Transrectal ultrasound-guided prostate biopsies in patients taking aspirin for cardiovascular disease: a meta-analysis

Carmignani L, Picozzi S, Bozzini G, Negri E, Ricci C, Gaeta M, Pavesi M

CRD summary
This review assessed whether continued aspirin therapy was a risk factor for bleeding complications in patients undergoing ultrasound-guided biopsy of the prostate. The authors concluded that the treatment did not increase the risk of overall bleeding or moderate and severe haematuria. The unclear quality of this evidence precludes a confident assessment of the reliability of their conclusion.

Authors' objectives
To assess whether continued aspirin therapy was a risk factor for bleeding complications in patients undergoing ultrasound-guided biopsy of the prostate.

Searching
PubMed and EMBASE were searched from 1990 to 2011 for studies published in English. Search terms were not reported. The reference lists of relevant studies, reviews, meta-analyses and guidelines were also scanned.

Study selection
Studies that reported on bleeding complications in patients taking antiplatelet agents, and undergoing ultrasound-guided biopsy of the prostate, were eligible for inclusion. The specific outcomes of interest were haematuria, rectal bleeding and haematospermia. The authors' own case series of 477 patients from various referral hospitals between January 2008 and March 2011 was eligible for inclusion.

Included studies were conducted in Europe, with two located in the United Kingdom. Studies comprised patients taking aspirin as an antiaggregant agent. The analysis compared those taking aspirin (mean age 67.3 years) and those not taking aspirin (mean age 64.6 years). Bleeding complications were also reported as mild, moderate or severe. The authors referred to variation in the methods of reporting bleeding complications in the included studies.

Two reviewers selected the studies for inclusion. Disagreements were resolved by a third reviewer.

Assessment of study quality
Study quality was assessed using the United States Preventive Services Task Force criteria. Criteria were reported in relation to screening tests.

It appeared that one reviewer carried out the quality assessment, and this was checked by a second reviewer. Disagreements were resolved by a third reviewer, where necessary.

Data extraction
Data were extracted to enable the presentation of odds ratios (OR) and 95% confidence intervals.

One reviewer extracted the data, and this was checked by a second reviewer. Disagreements were resolved by a third reviewer, where necessary.

Methods of synthesis
Odds ratios were pooled in a fixed-effect or random-effects meta-analysis depending on whether statistically significant heterogeneity was found (I² over 50%). Publication bias was assessed using a funnel plot.

Results of the review
Five studies (including the authors case series) were included in the review (3,218 patients; sample size range 200 to 1,811). There were no reported results to demonstrate the quality of included studies. Follow-up ranged from seven to 30 days.
Aspirin was associated with a significant increase in haematuria (OR 1.36, 95% CI 1.13 to 1.64; five studies; I²=20%). Three studies categorised bleeding as mild in most of the sample (319 out of 410 for those receiving aspirin; 573 out of 684 for those not receiving aspirin). There were no statistically significant effects for rectal bleeding (five studies; I²=61%) and haematospermia (three studies; I²=60%).

There was no evidence of publication bias.

**Authors' conclusions**
Continued use of aspirin did not increase the risk of overall bleeding or moderate and severe haematuria after prostate biopsy.

**CRD commentary**
The review question was clear. Inclusion criteria were broad for study design, and the included designs were not specified. The remainder of the inclusion criteria were sufficiently reproducible. Relevant data sources were accessed, but language and publication restrictions might mean that relevant studies were missed. Publication bias was assessed and found not to have been a significant threat to the review's findings. The processes of study selection and data extraction were conducted with attempts to minimise error and bias.

Quality assessment criteria were specified, but the relevance of this criteria to a review of effectiveness was unclear. No results were presented, which made it difficult to assess the reliability of included studies. Some study details were presented, statistical heterogeneity was assessed, and the chosen method of synthesis appeared to be appropriate. The authors acknowledged that evidence was limited, but the unclear quality of this evidence precluded a confident assessment of the reliability of their conclusion.

**Implications of the review for practice and research**
**Practice:** The authors stated that discontinuing aspirin use in patients prior to prostate biopsy was unnecessary.

**Research:** The authors did not state any implications for research.

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