Tamsulosin versus terazosin for benign prostatic hyperplasia: a systematic review

CRD summary
The authors concluded that tamsulosin improved International Prostate Symptom Score in the short-term compared to terazosin. High-quality trials were needed to assess the efficacy of tamsulosin in the long term. Some review limitations made the reliability of the pooled results uncertain, but the overall conclusion was suitably cautious and appears appropriate.

Authors' objectives
To assess the safety and efficacy of tamsulosin compared to terazosin in patients with benign prostate hyperplasia.

Searching
PUBMED, EMBASE, The Cochrane Library (2007 Issue 4), Chinese Biomedical Literature Database and CMKI were searched to 2007 for published papers; search terms were not reported. Reference lists of relevant studies and reviews were checked. Topic experts were contacted. There were no language restrictions.

Study selection
Randomised controlled trials (RCTs) or quasi-randomised controlled trials that compared tamsulosin with terazosin in men with mild to moderate benign prostate hyperplasia with lower urinary tract symptoms (LUTS) were eligible for inclusion. Outcomes of interest were: International Prostate Symptom Score (IPSS), quality of life (QoL), maximum urinary flow rate (Qmax), average urinary flow rate, residual volume, prostate volume and adverse effects.

Participants who underwent prior prostatectomy, thermotherapy, anti-androgen therapy and catheterisation due to urinary retention were excluded from the review. Also excluded were men with prostate cancer, neurogenic bladder, bladder stone and lower urinary tract infection or cardiac, renal or hepatic insufficiency or dementia. Studies were excluded when participants were taking other medicines such as alpha- or beta-adrenoceptor agonists and antagonists, anticholinergics, antiandrogens and 5-alpha-reductase inhibitors.

Mean age of the included participants ranged from 61 to 68 years across the studies. No other participant or study characteristics were reported.

Two reviewers independently selected studies. Any disagreements were resolved by consultation with a third reviewer.

Assessment of study quality
Trials quality was assessed using criteria of randomisation, allocation concealment, blinding, drop-outs and intention-to-treat analysis. Each trial was given a letter grade (B=high quality and C=low quality), but no details of the specific methodology were reported. The authors did not state how many reviewers performed the quality assessment.

Data extraction
Data on the number of outcomes in the intervention and comparator groups were extracted. Relative risks (RR) with 95% confidence intervals (CIs) were calculated for dichotomous outcomes. Weighted mean difference (WMD) with 95% CIs were calculated for continuous outcomes.

The authors did not state how many reviewers performed the data extraction.

Methods of synthesis
Meta-analyses that examined pooled weighted mean difference or risk difference were performed using a fixed-effect model. Heterogeneity was assessed using the $X^2$ test. Inconsistency was evaluated using the $I^2$ statistic. Where there was significant heterogeneity, a random-effects model was used to pool the data. Subgroup analysis was conducted to assess the effects of baseline symptom severity on the outcomes.
Results of the review
Twelve RCTs (n=2,816) were included in the review. Sample sizes ranged from 35 to 1,983 participants. Nine of the included studies were considered to be high quality and three were considered to be low quality.

After four weeks of treatment, there was a significant positive effect in favour of tamsulosin compared with terazosin for International Prostate Symptom Score (WMD -1.24, 95% CI -1.98 to -0.51; eight RCTs, n=813 participants). There was no significant statistical heterogeneity between the trials.

There were no significant differences between groups for the outcomes: quality of life (four trials, n=311); maximum urinary flow rate (10 trials, n=972) with significant heterogeneity between trials; average urinary flow rate (seven trials, n=667); residual volume (five trials, n=419) with significant heterogeneity between trials; and prostate volume (four trials, n=362).

Significantly more participants in the terazosin treatment group experienced dizziness (RR 0.38, 95% CI 0.30 to 0.48; eight RCTs, n=2,767 participants), severe hypotension (RR 0.16, 95% CI 0.04 to 0.68; three RCTs, n=332 participants) and dry mouth (RR 0.14, 95% CI 0.03 to 0.77; three RCTs, n=218 participants) than in the tamsulosin treatment group. There was no significant statistical heterogeneity between trials for any of these adverse events. No other adverse events were assessed.

Subgroup analyses were not reported.

Authors’ conclusions
Tamsulosin improved International Prostate Symptom Score in the short-term compared with terazosin. High-quality trials were needed to assess the efficacy of tamsulosin in the long term.

CRD commentary
The review addressed a clear question and was supported by appropriate inclusion criteria. Attempts were made to identify all relevant published trials; unpublished data were not sought and this may have introduced publication bias. Validity was assessed and considered in the analyses. The number of reviewers involved in some but not all aspects of the systematic review process was reported, which potentially introduced reviewer bias. Some details of the included studies were reported, but information on study participants and trial design (such as study duration) were limited. Appropriate methods were used to pool the results and investigate statistical heterogeneity.

Some review limitations made the reliability of the pooled results uncertain, but the overall conclusion was suitably cautious and appears appropriate.

Implications of the review for practice and research
Practice: The authors did not state any clear implications for practice.

Research: The authors stated that long-term high-quality trials with large sample sizes were needed to assess the efficacy of tamsulosin compared with terazosin.

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Bibliographic details

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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.