Urinary catheters 5: teaching patients how to use a catheter valve

Uринary catheterisation is associated with a number of complications including catheter-associated urinary tract infection (CAUTI), tissue damage, and bypassing and blockage. The risk of complications means catheters should only be used after considering other continence management options, and should be removed as soon as clinically appropriate (Loveday et al, 2014).

During the insertion procedure, tissue trauma and poor aseptic technique can lead to CAUTI; this risk continues as long as the catheter is in place. Appropriate catheter drainage and support devices, along with hand hygiene and associated infection prevention strategies, can reduce this risk.

Catheterisation can have a profound effect on patients’ lifestyle and sexual relationships (Prinjha and Chapple, 2013; Royal College of Nursing, 2012). It is vital that they are involved in the selection of drainage devices such as catheter bags and catheter valves, and that their ability to manage these independently is assessed.

The traditional method of free drainage into a urine drainage bag can cause problems for some patients (Van den Eijkel and Griffiths, 2006). As the bag fills, it becomes heavy and uncomfortable, which can be socially restricting and cause anxiety and embarrassment. This method can also result in the loss of normal bladder function as continuous urine drainage means the detrusor muscle of the bladder wall is not able to stretch and relax in response to bladder filling and emptying (Fig 1).

Catheter valves have been available for many years and are a popular alternative to the more customary urine drainage bag. These tap-like devices fit into the end of a urethral or suprapubic catheter, allowing urine to be stored in the bladder and then emptied into a toilet or receptacle at regular intervals during the day. They can help maintain bladder function, capacity and tone by allowing the filling and emptying of the bladder, mimicking normal function.

Catheter valves are particularly useful for people who:

- Require long-term catheterisation, as they do not require a drainage bag (Dougherty and Lister, 2015);
- Have failed a trial without catheter, as using valves can preserve bladder capacity and function;
- Require help with bladder retraining before a long-term catheter is removed.

The advantages of catheter valves are listed in Box 1.

**Box 1. Benefits of catheter valves**

- Allow the bladder to fill and empty, maintaining normal function
- Reduce the risk of catheter blockage because the catheter is intermittently flushed with urine (Sabbuba et al, 2005)
- Potentially reduce the risk of infection as intermittent drainage flushes the catheter with urine (Health Talks, 2015)
- Reduce the risk of cross infection as catheter valves are generally operated by the patient rather than carers
- Reduce trauma to the bladder wall as it is lifted away from the catheter when the bladder contains urine
- Offer more-discreet continence support than leg bags
- Reduce traction on the bladder neck and associated trauma caused by the weight of urine in drainage bags
- Help maintain independence as the catheter valve is closed off, except when the bladder is drained 4-5 times per day
- Can promote activities that are difficult for individuals to manage with a urine drainage bag, such as swimming

Assessment

A full patient assessment is required before using a valve as some patients may not be suitable (Fig 2a). Cautions that should be considered are outlined in Box 2. Poor manual dexterity is often cited as a problem that may prevent a patient from using a catheter valve. However, it could be argued...
that patients with catheters need to be able to manipulate the valve on a drainage bag, which involves a similar technique to using a catheter valve; the critical issue is how much help they require to do this.

A patient may have access to help so they can empty a drainage bag twice a day, but catheter valves need to be released every 3-4 hours, and help may not be readily available so frequently. It is essential that valves are released that often to ensure the bladder does not become over-distended with urine as this can cause pain and discomfort as well as bypassing, when urine leaks around the catheter. Allowing regular over-distension of the bladder to occur can also have a detrimental effect on renal function.

**Types of catheter valve**

A number of different types of catheter valves are available on prescription in England and Wales; however, some characteristics are common to all of the various types. They are:
- Single-use devices;
- Should be replaced every 5-7 days;
- Approximately 8-10cm long and weigh about 10g;
- Made from a range of materials but all are latex free;
- CE marked;
- Sterile packed.

Valves attach to the indwelling catheter via either a smooth (Fig 2b) or ridged (Fig 2c) connector; there are three main types of tap: lever, twist and bayonet (Fig 2d).

**Helping patients and carers to attach a catheter valve**

Patients changing their own catheter valve should use a clean technique and be taught to:

1. Empty their bladder before removing the valve if possible, to prevent urine leakage during the procedure.
2. Wash their hands thoroughly with soap and hot running water to reduce the risk of infection.
3. Remove the old valve and attach the new sterile valve without touching the end connecting to the catheter. This helps to reduce the risk of CAUTI.
4. Dispose of the used valve in general waste.
5. Wash their hands again.

A securing device, such as a leg strap, can be used to support the catheter and valve (Health Talks, 2015); this will help reduce movement of the catheter which can lead to trauma and CAUTI.

When carers change patients’ catheter valves they should use a clean technique and put on gloves after washing their hands but before handling the catheter valve; they should then follow steps 3-5 of the procedure that has been outlined above.

The nurse should document in the patient’s notes:
- The type of valve used;
- Batch/lot numbers (if available) in case of failure;
- Date of valve change;
- Next due date for changing.

**Helping patients attach a drainage bag to the valve**

If patients need a drainage bag for part of the day or night, they (or their carer) can attach it to the end of the catheter valve by pushing the connector of the bag into the inlet of the valve. They should:

1. Wash their hands thoroughly with soap and hot running water before connecting the bag. The patient or carer should then put on gloves.
2. Attach the connector of the bag by pushing it into the islet at the end of the valve.
3. Avoid contact with the connector of the bag as this helps to reduce the risk of CAUTI.

**Device selection**

Selecting the right device for the individual patient will optimise patient care. It is important that health professionals consider the characteristics not only of the individual patient but also of the individual valve, and that patients have an opportunity to try out different devices and find the one that suits them. How to use the valve should be clearly explained and demonstrated, and information with text and pictures should be supplied.

Valves should fit securely without excessive effort and should not become loose. Some are easier to open than others; this may be an important issue if the patient has poor dexterity (Fig 2e). The valve should resist accidental opening, and should be leak free and discreet.

**Procedure**

In hospitals, catheter valves should be connected by staff using an aseptic technique. They should be changed when clinically indicated or in line with the manufacturers’ guidelines – which usually states every 5-7 days.
4. Open the catheter valve once the bag is attached, so urine can drain into the bag.

Leg bags that are used during the day should be secured onto the leg (Fig 2f). Overnight, a night drainage bag should be attached to a catheter stand. The stand should be positioned below the level of the bladder to allow free drainage and prevent reflux of urine into the bladder, which might cause urine to bypass the catheter.

Ureteric reflux (urine flows from the bladder back to the kidneys) - can put kidney function at risk.

Individuals at risk of this include men with acute or chronic retention of a significant amount of urine due to having an enlarged prostate or prostate problems.

Renal impairment

Small bladder capacity – the valve will need to be released more frequently, which can be inconvenient for the patient.

Poor manual dexterity – patients will need to operate the valve every 3-4 hours.

Valves should not be used after prostate or bladder surgery as pressure caused by a distended bladder may lead to bladder perforation (Dougherty and Lister, 2015). An indwelling urinary catheter is usually required for a short post-operative period and free drainage is the preferred method.

Patient information

Professionals and patients must understand the device being used and how to obtain adequate supplies. Patients need the telephone number of a health professional who they can contact with any questions or concerns. NT

References


Urinary catheter series Date
Part 1: Male catheterisation Jan
Part 2: Female catheterisation Feb
Part 3: Catheter care Mar
Part 4: Intermittent self-catheterisation Apr
Part 5: Catheter valves May
Part 6: Catheter removal Jun