

Benefits and Risks of Aspirin Therapy

He J, Whelton PK, Vu B, Klag MJ. Aspirin and risk of hemorrhagic stroke: a meta-analysis of randomized controlled trials. *JAMA* 1998;280:1930-5.

Study Overview

Objective. To determine the risk of hemorrhagic stroke associated with aspirin therapy.

Design. Systematic literature review and meta-analysis of controlled trials dealing with aspirin, cerebrovascular disorders, and stroke.

Setting and participants. Results published in English-language journals before July 1997 of clinical trials in which subjects were randomized to aspirin or control treatment for at least 1 month and in which the incidence of stroke subtype was recorded. The studies were found through a search of the MEDLINE database, the authors' reference files, and the bibliographies of retrieved articles.

Main outcome measures. Incidence of stroke subtype during treatment. Other outcomes included incidence of total stroke and myocardial infarction, cardiovascular disease mortality, and all-cause mortality during treatment.

Main results. Data from 16 trials with 55,462 participants and 108 hemorrhagic stroke cases were analyzed. The mean dose of aspirin was 273 mg daily, and the mean duration of treatment was 37 months. Aspirin treatment was associated with an absolute risk increase in hemorrhagic stroke of 12 events per 10,000 persons (95% confidence interval [CI] = 5 to 20; $P < 0.001$). This risk did not differ by patient or study design characteristics. However, aspirin treatment was associated with an absolute risk reduction in myocardial infarction of 137 events per 10,000 persons (95% CI = 107 to 167; $P < 0.001$) and an absolute risk reduction in ischemic stroke of 39 events per 10,000 persons (95% CI = 17 to 61; $P < 0.001$).

Conclusion

This meta-analysis quantitatively demonstrates that al-

though aspirin therapy may increase the absolute risk of hemorrhagic stroke, the overall benefits of aspirin in reducing the absolute risks of myocardial infarction and ischemic stroke may outweigh its adverse effect. However, the benefit-to-risk profile varies according to patient characteristics.

Commentary

Aspirin is widely used for primary and secondary prevention of cardiovascular disease [1,2]. The authors' quantification of the benefits and risks of aspirin in the same patients will help clinicians concerned with preventing cardiovascular events in their patients decide whether to use aspirin therapy.

Applications for Clinical Practice

He and colleagues demonstrate that the levels of aspirin's risks related to hemorrhagic stroke do not depend on individual patient characteristics such as age, sex, race, preexisting disease, hypertension, and hyperlipidemia. At the same time, the clinical benefits of aspirin do vary with the patient characteristics and cardiovascular risk profile. Given these varying benefits and fixed risks, it is necessary for physicians to explain the benefits and risks individual patients most likely will encounter when using aspirin therapy [3].

References

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3. Boissel JP. Individualizing aspirin therapy for prevention of cardiovascular events. *JAMA* 1998;280:1949-50.

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