Strategies for the removal of short-term indwelling urethral catheters in adults
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Authors' objectives
Background: Approximately 15% to 25% of all hospitalised patients have indwelling urethral catheters, mainly to assist clinicians to accurately monitor urine output during acute illness or following surgery, to treat urinary retention, and for investigative purposes. Objectives: The objective of this review was to determine the best strategies for the removal of catheters from patients with a short-term indwelling urethral catheter. The main outcome of interest was the number of patients who required recatheterisation following removal of indwelling urethral catheter.

Search methods: We searched the Cochrane Incontinence Group Specialised Register (searched 7 December 2005), the Cochrane Central Register of Controlled Trials (The Cochrane Library 2006, Issue 2), MEDLINE (January 1966 to 12 July 2006), EMBASE (January 1980 to 12 July 2006), CINAHL (January 1982 to 12 July 2006), Nursing Collection (January 1995 to January 2002) and reference lists of relevant articles and conference proceedings were searched. We also contacted manufacturers and researchers in the field. No language or other restrictions were applied.

Selection criteria: All randomised and quasi-randomised controlled trials (RCTs) that compared the effects of alternative strategies for removal of short-term indwelling urethral catheters on patient outcomes were considered for inclusion in the review. Data collection and analysis: Eligibility of the trials for inclusion in the review, details of eligible trials and the methodological quality of the trials were assessed independently by two reviewers. Relative risks (RR) for dichotomous data and a weighted mean difference (WMD) for continuous data were calculated with 95% confidence intervals (CI). Where synthesis was inappropriate, trials were considered separately.

Main results: Twenty six trials involving a total of 2933 participants were included in the review. One trial included three treatment groups. In 11 RCTs amongst 1389 people, there was no significant difference in need for recatheterisation, although recatheterisation after removal at night was more likely to be during working hours. Pooled results demonstrated that, following urological surgery and procedures, patients whose indwelling urethral catheters were removed at midnight passed significantly larger volumes at their first void (Difference (fixed) 96 ml; 95% CI 62 to 130). Similar findings were reported for patients following TURP (Difference (fixed) 27; 95% CI 23 to 31). Removal at midnight was also associated with longer time to first void, and shorter lengths of hospitalisation (relative risk of not going home on day of removal = 0.71, 95% CI 0.64 to 0.79).

Results in 13 trials amongst 1422 participants having early rather than delayed catheter removal were consistent with a higher risk of voiding problems and a lower risk of infection, with shorter hospitalisation. In three trials involving 234 participants the data were too few to assess differential effects of catheter clamping compared with free drainage prior to withdrawal. No eligible trials compared flexible with fixed duration of catheterisation, or assessed prophylactic alpha sympathetic blocker drugs prior to catheter removal.

Authors' conclusions: There is suggestive but inconclusive evidence of a benefit from midnight removal of the indwelling urethral catheter. There are resource implications but the magnitude of these is not clear from the trials. The evidence also suggests shorter hospital stay after early rather than delayed catheter removal but the effects on other outcomes are unclear. There is little evidence on which to judge other aspects of management, such as catheter clamping.


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