Reducing the risk of infection in indwelling catheterisation

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Caring for patients with indwelling catheters is common in nursing practice in all settings (Foxley, 2011), despite being the last resort for patients with long-term bladder control problems. Community nurses in particular will regularly encounter patients with indwelling catheters, ranging from those with nerve damage such as spina bifida, multiple sclerosis (MS), stroke or spinal injury; those with debilitating or terminal illness with loss of mobility; to those who may lack the cognitive ability or sufficient awareness to use the toilet. Catheterisation carries a high risk of infection, resulting in an increased burden of care and cost to healthcare providers. It can also negatively impact on patient wellbeing. Providing for these patients ‘around the clock’ can be a particular problem in the community, with carers and patients requiring education in how to manage both the catheters themselves, as well as the accompanying equipment at night. This article provides a background to long-term catheterisation, before looking at ways of preventing infection as well as the techniques and equipment that can better enable 24-hour care.

KEYWORDS:
Indwelling catheters ■ Closed drainage system ■ Night bags

It is estimated that 450,000 people in the UK use long-term urinary catheters (Prinjha and Chapple, 2013). Indeed, 3% of people living in the community and 13% in care homes use a permanent catheter (Royal College of Physicians, 2005), a figure that will inevitably rise in both settings with an aging population. Catheters are also the most commonly used medical device in hospitals with Gould et al (2010) finding that of the 14.5 million people admitted to hospital each year, 15–25% were catheterised during their inpatient stay.

Indwelling catheterisation can be a particular concern for patients in the community, not only from an infection control point of view, but also in terms of how to maintain the catheter and the equipment that goes with it, such as valves and drainage bags, over a 24-hour period.

WHY CATHETERISE?

The decision to catheterise a patient, both in the short and long-term, should always be a last resort and taken after non-invasive measures have been considered and found to be unsuitable (Bond, 2005; National Institute for Health and Care Excellence [NICE], 2014), as it comes with its own inherent risks of:

- Catheter-associated urinary tract infection (CAUTI)
- Blockages
- Leakage
- Bladder spasms (Prinjha and Chapple, 2013).

For example, 80% of hospital-acquired infections (HAIs) are as a result of CAUTIs (Pellowe, 2009), costing the NHS more than £124 million per year, which breaks down to approximately £1,327 per patient (Plowman, 2000).

However, for patients who are unable to empty their bladder voluntarily, catheterisation may be necessary.

Short-term catheterisation
Catheters may be temporarily put in place while patients recover from surgery or injury, or to prepare them for operations such as on the womb, ovaries or involving the large bowel. Short-term catheterisation is also used to monitor urine output during acute illness and to administer medication into the bladder. Due to the risk of infection, healthcare professionals should comprehensively assess the patient, document the reason for catheterisation, and regularly review the need for continued catheterisation so that it can be removed as soon as no longer needed (Pratt et al, 2001).

Long-term catheterisation
Again, this should only take place after full assessment of the patient, considering their needs and identifying why they are unable to empty their bladder naturally (Bond, 2005).

Long-term catheterisation is recommended for urinary incontinence or retention. It also occurs when it is not possible to treat the underlying condition that prevents the bladder from emptying voluntarily, such as in patients with a spinal cord injury or those who have experienced a stroke.

Whatever the reason, it is a means of helping patients to maintain their
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independence and activities of daily life (Pellatt, 2007).

Long-term catheters can be either indwelling urethral or suprapubic. The former pass through the urethra into the bladder, thereby enabling the bladder to empty, whereas the latter pass into the abdominal wall through a small incision made under local or general anaesthetic. Choice of catheter should, where possible, be thoroughly discussed with the patient, and consider their self-image, comfort, sexual relationships, empowerment, as well as the risk of infection (Prinjha and Chapple, 2013; NICE, 2014).

NICE (2014) recommend that following a pathway of care can help to prevent and control HAIs as a result of catheterisation in primary and community care. This involves:

- Educating patients, their carers and healthcare workers
- Assessing the need for catheterisation so that indwelling catheters are only used after other options have been explored
- Considering drainage options so that the most appropriate is chosen in relation to the patient’s clinical need and preference, as well as the anticipated duration of catheterisation and the risk of infection
- Following an aseptic technique for catheter insertion
- Ongoing catheter maintenance to ensure that the connection between the catheter and drainage system is not broken, unless for good clinical reasons, such as when changing the bag according to manufacturers’ instructions.

PATIENT EDUCATION

All healthcare professionals involved in caring for patients with indwelling catheters have a responsibility to educate them about catheters and the different types available, and provide information on all aspects of living with a catheter; from the mechanics of how it works, how to self-care and follow a hygienic regimen and prevent urinary tract infections (UTIs), blockages and leakages, to its effect on body image and maintaining normal daily life (Prinjha and Chapple, 2013). Follow-up training should also be provided, with ongoing support for patients and carers (NICE, 2014). This is of particular importance in the community, where nurses may only be able to visit at certain times and the patient and/or carers have to take control of the catheter, particularly at night.

INFECTION PREVENTION

As well as ensuring that patients are fully informed about catheterisation, healthcare professionals are also charged with reducing the risk of CAUTI. Indeed, reducing HAIs is a key target which the chief nursing officer (CNO) has highlighted in the urinary catheter high impact action (HAI), requiring trusts to: ‘demonstrate a dramatic reduction in the rate of UTIs for patients in NHS–provided care’ (Department of Health [DH], 2003; NHS Institute for Innovation and Improvement, 2009). Furthermore, the Safety Express campaign includes CAUTIs in its list of four avoidable harms that healthcare professionals should aim to reduce (Patient Safety First, 2011).

To prevent and control infection, it is crucial to maintain a closed drainage system between the urinary catheter and drainage bag and to keep this sterile (Foxley, 2011). Considering the different options of drainage system available and proactively managing continence care helps to reduce the risks associated with indwelling catheterisation (Simpson, 2001).
Drainage systems
These consist of either a leg and/or night bag. Patients who are bedridden or not very mobile, may only have a night bag, which has a larger capacity than a leg bag to allow the catheter to drain more urine before it needs to be emptied — these can be drainable or single use. More active patients who can take care of their own catheters usually have a leg bag attached to the catheter. Leg bags vary in the capacity they can hold, for example, the Libra Leg Bag range (Great Bear, Cardiff) has a capacity of 350–1000ml (Underhill, 2014). At night, leg bags can be connected to larger night bags, so that patients do not have to get up for emptying. In the author’s clinical experience, such drainage systems also help to reduce the risk of pressure ulcers developing, in that they prevent the skin from becoming damaged as a result of contact with urine.

Again, in the community, patient/carer education is crucial and nurses must ensure that anyone involved has a full understanding of the risks of infection and how these can be prevented.

However, from a review of the literature to establish best practice in the management of urinary catheter drainage systems, Jones et al (2008) found that there were conflicting recommendations about caring for reusable drainage bags and that further research was needed to provide evidence-based guidelines. In light of this, Jones et al concluded that single-use non-drainable night bags might be the safer way to reduce the risk of infection, despite the fact that they were not sterile and seven would be needed per week. However, since this review, Great Bear have added a sterile, single-use night drainage bag, GB3S, to their extensive range of single-use and drainable night bags (Figure 1).

GB3S
This sterile, single-use night bag has been specifically designed with vulnerable patients who are susceptible to infection in mind. Being single-use eliminates concerns over how best to rinse and care for the bag when not in use, and helps to prevent the risk of ascending cross-infection. It offers nurses and patients greater choice, as can be used both with urethral and suprapubic catheters and has in-built hanger holes enabling it to be suspended on a night stand.

It has a ridged connector, which fits securely to the sheath, catheter or leg bag, and its single-use T-tap makes it easy to use for those with limited dexterity, as well as being quick and clean to empty. To further reduce any infection risk, once activated it cannot be reused (Figure 3). This is a crucial element in the community, where nurses may have to educate patients/carers in the use of equipment — making equipment easier to understand again lessens the chances of infection.

The drainage bags also come individually packed in a peel pouch before being supplied in a polybag of 10 units, so that community nurses can better instruct patients/carers to use one bag at a time overnight.

GB4 AND GB4 FOLD-UP
The GB4 is a sterile, drainable two-litre drainage bag that can be connected directly to a leg bag, catheter or sheath. Its 180° lever action tap means that it can be used single-handedly, making it simple to operate and secure. The raised ridges enable instant recognition that the tap is open or closed. It can be used for 5–7 days and the wide bore tubing is flexible to help the flow of urine into the bag. In order to prevent the risk of needle stick injuries, the sample port is needle-free (Figure 4).

GB4 Fold-Up has all the features of GB4, namely ridged connector to fit securely, 180° lever action tap, and a needle-free sample port. However, it offers another option for a drainable night bag with its foldable lever action tap that allows the tap to be kept away from the floor or surfaces...
the tubing so that the outer surface remains smooth against the skin, reducing the risk of skin irritation or providing external crevices that could harbour bacteria.

CONCLUSION

Infection control and choice of catheter and drainage system are key aspects of catheter care in any healthcare setting (Bond, 2005). However, in the community where nurses may visit infrequently or have to educate patients and carers in how to maintain the catheter, having access to equipment that improves infection control is paramount.

If, after thorough assessment and exploration of other options, the decision is taken to catheterise a patient, where possible, they should be thoroughly involved in all aspects of the decision-making process, with their preferences being considered. They should also be fully informed as to how to manage their catheter, maintain hygiene and self-care (Prinjha and Chapple, 2013). Great Bear have developed a range of night bags that offer nurses and patients a choice of options that also help to prevent the risk of infection and provide ease of use.

REFERENCES


