A meta-analysis of randomized trials of calcium antagonists to reduce restenosis after coronary angioplasty

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Authors' objectives
The study assesses the usefulness of calcium antagonists in reducing restenosis after coronary angioplasty.

Searching
MEDLINE was searched from 1980 to 1993, as were abstracts from the American College of Cardiology, American Heart Association, and the European Congress of Cardiology. Reference lists of all identified studies were also examined.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were included.

Specific interventions included in the review
Calcium antagonists.

Participants included in the review
Patients who have undergone angioplasty for stenosis.

Outcomes assessed in the review
Restenosis as assessed by angiography.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the authors performed the selection.

Assessment of study quality
Studies were assessed for randomisation, double-blinding, balanced distribution of prognostic factors between the groups, follow-up rates, crossover rates, and the potential effects of publication bias. The authors do not state how the papers were assessed for validity, or how many of the authors performed the validity assessment.

Data extraction
The authors do not state how the data were extracted for the review, or how many of the authors performed the data extraction.

Methods of synthesis
How were the studies combined?
The Mantel-Haenszel method of meta-analysis was used to combine restenosis rates.

How were differences between studies investigated?
A test for homogeneity was reported. The influence of one study that was not blinded and did not use a placebo was assessed using sensitivity analysis. A second study assessed restenosis for a subset of patients without using an angiogram; the potential influence of this was also assessed using sensitivity analysis.
Results of the review
Five RCTs involving 919 patients were included.

The common odds ratio of restenosis was 0.68 (95% confidence interval, CI: 0.49, 0.94). This changed very little in the sensitivity analyses. There was no evidence of differences in the results of the studies.

Authors' conclusions
The study demonstrated a significant benefit of reducing restenosis rates by using calcium antagonists. It is recommended that a large RCT is undertaken to confirm the benefit, and to address questions of clinical benefit, before widespread adoption of calcium antagonist therapy.

CRD commentary
This systematic review appears to be based on a thorough literature search and assessment of relevant studies, which have been appropriately combined. Aspects of the quality of the literature appear to have been appropriately considered. The main problem with the review, as the authors indicate, is the lack of assessment of clinically-meaningful outcomes in the primary studies.

Implications of the review for practice and research
Calcium antagonists appear to have a likely benefit in reducing restenosis following angioplasty. The clinical and cost implications of this benefit should be assessed in a large RCT which assesses clinical outcomes.

Bibliographic details

PubMedID
8184803

Other publications of related interest
This additional published commentary may also be of interest. Woods KL. Calcium antagonists reduce the risk for restenosis after coronary angioplasty. ACP J Club 1994;121:41.

Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Aged; Angioplasty, Balloon, Coronary; Calcium Channel Blockers /therapeutic use; Coronary Angiography; Coronary Disease /prevention & control /radiography /therapy; Double-Blind Method; Female; Humans; Male; Middle Aged; Prognosis; Publication Bias; Randomized Controlled Trials as Topic; Recurrence

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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.