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[Intervention Review]

Long-term bladder management by intermittent catheterisation in adults and children

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ABSTRACT

Background

Intermittent catheterisation (IC) is a commonly recommended procedure for people with incomplete bladder emptying not satisfactorily managed by other methods. The most frequent complication of IC is urinary tract infection (UTI). It is unclear which catheter types, techniques or strategies, affect the incidence of UTI. There is wide variation in practice and important cost implications for using different catheters, techniques or strategies.

Objectives

To compare sterile versus clean catheterisation technique, coated (pre-lubricated) versus uncoated (separate lubricant) catheters, single (sterile) or multiple use (clean) catheters, self-catheterisation versus catheterisation by others, and any other strategies designed to reduce UTIs in respect of incidence of symptomatic UTI, haematuria, other infections and user preference, in adults and children using intermittent catheterisation for incomplete bladder emptying.

Search methods

We searched the Cochrane Incontinence Group Specialised Trials Register (searched 19 June 2006), MEDLINE (January 1966 to June 2007), EMBASE (January 1988 to June 2007), CINAHL (January 1982 to June 2007), ERIC (January 1984 to June 2007), the reference lists of relevant articles and conference proceedings, and we attempted to contact other investigators for unpublished data or for clarification.

Selection criteria

Randomised controlled trials comparing at least two different catheterisation techniques, strategies or catheter types.

Data collection and analysis

Three reviewers assessed the methodological quality of trials and abstracted data. For dichotomous variables, relative risks and 95% confidence intervals (CI) were derived for each outcome where possible. For continuous variables, mean differences and 95% CI were calculated for each outcome. Because of trial heterogeneity, data were not combined to give an overall estimate of treatment effect.

Main results

Fourteen studies met the inclusion criteria; all were small (less than 60 participants). There was considerable variation in length of follow-up and definitions of UTI. Participant drop-out was a problem for several studies. Several studies were more than ten years old and outcome measures varied between studies. Where there were data, confidence intervals around estimates were wide and hence clinically important differences in UTI and other outcomes could neither be identified nor ruled out reliably.

Authors' conclusions

Intermittent catheterisation is a critical aspect of healthcare for individuals with incomplete emptying who are otherwise unable to void adequately to protect bladder and renal health. There is a lack of evidence to state that incidence of UTI is affected by use of sterile or clean technique, coated or uncoated catheters, single (sterile) or multiple use (clean) catheters, self-catheterisation or catheterisation by others, or by any other strategy. The current research evidence is weak and design issues are significant. In light of the current climate of infection control and antibiotic resistance, further, well-designed studies are strongly recommended. Based on the current data, it is not possible to state that one catheter type, technique or strategy is better than another.

PLAIN LANGUAGE SUMMARY

Prevention of urine infection in adults and children who use intermittent catheterisation (a treatment involving passing a hollow tube into the bladder regularly) to empty their bladders

Intermittent catheterisation is a common treatment used by people who have bladder emptying problems. A hollow tube (catheter) is passed through the body's channel to the bladder (urethra) or through a surgically made channel to the skin surface, to regularly empty the bladder (usually several times every day). This treatment reduces problems such as loss of bladder control (incontinence) or having to pass urine very frequently or in a hurry (urgency). But people who use this treatment are often troubled by urine infections resulting in days lost from school or work or even hospitalisations. There are many different catheter types and techniques which may affect urine infection. In this review we assessed trials which focused on incidence of urine infection in intermittent catheterisation users who used different catheterisation techniques (sterile or clean); different types of catheters (coated [pre-lubricated] or uncoated [separate lubricant]); sterile (single-use) catheters or clean (multiple use) catheters; self-catheterisation or catheterisation by others (such as parents); and other strategies designed to reduce urine infection, including catheter cleaning (for multiple use). There are no definitive studies showing that the incidence of urine infection is improved with any catheter technique, type or strategy. These studies are difficult because participants need to take part for many months and many of the reviewed studies were too small and had problems with participants dropping out. Also definitions of urine infection varied considerably. The current strength of evidence is weak and well-designed studies are strongly recommended. Based on the current evidence, it is not possible to state that any catheter type, technique or strategy is better than another.