

Cochrane Database of Systematic Reviews

Washout policies in long-term indwelling urinary catheterisation in adults (Review)



Shepherd AJ, Mackay WG, Hagen S. Washout policies in long-term indwelling urinary catheterisation in adults. *Cochrane Database of Systematic Reviews* 2017, Issue 3. Art. No.: CD004012. DOI: 10.1002/14651858.CD004012.pub5.

www.cochranelibrary.com



[Intervention Review]

Washout policies in long-term indwelling urinary catheterisation in adults

Ashley J Shepherd¹, William G Mackay², Suzanne Hagen³

¹Faculty of Health Sciences and Sport, University of Stirling, Stirling, UK. ²Institute of Healthcare Policy and Practice, Health, Nursing and Midwifery, University of the West of Scotland, Paisley, UK. ³Nursing, Midwifery and Allied Health Professions Research Unit, Glasgow Caledonian University, Glasgow, UK

Contact: Ashley J Shepherd, Faculty of Health Sciences and Sport, University of Stirling, Bridge of Allan, Stirling, FK9 4LA, UK. ashley.shepherd@stir.ac.uk.

Editorial group: Cochrane Incontinence Group.

Publication status and date: New search for studies and content updated (no change to conclusions), published in Issue 3, 2017.

Citation: Shepherd AJ, Mackay WG, Hagen S. Washout policies in long-term indwelling urinary catheterisation in adults. *Cochrane Database of Systematic Reviews* 2017, Issue 3. Art. No.: CD004012. DOI: 10.1002/14651858.CD004012.pub5.

Copyright © 2017 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

ABSTRACT

Background

People requiring long-term bladder draining with an indwelling catheter can experience catheter blockage. Regimens involving different solutions can be used to wash out catheters with the aim of preventing blockage. This is an update of a review published in 2010.

Objectives

To determine if certain washout regimens are better than others in terms of effectiveness, acceptability, complications, quality of life and critically appraise and summarise economic evidence for the management of long-term indwelling urinary catheterisation in adults.

Search methods

We searched the Cochrane Incontinence Group Specialised Trials Register, which contains trials identified from the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE In-Process, MEDLINE Epub Ahead of Print, CINAHL, ClinicalTrials.gov, WHO ICTRP and handsearching of journals and conference proceedings to 23 May 2016. We also examined all reference lists of identified trials and contacted manufacturers and researchers in the field.

Selection criteria

All randomised and quasi-randomised trials comparing catheter washout policies (e.g. washout versus no washout, different washout solutions, frequency, duration, volume, concentration, method of administration) in adults (aged 16 years and above) in any setting (i.e. hospital, nursing/residential home, community) with an indwelling urethral or suprapubic catheter for more than 28 days.

Data collection and analysis

Two review authors independently extracted data. Disagreements were resolved by discussion. Data were assessed and analysed as described in the *Cochrane Handbook*. If data in trials were not fully reported, clarification was sought from the study authors. For categorical outcomes, the numbers reporting an outcome were related to the numbers at risk in each group to derive a risk ratio (RR). For continuous outcomes, means and standard deviations were used to derive mean differences (MD).

Main results

We included seven trials involving a total of 349 participants, 217 of whom completed the studies. Three were cross-over and four were parallel-group randomised controlled trials (RCTs). Of these, two trials were added for this update (one parallel-group RCT with 40 participants and one cross-over RCT with 67 participants). Analyses of three cross-over trials yielded suboptimal results because they



were based on between-group differences rather than individual participants' differences for sequential interventions. Two parallel-group trials had limited clinical value: one combined results for suprapubic and urethral catheters and the other provided data for only four participants. Only one trial was free of significant methodological limitations, but there were difficulties with recruitment and maintaining participants in this study.

The included studies reported data on six of the nine primary and secondary outcome measures. None of the trials addressed: number of catheters used, washout acceptability measures (including patient satisfaction, patient discomfort, pain and ease of use), or health status/measures of psychological health; very limited data were collected for health economic outcomes. Trials assessed only three of the eight intervention comparisons identified. Two trials reported in more than one comparison group.

Four trials compared washout (either saline or acidic solution) with no washout. We are uncertain if washout solutions (saline or acidic), compared to no washout solutions, has an important effect on the rate of symptomatic urinary tract infection or length of time each catheter was in situ because the results are imprecise.

Four trials compared different types of washout solution; saline versus acidic solutions (2 trials); saline versus acidic solution versus antibiotic solution (1 trial); saline versus antimicrobial solution (1 trial). We are uncertain if type of washout solution has an important effect on the rate of symptomatic urinary tract infection or length of time each catheter was in situ because the results are imprecise.

One trial compared different compositions of acidic solution (stronger versus weaker solution). We are uncertain if different compositions of acidic solutions has an important effect on the rate of symptomatic urinary tract infection or length of time each catheter was in situ because only 14 participants (of 25 who were recruited) completed this 12 week, three arm trial.

Four studies reported on possible harmful effects of washout use, such as blood in the washout solution, changes in blood pressure and bladder spasms.

There were very few small trials that met the review inclusion criteria. The high risk of bias of the included studies resulted in the evidence being graded as low or very low quality.

Authors' conclusions

Data from seven trials that compared different washout policies were limited, and generally, of poor methodological quality or were poorly reported. The evidence was not adequate to conclude if washouts were beneficial or harmful. Further rigorous, high quality trials that are adequately powered to detect benefits from washout being performed as opposed to no washout are needed. Trials comparing different washout solutions, washout volumes, and frequencies or timings are also needed.

PLAIN LANGUAGE SUMMARY

How effective are urinary catheter washout solutions?

Review question

We aimed to assess effectiveness of urinary catheter washout solutions. This is an update of a review previously published in 2010.

Background

For a range of reasons, some people are unable to empty their bladders properly or leak urine (urinary incontinence). Urinary catheters, which are soft tubes inserted into the bladder to drain urine to a collection bag, are often used to help people with urinary incontinence. The same type of catheter is used for men and women.

In the UK, about 4% of people receiving home care, and around 9% of patients in nursing homes (but possibly up to 40% in some places), are living with long-term catheters.

Urinary catheter care can be difficult, and problems can occur, especially if used for a long time.

Catheter blockages can occur when kept in place in the bladder for a long time. Blockages may affect half of all people with long-term catheters causing pain and distress. Liquid solutions may be injected into the catheter to prevent or relieve blockages. This is known as a washout. These problems mean that assistance from healthcare professionals is needed for people with urinary catheter blockages.

Search date

The evidence is current up to 23 May 2016.

Study characteristics



We included seven studies that presented information on 217 people who completed the studies of 349 who started in the trials. Two studies were new for this update. The studies, published between 1979 and 2014, were conducted in the USA (3 studies), the UK (2 studies), and one each in Canada and Finland.

The studies included people with long-term catheters. People were allocated randomly to have catheter washouts or not, and the effects compared. We also included studies that compared different types of washout solutions.

Four studies reported on possible harmful effects of washout use, such as blood in the washout solution, changes in blood pressure and bladder spasms.

Study funding sources

The included studies were funded by Novobay Pharmaceuticals Inc (Linsenmeyer 2014); Alberta Heritage Foundation for Medical Research and the Canadian Nurses Foundation (Moore 2009); National institute of Aging, National Institutes of Health (Muncie 1989); Paralyzed Veterans of America Spinal Cord Research Foundation (Waites 2006). Three studies did not report funding sources.

Key results

There was not enough good research evidence to determine if catheter washouts were useful.

Quality of the evidence

The included trials were generally small with methodological flaws. This included limited details on how participants were randomly allocated into groups and how both participants and researchers were blinded to these groups. Evidence quality was low to very low. New trials are needed to definitively answer this research question.