An update on aspirin in the primary prevention of cardiovascular disease
Eidelman R S, Herbert P R, Wiesman S M, Hennekens C H

CRD summary
This review assessed the use of aspirin in the primary prevention of cardiovascular disease. Strong support was found for aspirin preventing a first heart attack in apparently healthy individuals. Evidence on strokes or vascular deaths failed to yield conclusive results. Although review methods were poorly reported, the authors' conclusions appear supported by the evidence presented.

Authors' objectives
To review the evidence of aspirin in the primary prevention of cardiovascular disease (CVD).

Searching
The authors stated that they performed a computerised literature search of the English literature from 1988 to present. No other information was given.

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

Specific interventions included in the review
The authors stated they sought studies where aspirin alone was used as the primary prevention of CVD, as opposed to combined interventions. Some of the participants in the included studies (both aspirin and control groups) also received warfarin (mean dose 4.1 mg/day) or felodipine (various escalating doses). The control was either placebo or open control. The aspirin dosages in the included studies ranged from 75 to 500 mg/day.

Participants included in the review
Studies sought were those where the participants were apparently healthy adults. Some of the participants in the included studies were those at 'high risk' of CVD and those with hypertension. The participants were males and females (approximately 20% female), and their ages ranged from 40 to 80 years and older.

Outcomes assessed in the review
Studies reporting outcomes of myocardial infarction (MI), stroke or vascular deaths were sought. The results in the review were reported as nonfatal MI, nonfatal stroke, ischaemic stroke, haemorrhagic stoke, and a combined end point of any important vascular event (vascular death or nonfatal MI or stroke).

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

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

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. For each study, data were extracted on the numbers of participants randomised and the numbers of events for each outcome, for both the treatment and control groups. Brief details on the participants and aspirin dosages used in each study were provided.
Methods of synthesis
How were the studies combined?
Stratified analyses were performed by trial to avoid direct comparisons between individuals within trials. The authors describe a non-standard meta-analytical method. They also said that in the analysis they doubled the numbers in the control group for one study as randomisation had taken place on a 2:1 basis. The relative risks (RRs) and 95% confidence intervals (CIs) were presented.

How were differences between studies investigated?
The authors did not state a method for assessing any differences between the studies. They did, however, report on heterogeneity in the results.

Results of the review
Five RCTs (55,580 participants) were included. The results of one study were only used in the combined vascular events outcome.

There was no significant heterogeneity between the studies.

For nonfatal MI there was a statistically-significant risk reduction of 32% associated with aspirin therapy (RR 0.68, 95% CI: 0.59, 0.79).

There was no significant effect of aspirin use on nonfatal stroke (RR 1.06, 95% CI: 0.87, 1.29) or ischaemic stroke (RR 0.97, 95% CI: 0.77, 1.22); there was a suggestion that aspirin use increased the risk of haemorrhagic stroke (RR 1.56, 95% CI: 0.99, 2.46).

There was a statistically-significant reduction in the risk of any important vascular event in the aspirin-treated group (RR 0.85, 95% CI: 0.79, 0.93). For vascular deaths there was no significant reduction in risk (RR 0.98, 95% CI: 0.85, 1.12).

Authors’ conclusions
The evidence provided strong support for aspirin preventing a first MI in apparently healthy individuals. There is still insufficient evidence on strokes or vascular deaths to yield conclusive results.

CRD commentary
This was a concise description of a review that deals with the primary prevention of CVD. All of the included studies were very large with long follow-up times. The search was not well described and it is possible that studies were missed. However, as the included studies were large it is unlikely that any small missed studies would significantly affect the results. The methods of the review (e.g. study selection, validity assessment) were not described. From the authors’ description the statistical methods appear non-standard. It is unclear why the authors doubled the number of controls in one study, as these differences should have been accounted for within the meta-analysis; this could have affected the results. However, the authors presented tables of numbers of events in each study/group.

The inclusion criteria suggest that the authors sought studies where the participants received aspirin alone; however, in some of the included studies warfarin or felodipine were also used. Information about the participants in the included studies was limited, and this may affect the generalisability of the results. The authors’ conclusions would appear to follow from the results.

Implications of the review for practice and research
Practice: The authors implied that aspirin should be used in those people where a 10-year risk of first coronary event is 10% or greater, in whom the benefits of aspirin clearly outweigh the risks.

Research: The authors stated that further research is needed to identify the particular risk factors for the subgroups of apparently healthy people who are at such increased risk of CVD, and who would benefit from aspirin.
Bibliographic details

PubMedID
14504112

DOI
10.1001/archinte.163.17.2006

Original Paper URL
http://archinte.ama-assn.org

Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Aged; Aged, 80 and over; Aspirin /therapeutic use; Cardiovascular Diseases /prevention & control; Female; Humans; Male; Middle Aged; Myocardial Infarction /prevention & control; Platelet Aggregation Inhibitors /therapeutic use; Primary Prevention; Randomized Controlled Trials as Topic; Stroke /prevention & control; Treatment Outcome

AccessionNumber
12003008572

Date bibliographic record published
31/03/2004

Date abstract record published
31/03/2004

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.