Intermittent self-catheterisation

Intermittent self-catheterisation (ISC) has reduced infection hazards and greatly improved the lives of many patients with micturition disorders. The technique is used by male and female patients who experience neurogenic bladder dysfunction or voiding difficulties. Some of the most beneficial results associated with ISC have been reported when the technique is used by people with spina bifida, paraplegia or multiple sclerosis. ISC is the preferred course of management for patients with a hypotonic bladder (a floppy bladder that is unable to contract partially or totally during the micturition cycle).

Intermittent self-catheterisation has also been successful in the management of urethral strictures, where the catheter is not always completely inserted into the bladder but used as a dilator. It is extremely important that the site of the stricture is clearly recorded by the urologist, to ensure that appropriate instructions are given to the patient.

Age is no barrier to performing ISC. Children as young as five years of age can be taught this technique and parents of younger children can learn to catheterise their child.

Older people have also been able to successfully master this technique given adequate time and understanding of their specific needs. For example, arthritic joints may restrict movement and the patient may require adaptation to toilet facilities to assist with performing ISC.

**Definitions**

Intermittent catheterisation can be defined in three ways:

- **Intermittent self-catheterisation** – The patient intermittently passes a catheter into the bladder to assist in the drainage of urine when normal voiding is not possible. This is a clinically clean procedure undertaken by the patient;

- **Intermittent catheterisation** – The relative or carer intermittently catheterises the patient to assist in the drainage of urine where normal voiding is not possible. This is a clinically clean procedure undertaken by the relative or carer always with the full consent of the patient. It is important that good handwashing practice is explained and demonstrated to the person who is going to perform the technique;

- **Intermittent catheterisation by medical professionals (doctors or nurses)** – This is performed in an acute or emergency situation to relieve retention of urine in the bladder before decisions are made about the future management of a patient’s bladder problem. This is not safe to continue over a long period as: staff are not always available at a set time and the bladder must not be allowed to overfill; staff require specific training (special caution is required in paediatrics); there is a high risk of the patient acquiring an infection.

In some circumstances, there may be special arrangements for professionals to periodically use intermittent catheterisation with patients with chronic hypotonic bladder. It is vital to consult local agreements and protocols. When a health care professional performs ISC, a sterile technique must be used.

**Reasons for ISC**

Some of the common types of bladder dysfunction that may require ISC as part of the management process are described below. However, it is important to remember that some patients may have a combination of problems – for example an unstable bladder with a large residual of urine may require treatment with anticholinergic drugs as well as ISC.

**Neurogenic bladder**

The bladder may fail to empty or fill completely, resulting in retention of urine in the bladder and/or incontinence due to failure to void urine appropriately or to store it.

The site of neurological damage may be associated with specific continence problems (Box 1). Damage to the nerves and muscles of the pelvic floor can be caused by obstetric trauma, constipation and straining at stool, congenital abnormalities, and gynaecological or anal surgery or injury.

Most patients suffering from these types of bladder dysfunction will have had investigations performed prior to starting ISC. Investigations include:

- Urodynamic studies;

- Micturating cystogram;

<table>
<thead>
<tr>
<th>SITE OF NEUROLOGICAL DAMAGE</th>
<th>ASSOCIATED CONTINENCE PROBLEM</th>
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<tbody>
<tr>
<td>Cerebral cortex damage</td>
<td>Urge or reflex incontinence</td>
</tr>
<tr>
<td>Brain stem damage</td>
<td>Overflow incontinence</td>
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<tr>
<td>Spinal cord damage</td>
<td>Overflow or reflex incontinence</td>
</tr>
<tr>
<td>Peripheral nerve damage (hypogastric, pudental, pelvic nerves)</td>
<td>Overflow incontinence</td>
</tr>
</tbody>
</table>
Ultrasound scan and/or intravenous urogram.

**Outflow obstruction** This is more commonly found in males rather than females and is often associated with prostatic enlargement, urethral stricture or chronic constipation. The patient presents with frequency, passing small volumes of urine preceded by hesitancy, poor urine flow and the occasional post-void dribble, urgency and nocturia. Sometimes a constant dribble can occur if there is a large residual of urine in the bladder.

**Detrusor hypoactivity** This occurs when the bladder is unable to sustain or provide an adequate contraction. This results in a failure of the bladder to empty completely. The sensation of bladder filling may be absent or reduced and the bladder may have an enormous capacity. Large residuals of urine may present as overflow incontinence with or without frequency. This condition is usually the result of nerve damage and is found in people with diabetes, pelvic floor injury, multiple sclerosis (Fowler, 1996) and occasionally after prostate surgery (Guttmann and Frankel, 1966). Possible consequences of urine retention include infection in the urine or kidney damage.

**Reflex incontinence** This occurs when there is spinal cord damage; the normal impulses do not pass between the sacral reflex arc and the brain. As a result, the spinal reflex arc controls micturition and the patient is not aware of the desire to pass urine.

**Surgical procedures** Surgical procedures, particularly colposuspension, may necessitate patients performing ISC. Those with a high risk of experiencing bladder dysfunction after their operation are generally taught the procedure prior to surgery. Any major surgical bladder reconstruction, for example a clam cystoplasty, may also require ISC as part of a long-term management plan.

**Urethral stricture and prostatic enlargement** Enlargement of the prostate, either benign or malignant, is not the only cause of urinary retention. Previous surgery involving the bladder neck may lead to stenosis in this area. This culminates in retention of urine and/or bladder neck dyssynergia (when the urethral sphincter fails to relax or contract as the bladder contracts to void urine).

When retention of urine is due to an enlarged prostate, it is not advisable or usual to use ISC as this may damage the neck of the bladder. However, ISC is appropriate in the treatment of detrusor sphincter dyssynergia.

Urethral strictures most commonly occur in men. A stricture (narrowing of the urethra) results from scarred tissue that can occur after infection (urethritis) or trauma.

The most common sites for strictures are the external meatus and at the peno-sacral junction. These strictures are often associated with instrumentation such as urethral catheterisation. Strictures can extend along the length of the mid-urethra following a gonococcal infection. A ruptured membranous urethra will often heal as a stricture.

Treatment involves regular stricture dilatation or optical urethrotomy. ISC technique is used to maintain patency of the urethra and has become an accepted treatment for strictures. It is vital that the urologist clearly states the area where the stricture is situated.

**Who should teach ISC?** Nurses usually teach the ISC technique. It is important that they are fully conversant with relevant guidelines laid down by their trust and take into consideration their own professional accountability.

Specific areas to be considered include: giving information about ISC; the role of consent; and the protection of the child/adult from abuse, whether physical, psychological or sexual. The instructor needs to be alert to the sexual anxieties of the patient, be supportive and stress the positive values of ISC.

A sympathetic approach must be provided by those involved in teaching ISC; equally important is the attitude and motivation of the patient when faced with a totally new approach to a bodily function. It is extremely important to consider the practicalities of performing the technique in the patient’s home.

**How often should the patient catheterise?**

The frequency of ISC is dependent upon the individual patient’s needs. A useful guide is based on the measurement of voided volumes and residual urine. It is desirable that:

\[
\text{voided urinary volume} + \text{residual volume} = \text{less than 500 ml}
\]

It is not advisable to exceed a volume of urine in the bladder of 250ml as this potentially leads to recurring urinary tract infections.

ISC is usually not beneficial to the patient if the bladder capacity is lower than 100ml and residual volumes are lower than 50ml (a total capacity of 150ml). In this case, catheterisation would be required too frequently.

If the patient is wet between catheterisations, he or she may require catheterisation more frequently. If the patient also has some detrusor instability (urgency), he or she may require ISC plus an antimuscarinic drug.
which reduces instability and increases bladder capacity.

It is vital that a comprehensive fluid chart is maintained for at least two weeks after commencing ISC to ensure that a correct and safe management plan has been implemented. Fluid intake is also an integral part of establishing ISC. Adequate and appropriate fluids intake should be discussed with the patient to suit his or her individual need.

**Stricture dilatation** Stricture dilatation usually starts with three catheter insertions a day, culminating in a weekly dilatation with a size 18 FG catheter where possible. The stricture programme can differ with each patient, so always check with the urologist.

**Programme for teaching ISC** This should include the following stages:
- Patient selection;
- Discussing the procedure with the patient;
- Observation of the patient’s technique (Table 1).

All patients must be followed up two weeks after commencing the treatment and subsequently at 6–12 month intervals to ensure safe practice.

**Catheter selection** A large range of self-lubricating hydrophilic-coated catheters is now available. These catheters are for single-use only as the lubricant reduces with subsequently catheterisation. Low-friction catheters have been shown to cause less urethral trauma than PVC catheters (Hellstrom et al, 1991).

It is essential that patients, when proficient in the technique, can choose their own brand of catheter. The differences in types of catheter may seem small but allowing patients to choose can be a determining factor in their comfort and compliance.

Hydrophilic-coated catheters have been shown to be safe and comfortable for patients to use (Medical Devices Agency, 2000).

**Urinary tract infections** ISC is associated with a reduction in urinary tract infections (Bakke and Digranes, 1991). E. coli is a bacteria often isolated in the urine of patients who self-catheterise.

However, in most cases the patient is asymptomatic and treatment with antibiotics is not recommended. Bacteria in the urine can be the result of poor technique and/or an increase in residual urine volumes.

Cranberry juice has been reported to inhibit the development of bacteria in the urinary tract (Avorn et al, 1994). Although most studies have been poorly controlled, the author notes that drinking 2–3 glasses of cranberry juice a day has reduced urinary tract infections in many patients practising ISC.

When a patient is learning ISC, and especially when there is a history of urinary tract infections and related medical conditions, it may be prudent to give a course of antibiotics. However, this is not routine practice.

**Reasons why ISC is abandoned** ISC is often abandoned due to poor patient compliance. This is often related to the patient finding the technique unacceptable or being unable to adapt to the technique, or if there is a deterioration in the patient’s general condition.

It is vital that the patient is committed to the procedure, and although the instructor can use firm persuasion, the patient should not feel bullied into using ISC.

**Pregnancy and ISC** During pregnancy it is safe to continue ISC although there are additional points to be aware of:
- Positions used for ISC may require adjustment as the pregnancy progresses;
- The urethra elongates in later stages of pregnancy and the patient may require a longer-length catheter for this period;
- Due to normal effects of pregnancy the patient will experience frequency and leakage may occur;
- Alternative methods of management may be necessary;
- Obstetricians and midwives must be aware of potential bladder problems and adjust management accordingly during pregnancy, labour and puerperium.

**Summary** ISC is proven to be beneficial to patients, not only medically but also in respect to quality of life. It remains essential that nurses are conversant with the complex needs of patients and skills required to teach ISC, in order to ensure the safe care and management of this patient group.

TABLE 1. FACTORS TO BE CONSIDERED WHEN TEACHING ISC

<table>
<thead>
<tr>
<th>Patient selection</th>
<th>Well motivated, good cognitive skills, manual dexterity, physical ability</th>
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<tbody>
<tr>
<td>Patient discussion</td>
<td>Knowledge regarding anatomy and reasons for ISC, type of bladder instability</td>
</tr>
<tr>
<td>General discussion</td>
<td>Personal hygiene, storage and disposal of catheters, travel, lifestyle</td>
</tr>
<tr>
<td>Health issues</td>
<td>ISC problem-solving, diet, sexual activity, exercise</td>
</tr>
<tr>
<td>Observations</td>
<td>Observe technique</td>
</tr>
</tbody>
</table>

**FURTHER INFORMATION**
The Association for Continence Advice’s ACA Notes on Good Practice document is available free to all full members of the ACA. Non-members or members wishing to purchase additional copies of the document may order them from the Association for Continence Advice, 102a Astra House, Arlow Road, New Cross, London SE14 6EB; tel: 020 8692 4680; fax: 020 8692 6217; e-mail: info@aca.uk.com

Website: [www.aca.uk.com](http://www.aca.uk.com)

The cost of the document is £50.

Contents include: good practice in consent; examination and assessment of the female pelvic floor; examination and assessment of the male pelvic floor; therapeutic use of neuromuscular electrical stimulation; continence and cultural sensitivities; urethral catheterisation; supra-pubic catheterisation; and catheter maintenance solution.