

THE USE OF CATHETERS IN PATIENTS WITH URINARY INCONTINENCE

Urinary catheterisation is one of the primary treatments for patients with urinary incontinence and can be an intermittent or indwelling procedure, according to individual patient needs. It can be performed via the urethra or via an incision in the lower abdominal wall. Both have their advantages and disadvantages and this article considers best practice in both of these procedures.

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A urinary catheter is a hollow tube that is inserted into the bladder for the purpose of draining urine or instilling fluids/medication into the bladder. Urinary catheterisation can be performed as an intermittent or indwelling procedure, according to individual patient needs. It may be performed via the urethra (urethral catheterisation), or via an incision in the lower abdominal wall (suprapubic catheterisation).

Urinary catheterisation has been performed for thousands of years, with the earliest catheters being made from copper, tin, bronze or gold. The Chinese used hollow onion stems, dried reeds or lacquered palm leaves to make catheters (Bard, 1987).

In recent years, it has been recognised that urinary catheterisation may lead to significant health risks for the patient including (Lothian, 1998; Tew et al, 2005):

- » Urethral trauma, infection, stricture formation, perforation
- » Encrustation
- » Bladder calculi
- » Neoplastic changes.

Reasons for catheterisation include (Pomfret, 2007):

- » Relief of urinary tract obstruction
- » Prostatic hyperplasia
- » Acute or chronic retention of urine
- » Drainage of hypotonic bladder
- » Neurogenic bladder, suprasacral transection
- » Pre and post pelvic surgery
- » Accurate measurement of urinary output

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- » To drain the bladders of critically ill patients on intensive care units
- » To obtain an uncontaminated specimen of urine
- » To empty the bladder during labour
- » To irrigate the bladder
- » To remove clot retention

- » To administer intravesical chemotherapy
- » To provide cytotoxic therapy for papillary carcinoma
- » Urodynamic investigations
- » X-ray investigations
- » Videocystourethrography (measurement of bladder pressure under X-ray)
- » Management of urinary incontinence when all other methods are not applicable.

When deciding whether catheterisation is the optimum method of management, healthcare workers have to decide on the optimum method of catheterisation. This will depend upon the individual patient's needs and preferences.

OPTIONS FOR CATHETERISATION

Intermittent catheterisation

Intermittent self-catheterisation (ISC) is performed by the patient themselves and is probably the 'gold standard' when it comes to providing the optimum freedom for patients with regard to the time it takes to catheterise, minimum disruption of daily living, maximum personal/sexual freedom and lowest risk of infection.

When performed by a relative, carer or healthcare worker, the procedure is known as clean intermittent catheterisation (CIC) and can still offer the patient greater freedom and a lower risk of infection than indwelling catheterisation.

There is also an ever-increasing range of products available for the patient/carer to choose from, most of which are available on prescription. Modern hydrophilic-coated intermittent catheters are available in a variety of designs and sizes and offer an almost infinite range of choice. However, this in itself has led to debate regarding the optimum choice of catheter for individual patients (Clinical Continence Supervision Group [CCSG], 2005).

Indwelling urinary catheterisation

However, for some patients ISC is not a suitable option because of a lack of manual dexterity, insufficient bladder capacity or inadequate urethral pressure, which makes it impossible for them to maintain continence between episodes of catheterisation. In this case, indwelling urinary catheterisation is an option. This procedure has become easier and safer due to recent product development and availability, though it still carries a significant danger of urinary tract infection (Pratt et al, 2007).

Indwelling catheterisation is performed either via the urethra or via an incision in the lower abdomen, usually performed under local or general anaesthesia (suprapubic catheterisation). Foley catheters (that have a balloon to retain

the catheter in the bladder) are generally used for both urethral and suprapubic catheterisation, although there are specialist catheters used for suprapubic catheterisation in secondary care.

There is a wide range of Foley catheters available in both acute and primary care, although there is debate as to the optimum type of catheter, for example, latex versus non-latex catheters. (Association for Continence Advice [ACA], 2008). There is

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also controversy with regard to the coatings applied to catheters. In the author's experience, many healthcare workers have strong preferences for one type of catheter over another, usually based on clinical experience, patient assessment and which materials induce the least allergic response (Pratt et al, 2007).

Again, patient preference should be the major deciding factor in choosing the correct catheter.

PATIENT CHOICE

It is important to remember that indwelling catheterisation and ISC are not mutually exclusive. They can be combined and alternated according to individual patient needs and changes in circumstances. For example, patients with remitting/relapsing multiple sclerosis can use ISC/CIC during periods of

remission and revert to indwelling catheterisation during relapse.

Patients performing ISC may decide to insert an indwelling catheter when going on holiday or when they are unable to perform ISC for other reasons. This is a good use of resources and enables patients to have a more 'normal' lifestyle within the limits of their urinary disability.

URINARY DRAINAGE IN INDWELLING CATHETERISATION

There are two choices when it comes to draining the urine from the bladder in indwelling catheterisation, catheter valves or drainage bags. When using a valve, the patient's urine will be stored in the bladder and emptied through the catheter straight into the toilet. The other option is to allow the urine to flow freely through the catheter and collect in a drainage bag, which is secured to the patient's leg or kept on a stand by their bed.

The most commonly used technique is the drainage bag and there is a bewildering range available. *The Drug Tariff* (Department of Health [DoH], 2007) currently lists 33 manufacturers/distributors of body-worn drainage bags and night drainage bags, all of which have a wide range of products.

Leg drainage bags can be worn on the patient's thigh, knee or calf and this will determine the length of the inlet drainage tube. It is important that the optimum length of tube is selected, as if this is too short it will result in traction on the catheter. However,

inlet tubing that is too long can be curled up, kinked, or sat upon, causing blockage of the drainage channel and resulting in leakage and bypass of urine.

The capacity of leg drainage bags also varies considerably, although the most common adult capacities are 350ml, 500ml and 750ml. However, paediatric bags with a capacity of 120ml and adult bags that hold up to 1500ml are also available on prescription. The larger capacity bags are really only suitable for chair-bound patients or wheelchair users, due to the weight of urine that they hold.

Recently, Jones et al (2007) questioned the advice given regarding the optimum time/volume at which urine drainage bags should be emptied. With such varying capacities available, this will depend upon the individual patient's needs.

Night drainage bags

Night drainage bags provide sufficient capacity for the urine to be collected during the night without patients having to get up and empty them. The bags are connected directly to a catheter or penile sheath, which usually have a drainage tap to facilitate emptying. Night drainage bags, especially those with drainable outlets/taps, should not be allowed to come into contact with the floor due to the risk of infection. All types of taps must be considered 'open' in the microbiological sense as bacteria can easily gain entry (Blenkharn, 1988).

The bags should be used with a hanger, either on the bed or free-

standing. Unfortunately, these are not available on prescription in the UK but are usually available from community nursing services (DoH, 2007).

Closed link drainage systems

Night drainage bags can also be used in conjunction with a body-worn bag to form what is known as a link-drainage system. These night drainage bags often do not have a drainage tap and are for single-use only. The link system is designed to reduce the risk of infection that accompanied the previous practice of disconnecting the leg bag in the evening and connecting a night bag, only to disconnect the night bag in the morning and reconnect the leg bag (DoH, 1993).

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For patients who are using indwelling urinary catheters of any kind, it is important to maintain a 'closed drainage system' by connecting the catheter, body-worn bag and night drainage bag as a continuous unit. This helps to reduce the risk of urinary tract infection (Wilson, 1998; Pratt, 2007).

Leg bags are normally kept in place for 5–7 days (DoH, 2007) and a non-drainable night bag should be used once at night, then discarded. There is controversy regarding the re-use of drainable urine bags for night-time use and more research is required on this subject (Jones et al, 2007).

CATHETER CARE

The most common problems associated with catheter care, apart from infection, are encrustation and blockage of the internal and external surfaces of the catheter.

Approximately 50% of people who use long-term catheters will experience problems with encrustation and blockage (Kunin et al, 1987).

Catheter blockage and leakage is traumatic for both patients and carers and prevention is a priority. However, there is conflicting evidence as to the efficacy of the bladder washouts/catheter maintenance solutions that are used to prevent the build-up of encrustation. Pratt et al (2007) found three studies suggesting that acidic washout solutions can be effective in reducing catheter encrustation, although evidence from best practice suggests that the introduction of such agents may have local toxic effects and contribute to the development of resistant micro-organisms.

An alternative to bladder washouts/catheter maintenance solutions is the completion of a 'catheter diary' to record the history of routine catheter blockages. This enables healthcare workers to plan catheter changes and ensure that the encrustation does not have the chance to take hold. Obviously, individual care plans are needed for all patients but planned catheter changes are preferable to calling out medical and specialist nursing staff to deal with blocked catheters.

Another aspect of catheter care is fluid intake and in the past patients with indwelling catheters were advised to maintain a high fluid intake in order to prevent infection. Getliffe (1993) disproved the effectiveness of this technique, although a good fluid intake will result in a diluted urine output, allowing the use of smaller gauge catheters. These can reduce the incidence of urethritis and constipation, which in turn can result in the catheter being expelled (Getliffe, 1993; Rigby, 1998; Pomfret 2006).

Meatal hygiene, the cleansing of the catheter's entrance into the body, is an important aspect of catheter care and has been the subject of many studies. Mulhall et al (1988) found that meatal hygiene did not prevent infection due to urinary catheters. Expert opinion today supports the view that vigorous meatal cleansing is not necessary and may increase the risk of infection. Daily routine bathing or showering is all that is needed to maintain meatal hygiene (Pratt et al, 2007).

CONCLUSION

There are many issues involved with catheter care, but probably the most important for the patient is quality of life.

Catheters can and do result in major complications for patients through infection (Tew et al, 2005). However, if managed effectively they also provide a better quality of life for the vast majority patients.

All healthcare workers involved in catheter care need to work

together with their patients to help them choose the optimum method of catheterisation that will ensure an increased quality of life. **CE**

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Key Points

- » A urinary catheter is a hollow tube that is inserted into the bladder for the purpose of draining urine, or instilling fluids/medication into the bladder.
- » Urinary catheterisation can be performed as an intermittent or indwelling procedure, according to individual patient needs.
- » There are many issues involved with catheter care, but probably the most important for the patient is quality of life.
- » Catheters can and do result in major complications for patients through infection. However, if managed effectively they also provide a better quality of life for the vast majority patients.

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