Calcium antagonists in the treatment of ischemic heart disease: myocardial infarction

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Authors' objectives
To assess the benefit of calcium antagonists during and after acute myocardial infarction (MI).

Searching
The authors do not state which sources were searched, or how the search was performed; further information has been requested from the authors.

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

Specific interventions included in the review
Treatment with nifedipine, verapamil, diltiazem and lidoflazine.

Participants included in the review
Patients with suspected (early intervention) or confirmed (long-term trials) MI.

Outcomes assessed in the review
Mortality and reinfarction rates were assessed.

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
The authors do not state that they assessed validity.

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 results were combined statistically, although the method used was not described.

How were differences between studies investigated?
The effects of the different drugs were investigated separately. The results of subgroup analyses of patients with non-Q-wave MI and left ventricular disfunction were also pooled.

Results of the review
Nifedipine, 12 RCTs with 9,464 patients; diltiazem, 5 RCTs with 3,151 patients; verapamil, 4 RCTs with 5,293 patients; and lidoflazine, 1 RCT with 1,792 patients.

None of the effects were found to be statistically significant. Nifedipine increased the odds of mortality by 13% (95%
confidence interval, CI: -3, 32), and increased the odds of reinfarction by 14% (95% CI: -12, 49). Verapamil reduced the odds of mortality by 9% (95% CI: -18, 8), and reduced the odds of reinfarction by 18% (95% CI: -35, 2). Diltiazem showed no change in the odds of mortality (95% CI: -20, 23), and reduced the odds of reinfarction by 21% (95% CI: -39, 2). Lidoflazine showed no effect on mortality.

There is a trend in those with non-Q-wave MI to show a greater benefit, which is marginally statistically significant, when treated with diltiazem. There is a trend for those with clinical heart failure, left ventricular dysfunction or pulmonary congestion to show a reduced benefit, or even harm, when treated with diltiazem or verapamil.

**Authors’ conclusions**

Nifedipine has not been conclusively proven to be harmful, but it seems unlikely to be beneficial. The effects of verapamil and diltiazem appear more promising. The interpretation of the possible subgroup effects is unclear, but it appears that a cautious approach should be taken to using a calcium antagonist in patients with signs and symptoms of left ventricular dysfunction.

**CRD commentary**

It is not possible to judge whether the review is comprehensive and unbiased since the authors do not state their search strategy or the methods that they use in reviewing the studies. The results of the two subgroup analyses should be treated with great caution as presentation of these subgroups in the literature is likely to be unsystematic.

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