



Multiple sclerosis information

for health and social care professionals

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Bladder

Bladder problems are one of the most common symptoms reported by people with MS with studies frequently citing around 75% of people experiencing this symptom¹. They tend to occur as MS advances, appearing on average six years into the illness, although one in ten people may report symptoms at the time of initial onset². This highlights the importance of raising bladder issues in routine assessments.

Poor bladder control is disabling and many regard this as one of the most constraining aspects of their MS³. Unpredictable urinary urgency with a danger of incontinence can cause a person to become housebound, unwilling to venture out where access to toilets is uncertain. Although urinary urgency and frequency are the most common problems, many people with MS can experience difficulty in completely emptying their bladder. In some situations, such as prior to going out, they can find it difficult to initiate passing urine even in the absence of urgency. They may have a reduced flow rate, an interrupted stream and the sensation of incomplete bladder emptying. It is important to emphasise that much can be done to improve this.

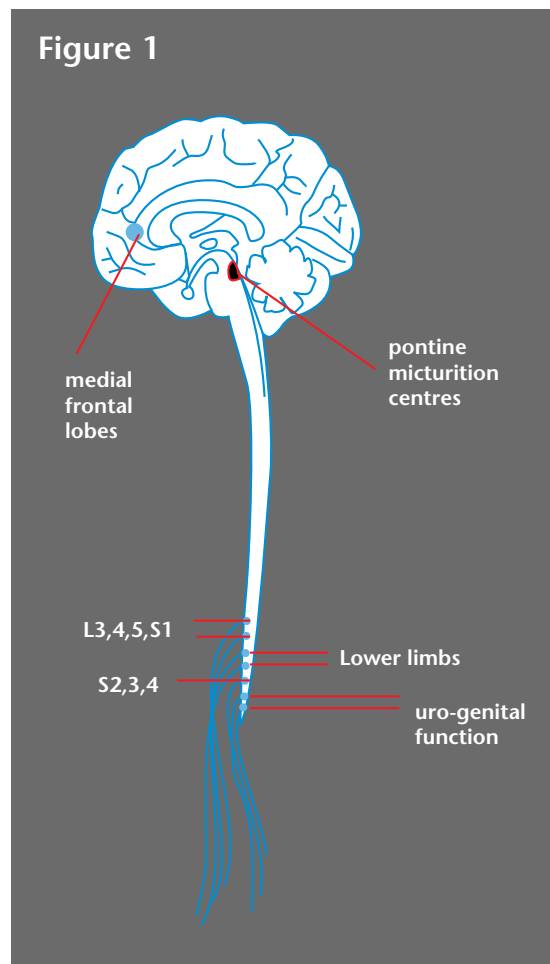
Bladder disorders that occur in MS are of two distinct types: overactivity and incomplete emptying⁴.

Overactivity

Bladder overactivity is usually the problem a person with MS is most aware of. It results in a tendency for the bladder to contract unpredictably and sometimes uncontrollably, this results in urgency, frequency and urgency incontinence. At its worst, the bladder may seem to have 'a life of its own'.

In health, the bladder behaves a bit like a balloon although there is a significant difference - unlike a balloon it has a special property that enables it to expand without raising internal pressure. This remarkable property is the result of its nerve supply from the spinal cord, from controlling centres within the brain; particularly the micturition centre situated at the base of the brain (Figure 1). With spinal cord disease this connection is disrupted and the special property lost resulting in an overactive bladder. The bladder, after only partial filling, develops spontaneous, insuppressible contractions that provoke a sense of urinary urgency. Urinary

incontinence will occur if the contraction pressures are too high for the muscles at the bladder outlet to hold on.



This diagram shows how nerves supplying the legs branch off the spinal cord, above those to the bladder. The micturition centre at the base of the brain is shown by a large black dot. If there is disease affecting the spinal cord (in the cervical cord area, a common site for demyelination in MS), neural impulses between the micturition centre and the nerves to the bladder will be interrupted, as will impulses between the brain and nerves to the legs. For this reason difficulty with walking is usually associated with poor bladder control in multiple sclerosis: both problems can be the result of spinal cord disease^{5,6}. The effect of this is unfortunate because bladder control deteriorates at the same time as mobility worsens; making it increasingly difficult to respond to bladder urgency by hurrying to the toilet.

Another feature of the impaired nerve supply to the bladder muscle is that the normal capacity is

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diminished, causing urinary frequency. In health, the bladder has a capacity of between 300 and 500ml (about a pint of fluid), whereas the capacity in people with bladder problems due to MS may be reduced to 100ml or less. This increases the frequency of emptying from every three to five hours (depending on how much is drunk) to hourly or worse in the day and at night.

Incomplete emptying

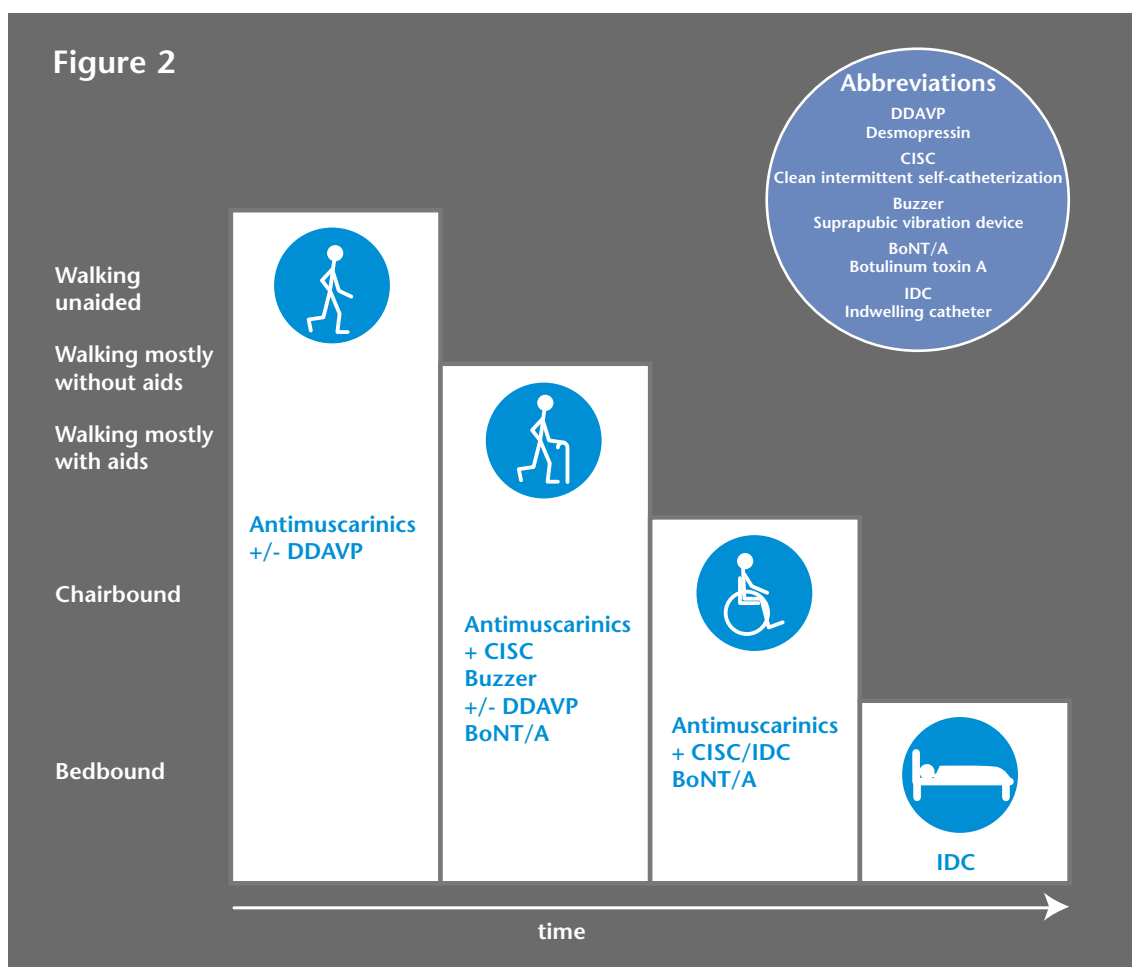
Although some people with MS are aware that their bladders do not empty properly, others with the same problem are not. For many, needing to void again soon after doing so is usually an indicator that bladder emptying is poor. Research has shown that if people with MS thought they were not emptying their bladder properly, they were usually correct. However, of those who thought they were emptying completely, about half were wrong and were surprised to find how much urine they had been leaving behind⁶. This results in hesitancy and retention.

Incomplete bladder emptying is the result of two things going wrong, both of which are due to spinal cord malfunction:

- the muscle which surrounds the bladder outlet tube (urethral sphincter) does not relax when the bladder muscle contracts, thus resulting in an interrupted flow
- the neural impulses that normally keep the bladder muscle contracting until it is completely empty do not get down the spinal cord. When the bladder does contract, the contractions, although frequent, are poorly sustained.

Management

In 2009 stakeholders involved in continence care, including neurologists, urologists, primary care professionals, MS nurses and nursing groups, formulated a set of guidelines for managing bladder problems in MS. Expert consensus was reached after discussion, and recommendations agreed on review of literature and expert opinion (Figure 2).⁷



The consensus states that a person with MS who complains of lower urinary tract symptoms must be assessed by a suitably trained health professional who is knowledgeable about MS and its effects on lower urinary tract function.

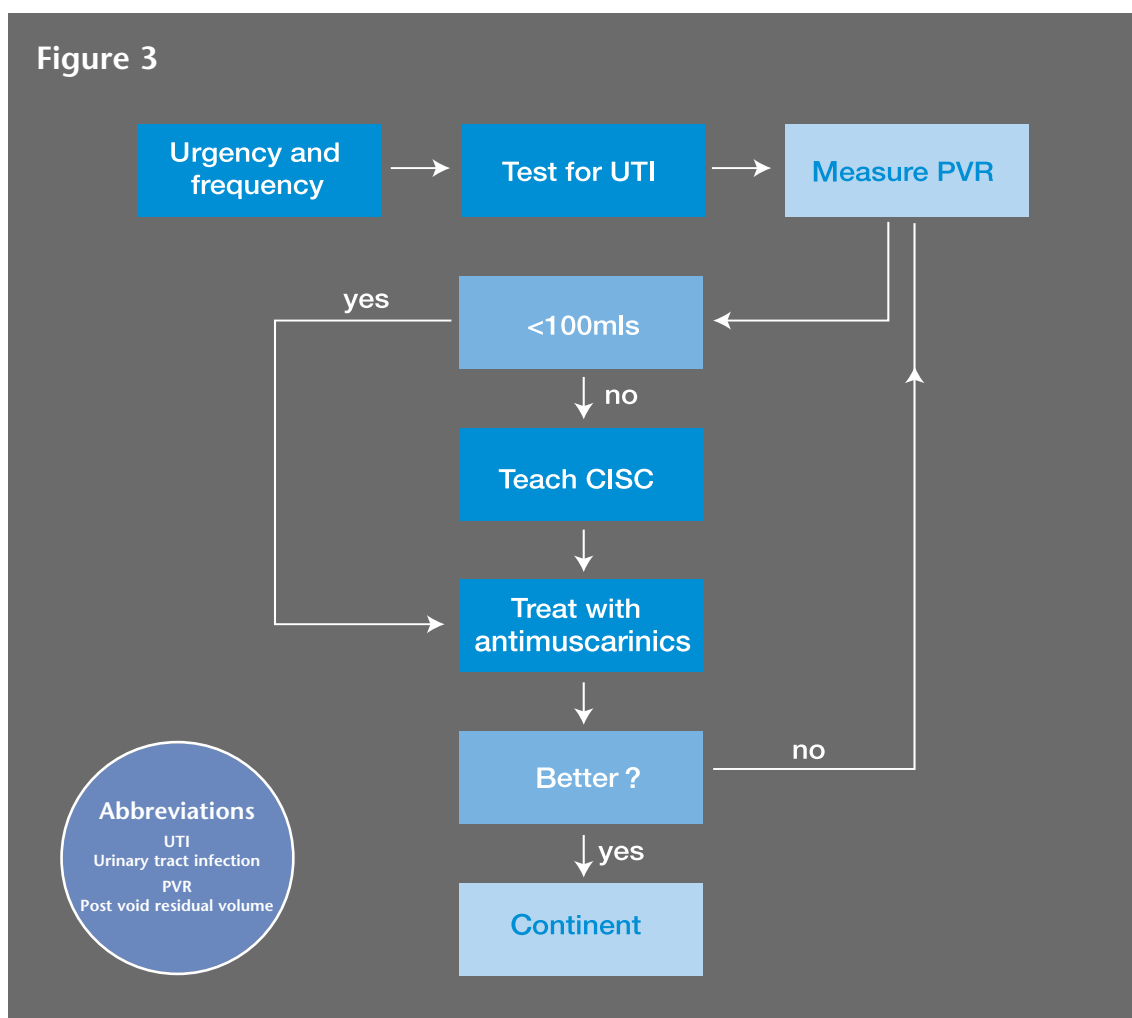
- “Dipstick” tests of the urine must be undertaken in patients with new symptoms of bladder dysfunction. The first step is to test for a urinary tract infection (UTI). UTIs can themselves worsen bladder symptoms. Importantly, they can also worsen other neurological symptoms, and potentially precipitate an MS relapse.
- If there is reason to suspect incomplete bladder emptying measurement of post micturition residual volume; the volume left behind after passing urine, should be carried out prior to any treatment intervention.

- Urodynamic investigation with filling cystometry and pressure/flow studies of voiding should be carried out in those who are refractory to conservative treatment or whose symptoms have significant impact on daily life and there is a need to undergo further investigations.

- It is recommended that for most people with MS, bladder problems can be successfully managed based upon a simple algorithm (Figure 3)⁷. Any person with residual volume in excess of 100ml should be offered the opportunity to learn clean intermittent self-catheterisation.

Reviewing someone’s daily fluid intake, both quantity and type of fluid, by completing a voiding diary is valuable. Fluid intake needs to be individualised, however intake of between one and two litres a day is recommended⁷. Pelvic floor exercises may be helpful especially when symptoms are mild.

Figure 3



Management of overactive bladder

Antimuscarinics

Antimuscarinic medications block the messages that initiate bladder contractions and reduce frequency of bladder emptying. The names of the commonly prescribed drugs are given in Table 1. These can be very effective in managing an overactive bladder⁸ but risk causing a dry mouth as common side effect. A dry mouth is evidence that an effective dose is being taken. It is important to adjust and titrate medication slowly, adding additional doses over intervals of weeks, so that the bladder remains under control but the mouth is not too dry. Artificial saliva may be prescribed, in either tablet or spray form if a dry mouth becomes too uncomfortable. Oxybutinin patches have been found to reduce this side effect.

Antimuscarinic medication can exacerbate problems when the bladder does not empty properly. In this situation, the medication, whilst lessening the tendency for the bladder to contract, also impairs its already poor emptying ability (Figure 4). The management strategy is to resolve incomplete bladder emptying as the first step.

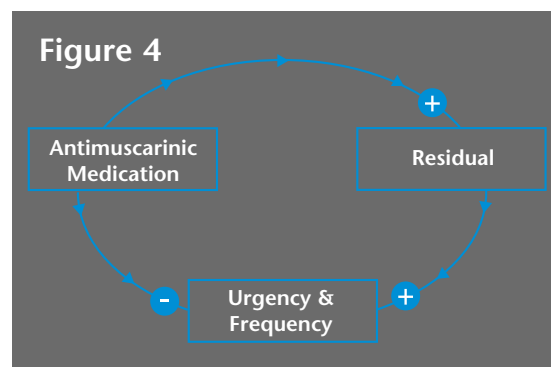


Table 1

| Generic name | Brand Name | Dose | Frequency |
|---------------------------|---------------|----------|-------------------------|
| Propantheline | Pro-Banthine | 15mg | Three times a day |
| Tolterodine tartrate | Detrusitol | 2mg | Twice a day |
| Tolterodine tartrate | Detrusitol XL | 4mg | Once a day |
| Tropium chloride | Regurin | 20mg | Twice a day |
| Oxybutynin chloride | Ditropan | 2.5–5mg | Two to four times a day |
| Oxybutynin chloride XL | Lyrinel XL | 5–30mg | Once a day |
| Propiverine hydrochloride | Detrunorm | 15mg | One to four times a day |
| Darifenacin | Emselex | 7.5–15mg | Once a day |
| Solifenacin | Vesicare | 5–10mg | Once a day |
| Fesoterodine | Toviaz | 4–8mg | Once a day |

Botulinum toxin

For some people, the measures outlined above will not provide adequate bladder control. Injecting botulinum toxin into the bladder wall was first reported in Switzerland over ten years ago and is highly effective in reducing urgency and incontinence. In people with MS, the injections have been shown to be effective in managing detrusor over-activity and to improve symptoms of urgency, frequency and incontinence. It also improves quality of life⁹. A consistent response is seen in patients who receive repeat injections¹⁰. However bladder emptying is almost always affected by this procedure so acceptance to carry out clean intermittent self-catheterisation is crucial. The procedure can be done under local anaesthetic as an outpatient and the benefit seems to last for around a year. This treatment is recommended for those who have not responded to antimuscarinic medications, and are willing to perform clean intermittent self-catheterisation⁷.

Other approaches

Posterior tibial nerve stimulation (a procedure for stimulating the nerve behind the ankle) has recently been found to help with overactive bladder symptoms in people with MS¹¹.

Management of incomplete bladder emptying**Clean intermittent self-catheterisation (CISC)**

A persistent post void residual volume in excess of 100ml indicates that clean intermittent self-catheterisation should be offered⁷. This technique has been in use for nearly 40 years¹² resulting in the single greatest improvement in managing the bladder problems of MS¹³. This must be initiated and taught by a urology specialist nurse or continence advisor.

People have varied responses to the suggestion that they should self-catheterise, some react with horror and fear. Fortunately, most people decide to try the technique once the fundamentals of pelvic anatomy have been explained (particularly important for women), reassurance given that it will not hurt, is not invasive, the discretion of the catheter shown, the personalised nature of the procedure emphasised and the technique expertly demonstrated. Talking to someone who has previously mastered the method can be helpful for some who are novice.

CISC will help reduce bladder symptoms of accumulating urine that cannot be eliminated naturally. The procedure will benefit those with symptoms of difficulty in voiding as well as those who have urinary frequency and urgency because of bladders that are persistently nearly full.

The recommended regime to self-catheterise is two or three times a day and, if nocturnal frequency is problematic, last thing before bedtime. The patient will become the expert on how often he/she should carry out their CISC. Some find it necessary to catheterise four or six times in 24 hours. More frequent CISC may indicate that bladder storage capacity is poor and antimuscarinic medications need to be increased.

Lack of motivation is a common cause of failure, and there are also some medical conditions that make it impossible. Poor hand function due to weakness or tremor is a major difficulty. A general benchmark is that people who can write and feed themselves are likely to have the necessary manual dexterity to self-catheterise. Lower limb spasticity or spasm may make thigh abduction difficult but with appropriate management CISC may still be possible.

Other approaches

There is some evidence that supra pubic vibration (a "buzzer") can improve bladder emptying for those with both incomplete bladder emptying and detrusor overactivity¹⁴.

Night-time urinary frequency and nocturnal incontinence

Nocturnal incontinence and night-time urinary frequency are two of the worst problems associated with urinary impairment. For most people with MS, symptoms are helped significantly by taking an oral antimuscarinic and carrying out CISC, before going to bed. Sometimes, despite these measures, difficulties persist and desmopressin at night may be effective as it reduces the volume of urine produced overnight by the kidneys (when they are at their most productive). Its action lasts for 3-6 hours and, despite its mode of action, is safe when taken precisely as instructed. Desmopressin is usually taken as a spray. It can be used during the daytime but it is essential that the user realises the possible dangers of retaining too much water if it is used more than once in 24 hours¹⁵. It should not be prescribed to people over 65.

Bladder management in advanced MS

With advancing disease, drugs, CISC and botulinum toxin may prove inadequate or unsuitable. An indwelling catheter inserted suprapubically, can transform the life of a person with MS. It is important that regular review, advice and support is sustained and is appropriate to the current level of disability or impairment⁷.

With the advent of botulinum toxin, the need for surgical intervention has diminished significantly. However there may be individuals whose symptoms are intractable and who may benefit from surgery and they should be under specialist care.

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MS Trust resources

Bladder factsheet



A UK consensus on the management of the bladder in multiple sclerosis

We hope you find the information in this book helpful. If you would like to speak with someone about any aspect of MS, contact the MS Trust information team and they will help find answers to your questions.

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Freephone 0800 032 3839 (Lines are open Monday - Friday 9am-5pm)

email infoteam@mstrust.org.uk

write MS Trust
Spirella Building
Letchworth Garden City
SG6 4ET



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