

AN INTRODUCTION TO BLADDER DYSFUNCTION

Millions of adults in the UK cannot control their bladder as they would wish. Regardless of the speciality in which they work, it is likely that some part of most healthcare workers' working day will be spent helping patients who have one or more continence problems. This article provides a basic introduction to the subject of bladder dysfunction and an insight to the groups of patients it may affect.

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Continence care is a fundamental component of nursing care. There will be few healthcare workers who have never cared for a patient experiencing some degree of bladder or bowel dysfunction and regardless of the speciality in which they work, it is likely that some part of most healthcare workers' working day will be spent helping patients who have one or more continence problems.

These problems can occur due to physiological dysfunction affecting either the bladder or the bowel, or as a result of an environment that fails to support the patient's continence needs.

Many healthcare workers may not have previously considered actions such as assisting a patient to walk safely to the toilet to be continence care. However, failure to provide appropriate care in situations like these can have serious consequences for a patient's continence status.

Worryingly, many healthcare workers feel their knowledge of continence care provision is limited (Dingwall and Mclafferty, 2000). However, Dimond (2007) explains that once care is provided, there is a duty under the law of negligence for it to be of a reasonable standard. This includes working to national guidance or standards.

A wealth of documents now exist that guide healthcare workers in the delivery of

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continence care, including *Good Practice in Continence Services* (Department of Health [DoH], 2000), *Management of Urinary Incontinence in Primary Care* (SIGN, 2004), *Urinary Incontinence: the management of urinary incontinence in women* (National Institute for Health and Clinical Excellence [NICE], 2006), and most recently *Faecal Incontinence: the management of faecal incontinence in adults* (NICE, 2007).

However, in order for healthcare workers to deliver safe and appropriate continence care, they must first ensure they have a sound understanding of the types of bladder and bowel dysfunction that are likely to affect the patients they care for. This ensures healthcare workers have a clear understanding about why specific practices should be implemented and more importantly, the consequences for both the patient and themselves if they fail to follow relevant guidance.

This article aims to provide a basic introduction to the subject of bladder dysfunction and an insight to the groups of patients it may affect.

BACKGROUND

At least six million adults in the UK cannot control their bladder as they would wish (Continence Foundation, 2007). Many of these people will adopt a range of coping strategies in order to try and minimise the effect of poor bladder control, including (Brocklehurst, 1993):

- ▶▶ Avoiding social interaction
- ▶▶ Toilet mapping
- ▶▶ Carrying spare clothes
- ▶▶ Avoiding long journeys.

However, regardless of the coping strategies used, the individual's quality of life is often adversely affected (Lekan-Rutledge, 2004).

Despite a range of treatment options being readily available, many people will put off seeking help for months, sometimes years. It is well-reported that many people find it difficult to talk to healthcare workers about their continence symptoms and often have difficulty finding the right terminology (Brittain et al, 2001). However, neither is the situation easy for healthcare workers trying to broach the subject and many view incontinence as a condition to be contained with products rather than treated.

The assumption that urinary incontinence is inevitable, particularly in older people, remains common (Dingwall and McLafferty, 2006). There are few areas of healthcare provision where such sweeping assumptions lead to potentially treatable conditions being ignored, leaving patients with a reduced quality of life.

WHAT IS URINARY CONTINENCE?

The state of 'being continent' can only be achieved if individuals are able to maintain complex processes involving nerve impulses, muscle relaxation and a range of mobility, dexterity and communication skills, some of which are learnt as very young children (*Table 1*):

In order to remain continent you must be able to:

- ▶▶ Initiate micturition at an appropriate time

Table 1

Urine storage and voiding

Storage phase

The bladder fills as the ureters empty urine from the kidneys. The walls of the bladder relax and stretch. This reflexively causes the bladder neck and external urethral to contract. At a certain volume, the perception of the urge to void is felt. If it is inconvenient to void, a voluntary contraction of the pelvic floor muscles results in further storage of urine

Voiding phase

When a conscious decision to void is made a series of reflexes occur. The pelvic floor and external urethral sphincter are consciously relaxed. The detrusor contracts, causing an opening of the bladder neck and urine flows into the urethra

- ▶▶ Voluntarily delay the onset of micturition
- ▶▶ Recognise socially acceptable places to micturate
- ▶▶ Have sufficient mobility and dexterity to reach and use a toilet.

Continence status can also be influenced by problems in the renal system, such as bladder dysfunction, and weakness in the muscles of the pelvic floor (*Table 2*).

WHAT IS BLADDER DYSFUNCTION?

The term bladder dysfunction covers a huge range of problems, all of which have the potential to cause the patient great distress. Most commonly these problems include patients who (Williams, 2004):

- ▶▶ Need to hurry to the toilet
- ▶▶ Need to empty the bladder frequently
- ▶▶ Wet themselves before getting to the toilet
- ▶▶ Leak urine during exertion, such as coughing
- ▶▶ Have to urinate several times during the night
- ▶▶ Wet the bed.

There are numerous reasons why a patient may experience

one or all of these problems. It is, therefore, absolutely essential that any underlying pathological or metabolic conditions that might explain these symptoms are excluded as quickly as possible (Abrams et al, 2002).

For example, needing to empty the bladder frequently may be the result of high blood glucose concentrations that affect the functioning of the kidneys resulting in an osmotic diuresis. Failure to identify this can have serious consequences for the patient.

Healthcare workers are in a prime position to identify bladder dysfunction in people who may not have previously reported their problem (Williams, 2004). However, given the difficulties some patients have in finding the correct terminology and the reported deficits in healthcare workers' education in relation to continence care, there is great potential for misunderstandings.

Confusion can be reduced if standardised terminology, such as that developed by the International Continence Society, is incorporated into routine clinical

Table 2

The renal system and pelvic floor

Kidneys	Two kidneys which lie on either side of the vertebral column at the level of the twelfth thoracic to the third lumbar vertebrae. They are situated behind the peritoneum and are attached by adipose tissue to the posterior abdominal wall. The kidney fulfils a vital role in maintaining the volume and composition of the bodily fluids. Twenty-five per cent of the cardiac output is delivered to the kidneys each minute The final volume of urine produced each day by an adult in health is in the range of 1-1.5 litres, although its volume and composition vary depending on fluid intake, diet and extrarenal losses of water and electrolytes, for example in sweat and expired air
Ureters	The two ureters are hollow tubes which extend from the renal pelvis to the posterior wall of the bladder. In adults each ureter is approx 25cm long and lies behind the peritoneum. The wall of the ureter is formed by layers of smooth muscle, lined inside by mucous membrane. Urine is propelled down the ureters by the peristaltic contractions of the muscles, from the kidney into the bladder. Backflow of urine from the bladder back up to the kidneys is prevented by the oblique angle taken by the ureters as they pass through the bladder wall. Renal stones may pass into the ureters and obstruct the flow of urine. If a stone blocks the ureter, a sudden onset of severe loin pain (colic) usually occurs.
Bladder	The bladder is a hollow organ that when empty lies low in the pelvis and expands upwards and forwards in the abdomen as it fills. It is made up of four layers: An outer layer of partial peritoneum A smooth muscle layer (the detrusor) A submucous layer, with a nerve and blood supply An inner layer lined with transitional epithelium. The bladder is anatomically divided into two segments: the body and the base. The base is known as the trigone. The body is known as the detrusor (Rigby, 2003). The bladder has two functions, storage and voiding. The average adult bladder capacity is 400–600mls
Urethra	The urethra extends from the neck of the bladder to the external urethral opening (meatus). In the female the urethra is approximately 4cm long. In the male it is approximately 20cm long
The pelvic floor	The pelvic floor provides a sling-like support for the organs of the lower pelvis, including the bladder. In addition to providing support, it also contributes to the action of the external sphincter in maintaining urethral closure. It consists of the pubococcygeus, iliococcygeus and ischiococcygeus muscles. These muscles are comprised of slow and fast-twitch fibres. Slow-twitch muscle fibres are not easily fatigued and can sustain contraction for a long time with concurrent occlusion of the urethral lumen. Fast-twitch muscle fibres tire easily and are responsible for the fast reflex response associated with coughing or sneezing

practice (Abrams et al, 2002) (Table 3). Once familiar with these terms, healthcare workers will find it much easier to identify the type of bladder dysfunction patients are experiencing.

OVERACTIVE BLADDER SYNDROME

Overactive bladder syndrome is defined as ‘urinary urgency with or without urge urinary incontinence and usually

including frequency and nocturia’ (Abrams et al, 2002).

There are many reasons why a patient may develop an overactive bladder. However, patients with neurological conditions such as multiple sclerosis, Parkinson’s disease and stroke are at greater risk of developing this problem as a result of loss of inhibitory impulses from the brain. The complex nature of the neural

control of the lower urinary tract makes complaints about bladder function more common in patients with neurological disease.

While overactive bladder is common in this patient group, it must be remembered that problems with effective bladder emptying may also co-exist. In these cases, the detrusor contraction that is used when voiding may also be ineffective as a result of damaged nerve pathways. This can lead to incomplete bladder emptying.

Careful questioning supplemented by investigations such as portable bladder scanning is essential to identify this type of problem.

As previously mentioned, normal micturition relies on relaxation of the urethral sphincter and contraction of the detrusor muscle. Many patients with neurological disease will experience a lack of coordination between detrusor contraction and sphincter relaxation, which results in a condition called detrusor-sphincter dyssynergia.

When this occurs, the patient will feel a strong desire to pass urine but is unable to do so as the sphincter will not relax. Unfortunately, for many patients sphincter relaxation occurs a little while after they have left the toilet leading to unpredictable and uncontrollable urinary incontinence.

While not a life-threatening condition in itself, overactive bladder can increase a patient’s

risk of falling by up to 30% as it causes people to rush to get to the toilet or slip on voided urine (Brown, 2000). This is of particular concern if caring for elderly patients.

STRESS URINARY INCONTINENCE

Stress urinary incontinence is the complaint of involuntary leakage on exertion or sneezing or coughing. It is the most common type of incontinence and occurs if intra-abdominal pressure is raised, for example, when a patient coughs or in severe cases simply gets up from a chair. If the muscles of the pelvic floor and the urethral sphincter are unable to contract in response to this rise in pressure, stress leakage will occur. Although it can occur in both sexes it is more common in women.

Damage to the pudendal or pelvic nerves (usually occurring during childbirth) and changes in urethral position (due to pelvic floor dysfunction), can cause continence problems for some women (Williams, 2004). Increasing age, obesity and further pregnancies will increase a woman's risk of developing stress urinary incontinence.

It should also be remembered that during the menopause circulating oestrogen levels fall, affecting the oestrogen-sensitive tissue of the urethra and reducing its closing efficiency – this increases the risk of stress leakage occurring.

Stress urinary incontinence can affect women of any age who will typically wait several years

Table 3

The standardisation of terminology in lower urinary tract function (Abrams et al, 2002)

Urinary Incontinence	The complaint of any involuntary leakage of urine
Increased daytime frequency	The complaint by a patient who considers that he/she voids too often during the day
Urgency	The complaint of a sudden compelling desire to pass urine that is difficult to defer
Urge urinary incontinence	The complaint of involuntary leakage (of urine) accompanied by, or immediately preceded by, urgency
Nocturia	The complaint that the individual has to wake at night one or more times to void
Nocturnal enuresis	The complaint of loss of urine occurring during sleep
Slow stream	The patient's perception of reduced urine flow, usually compared with previous performance or in comparison to others
Intermittent stream	The patient describes a urine flow that stops and starts on one or more occasion during micturition
Hesitancy	The patient describes difficulty in initiating micturition., resulting in a delay in the onset of voiding after the patient is ready to pass urine
Straining	Describes the muscular effort used to initiate, maintain or improve the urine flow
Terminal dribble	The patient describes a prolonged final part of micturition, when the flow has slowed to a trickle or dribble
Post micturition dribble	The patient describes an involuntary loss of urine immediately after finishing passing urine, usually after leaving the toilet in men and after rising from the toilet in women

before seeking help. Data from a European epidemiological study has shown that although older women experience more severe symptoms, it is younger women who are most affected by their symptoms and are most likely to seek help (Hannestad et al, 2000).

Fear of leakage can prevent women from leading normal lives because routine tasks are potentially stressful and embarrassing.

While stress urinary incontinence predominately affects females, it can occur in men, particularly following surgical procedures such as radical prostatectomy and transurethral resection of the prostate.

Pelvic floor exercises can help this group of patients. However,

it is important that they are taught correctly. Techniques which focus specifically on fast-twitch muscle fibres can be performed during times of increased intra-abdominal pressure, such as coughing or lifting, and can be successful in preventing or minimising urinary leakage.

MIXED INCONTINENCE

It is not unusual for a patient to describe symptoms of both overactive bladder syndrome and stress urinary leakage. This type of bladder problem is called mixed incontinence and is defined by the ICS as, 'The complaint of involuntary leakage (of urine) associated with urgency and also with exertion, effort, sneezing or coughing.'

Mixed incontinence can occur for a variety of reasons, for example, a woman may develop stress urinary incontinence as a result of pelvic floor damage during childbirth. Many years later she may then have a stroke and develop overactive bladder as a result of damaged nerve pathways. She will therefore have two separate bladder problems, both of which cause bladder dysfunction.

This type of problem can be quite difficult to treat. It is recommended that the most troublesome symptoms are treated first, therefore, careful questioning is required to ascertain which symptoms are most bothersome for the patient.

OVERFLOW INCONTINENCE

Any obstruction that affects the outflow of urine from the bladder can cause incomplete bladder emptying. The obstruction can be an enlarged prostate gland in the male patient, or faecal impaction in either sex. The impact of the obstruction will vary in each patient, but generally the patient will complain of slow or intermittent urinary stream, hesitancy, straining and terminal or post micturition dribble.

Some or all of these symptoms may be present and usually indicate that the patient is experiencing difficulties emptying his or her bladder effectively. If the bladder is not fully emptying, passive continuous dribbling can occur and this is termed overflow incontinence. If the

obstruction remains, or increases in size, there is a possibility that retention of urine can occur. There are two types of urinary retention:

- ▶▶ Acute retention of urine: a painful, palpable or percussable bladder and when the patient is unable to pass any urine
- ▶▶ Chronic retention of urine: a non-painful bladder that remains palpable or percussable after the patient has passed urine. These patients are likely to experience passive continuous dribbling.

It is important to remember that not all overflow incontinence is caused by bladder outflow

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obstruction. A condition called hypotonic bladder is a frequent cause of overflow incontinence in diabetic patients as they often develop autonomic neuropathy. This can damage stretch receptors in the bladder, which are then unable to convey sensations of fullness. The resultant over-stretched bladder is unable to generate effective detrusor contractions and cannot completely empty. Hypotonic bladder can also occur in other groups of patients, particularly those with neurological conditions.

FUNCTIONAL INCONTINENCE

Functional incontinence occurs when the environment cannot support the patient's continence needs, for example, where an otherwise continent patient with Alzheimer's disease cannot locate the toilet. Identifying the root causes of functional incontinence can take time and it is useful to break toileting down in order to discover which step is proving problematic for the patient.

Stokes (2000) is well respected for his work with patients who have dementia-type illnesses. He suggests that in this client group toileting difficulties rather than bladder dysfunction is the problem. Stokes outlined what he felt was an essential pathway to successful toileting (Stokes, 2000):

- ▶▶ Recognising the need to initiate (and postponing within limits) the act of voiding
- ▶▶ Being motivated to use the toilet
- ▶▶ Possessing the physical strength and steadiness to stand
- ▶▶ Possessing the mobility and confidence to cover the distance to the toilet and overcome any obstacles along the way (e.g. doors, hazardous floor coverings, stairs)
- ▶▶ Maintaining goal-oriented behaviour
- ▶▶ Being able to locate the toilet
- ▶▶ Perceiving and experiencing the toilet as accessible, safe, hygienic and private
- ▶▶ Possessing the dexterity and coordination to adjust clothing
- ▶▶ Being able to initiate the act of voiding.

REFLEX INCONTINENCE

Reflex incontinence typically occurs following a spinal injury where it becomes impossible for the patient to relay messages from bladder to the brain. The bladder fills and empties in a reflex cycle similar to that of an infant that has not been 'potty trained'. The patient may be able to predict when the incontinence will occur, but will not have any voluntary control. Also, bladder emptying may not be completely effective. Detrusor-sphincter dyssynergia can again be a problem for this patient group.

CONCLUSION

Many patients experience varying degrees of bladder dysfunction. It is essential that healthcare workers have a clear understanding of the significance of the symptoms in order that they can provide the appropriate care. Without the appropriate knowledge healthcare workers will be unable to help patients who have potentially treatable conditions. **CE**

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Key Points

- » At least six million adults in the UK cannot control their bladder as efficiently as they would wish.
- » Despite a range of treatment options being readily available, many people will put off seeking help for months, even years.
- » Many healthcare workers may not have previously considered actions such as assisting a patient to walk safely to the toilet to be continence care.
- » The assumption that urinary incontinence is inevitable, particularly in older people, remains common.
- » The state of 'being continent' can only be achieved if individuals are able to maintain complex processes involving nerve impulses, muscle relaxation and a range of mobility, dexterity and communication skills, some of which are learnt as very young children.
- » The term bladder dysfunction covers a huge range of problems, all of which have the potential to cause the patient great distress.
- » Any obstruction that affects the outflow of urine from the bladder can cause incomplete bladder emptying.

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