Is it oncologically safe performing simultaneous transurethral resection of the bladder and prostate? A meta-analysis on 1,234 patients


CRD summary
The authors concluded that simultaneous transurethral resection of bladder cancer and transurethral resection of prostate did not statistically increase the risk of recurrence in the prostatic fossa. Given the potential for some bias in the review process, and the limited evidence base of uncertain quality, the reliability of the findings remains unclear.

Authors' objectives
To assess whether it was oncologically safe, or advantageous in terms of overall recurrences, to simultaneously perform transurethral resection for bladder cancer and transurethral resection of the prostate.

Searching
PubMed and EMBASE were searched between 1950 and December 2011 for English language publications. Search terms were reported. Reference lists of included studies and relevant reviews and guidelines were manually scanned.

Study selection
Eligible for inclusion were studies that compared simultaneous transurethral resection for bladder cancer and transurethral resection of prostate versus control. The outcomes of interest were prostatic fossa recurrences and total recurrences. Case reports, abstract and conference proceedings were excluded from the review.

Included studies were conducted in the USA, Korea, Tunisia, India, Israel, Turkey and Spain. Study enrolment started in 1960 and ended in 2007 (where reported). Where reported, the mean age of patients raged between 56 and 72.2 years, and all patients were male. Reasons for simultaneous treatment included access to the tumour, the concomitant presence of bladder tumour and symptomatic benign prostatic hypertrophy, and tumour localisation at the bladder neck and/or prostatic urethra. Patients who received simultaneous treatment received continuous irrigation. Control groups received transurethral resection of the bladder tumour alone.

Two reviewers screened studies for inclusion and discrepancies were resolved through referral to a third reviewer.

Assessment of study quality
Study quality was assessed using the methods of the US Preventive Services Task Force, but no other details were reported and it was unclear how many reviewers performed the quality assessment.

Data extraction
One reviewer extracted outcome data to calculate odds ratios and 95% confidence intervals. Data were checked by a second reviewer. Any discrepancies were resolved through consensus or referral to a third reviewer if necessary.

Methods of synthesis
A fixed-effect model, or random-effects model where there was evidence of statistical heterogeneity, was used to combine odds ratios (OR) and 95% confidence intervals (CI). Statistical heterogeneity was assessed using $\chi^2$ and $I^2$ ($I^2$ greater than 50% indicated statistical significance).

A random-effects meta-regression logistic model was used to investigate the extent to which observational time influenced relapses/recurrence. The influence of grading of the tumour on the results was also investigated. Separate analysis was undertaken to exclude studies of patients with neoplastic lesion in the prostate or bladder neck.

A funnel plot and Harbord and Egger tests were used to assess publication bias.

Results of the review
Eight studies (1,234 participants; range 48 to 297) were included in the review. Where reported, the mean follow-up
ranged from 27.4 to 96 months.

There were no statistically significant differences between intervention and control groups for prostatic fossa recurrence rates (six studies; I²=0%). Exclusion of studies of patients with tumour in the prostate or bladder neck showed similar results, and grading of the neoplastic lesion did not appear to affect recurrence rates between groups. Recurrence rates were statistically significantly lower in patients with monofocal tumours compared to patients with multifocal tumours (OR 0.29, 95% CI 0.15 to 0.57; three studies; I²=0%).

Combined transurethral resection compared to the control group statistically significantly reduced tumour recurrence rates (OR 0.72, 95% CI 0.57 to 0.92; six studies, I²=0%). Investigation of the influence of observational time on tumour recurrence rates showed no statistically significant influence.

The Egger and Harbord test indicated potential for publication bias.

**Authors' conclusions**

Simultaneous transurethral resection of bladder cancer and transurethral resection of prostate did not statistically increase the risk of recurrence in the prostatic fossa.

**CRD commentary**

The review question was clearly stated and was supported by broad inclusion criteria. The search was limited to two electronic databases and as this was restricted by language and publication status, potentially relevant data may have been missed. Study selection and data extraction were conducted in duplicate, but it was not clear whether this was true for quality assessment. The authors stated they assessed study quality, but no further details or results were reported.

Included study enrolment spanned approximately 50 years, in which time procedures may have changed. Assessment of observed time did not appear to affect the rate of recurrence. Few study and patient details were reported so it was unclear whether clinical and methodological heterogeneity may have been present, and it was unclear whether patients were undergoing other treatments. Statistical heterogeneity was assessed and no evidence was found for any outcome. Some studies could not be estimated in meta-analysis for some outcomes as they included a zero count in one or both study arms. Statistical methods could have been used to include these studies, but it is unlikely that their inclusion would have significantly altered the findings. The robustness off some results was questioned due to the wide confidence intervals.

Given the potential for some bias in the review process, and the uncertainties surrounding the limited evidence base, the reliability of the findings remains unclear.

**Implications of the review for practice and research**

**Practice**: The authors stated that performing both procedures simultaneously spares patients from further anaesthetic risks and hospitalisation for the resolution of the prostatic obstruction.

**Research**: The authors stated that future studies should assess the use of laser resection of the prostate that did not require bladder irrigation after surgery.

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