover), dose (high versus low) and treatment duration (short versus long).

Authors' conclusions
This meta-analysis confirmed the therapeutic benefit of betahistine in the treatment of cupulo-canalolithiasis and in forms secondary to vertebrobasilar arterial deficit.
CRD commentary
The review question was supported by appropriate inclusion criteria. Inclusion was restricted to randomised trials. The authors did not assess the quality of the small amount of evidence that was retrieved. The search was restricted to published studies and there was some suggestion that publication bias may have influenced the results of the meta-analysis. It was not entirely clear how the dichotomous outcome of "vertiginous symptomology" was derived and whether the underlying measures were consistent across the included studies. All of the included studies were found to favour betahistine on this outcome but the magnitude of benefit relative to placebo was unclear and there was no investigation of possible adverse effects. These limitations mean that the conclusions of this meta-analysis may not be reliable.

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

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