

Promoting urinary continence in older women

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Promotion of continence in older women

Abstract

Continence promotion involves informing and educating the public and health care professionals that urinary incontinence is not an inevitable part of ageing, but can be treated or at least made more manageable. The taboos around incontinence are gradually lifting and it is now advertised and even discussed in the media. Women are at a higher risk of developing urinary incontinence as they age due to physiological, functional and cognitive changes. Healthcare professionals can play a key role in identifying women with bladder symptoms by routinely asking trigger questions and in promoting continence through education about lifestyle choices that can aggravate urinary incontinence. This article discusses ways in which healthcare professionals can help to identify women with urinary incontinence symptoms and the main risk factors associated with urinary incontinence in older women.

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Keywords

Incontinence, older women, health promotion

Aims and intended learning outcomes

This article describes the main factors that increase the risk of developing urinary incontinence in older women. The aim of the article is to educating health professionals in how to identify opportunities for promoting urinary continence in older women. After reading this article and completing the time out activities you should be able to:

- Describe the age related physiological and functional changes that affect the lower urinary tract of older women
- Recognise the main factors that increase the risk of developing urinary incontinence in older women
- Understand the barriers to accessing help for symptoms of urinary incontinence
- Be able to educate and support older women who present with risk factors associated with urinary incontinence

Urinary incontinence (UI), overactive bladder (OAB) and other lower urinary tract symptoms (LUTS) (principally storage symptoms) are common conditions in older women (Wagg et al, 2008), and can have a significant affect on quality of life, resulting in discomfort, shame and loss of self esteem (Wennberg et al, 2009). Urinary incontinence has been defined by the International Continence Society as “ a complaint of any involuntary leakage of urine” (Abrams et al, 2002). Stress incontinence appears to be the most common type of UI, with around 50% of incontinent women reporting this as their only symptom, however urgency UI and mixed UI increase with age (Hannestad et al, 2000).

Older women have low rates of seeking help, with many not seeing the problem as serious enough (Teunissen and Lagro-Janssen, 2004). In many cultures women are expected to manage their own needs and cope without support unless the condition is serious, which although having a major effect on quality of life is often the case with UI (Strickland, 2014).

Studies indicate that women will wait up to five years before seeking help, due to embarrassment and the stigma associated with incontinence (Hannestad et al, 2000). Many older women see incontinence as an inevitable part of ageing, and will choose to cope with the problem rather than seeking help. A study by Horrocks et al, (2004) found that older women's response to their incontinence appeared to be associated with their attitude to ageing and beliefs about the causes of their incontinence. The study by Teunissen and Lagro-Janssen (2004) indicated that help-seeking behaviour in women was related to the duration and severity of incontinence and the presence of incontinence related symptoms such as frequency and urgency. Researchers also found that help-seeking behaviour can be associated with a lack of knowledge regarding treatment options (Strickland, 2014). This silence may be compounded by healthcare practitioners' attitudes, a lack of awareness regarding the prevalence of incontinence, or inadequate training in dealing with incontinence, leading to a lack of confidence in raising the issue (O'Connell and Gaskin, 2010). All healthcare professionals should take opportunities to ask older women about any bladder symptoms they may have.

Thinking point

Think about how you would feel if you wet yourself, would this change if you were in public? What would you do? How would you cope? Would you seek help?

Urinary incontinence affects women of all ages, but prevalence increases in older age (Victor and Nitti, 2001, Perry et al, 2000, Stoddart et al, 2001). Prevalence figures vary according to the differences in populations studied, definitions and study methodology, however the average rate amongst women is 23.5% (Irwin et al, 2006) with rates increasing to between 17 and 31% of women over 65yrs (Perry et al, 2000, Teunissen, van Weel, and Lagro-

Janssen, 2004 and Stoddart et al, 2001). The average age at which a women reaches the menopause is 51 years, and for most is occurs between 45 and 55 (Lee, 2009). Higher prevalence figures are found in institutionalised populations, which reflects the comorbidity of women in these settings (Hannestad et al, 2000). Not all those who experience symptoms will seek help (Strickland, 2014 and Teunissen and Lagro-Janssen, 2004). In one UK study of women attending a primary care practice, although nearly half reported symptomatic incontinence, only a small number had sought help (Shaw et al, 2001) and many will wait a significant time before seeking help (Porrett, 2010). While many may not want or need help to manage incontinence, it is estimated that, 20.4% of people aged 40 years and over, around 5 million people in the UK, have a healthcare need (National Institute for Health and Clinical Excellence (NICE) , 2013). Help seeking behaviour is affected by a number of issues including; the individuals experience of incontinence (the bothersome element), a perception that incontinence is normal or inevitable in older age, lack of available services or previous experience of accessing services and knowledge of available treatments (Strickland, 2014 and Wennberg et al, 2009). For many older people incontinence is not something they wish to admit to or talk about and professionals need to be sensitive to this and take a pro-active approach. It is therefore vital that healthcare professionals make use of any opportunity when they come into contact with older women (for example at a smear test) to enquire about any bladder problems or symptoms they may be experiencing and use the opportunity to discuss lifestyle modifications that may lessen the risk of developing incontinence.

Consider your local population where you work, how many older women are there? How does this affect how you target care? (you can find figures on the ageing population from the Office for National Statistics at <http://www.statistics.gov.uk/hub/index.html>)

Time out

Using an anatomy and physiology book, review the anatomy of the lower urinary tract, female pelvic floor, and related nervous system control.

Maintaining Continence

The requirements in order to remain continent are an intact nervous system, compliant bladder, strong musculofascial supports and a functional urethral sphincter mechanism. The bladder's two main functions: to store and expel urine, requires a balance between detrusor muscle activity and urethral sphincter closure pressure. When the detrusor contracts, the pressure in the urethra is higher enabling the bladder to store urine. Rises in intra-abdominal pressure (from coughing and sneezing) are transmitted to the urethra and bladder equally preserving continence. The ability to void results from changes in both these pressure factors, where urethral pressure falls and bladder pressure rises (Getliffe and Dolman, 2007). Voiding and storage within the bladder and urethra are controlled by the autonomic and somatic nervous system. As the bladder stretches during filling, sympathetic nerves cause the detrusor to relax and the internal urethral sphincter to contract. During voiding the parasympathetic nervous system triggers the detrusor to contract and to relax and open the internal urethral sphincter. Relaxation and opening of external sphincter is voluntary and under somatic control. Problems with these mechanisms can lead to incontinence.

In healthy women, the maintenance of continence relies on the strong, supportive foundation provided by pelvic floor muscles (fig 1). A "hammock" is the term commonly

used for describing the mechanism of maintaining continence within the pelvic floor. This describes the support of the urethra by the co-ordinated actions of the fascia and muscles which provides a “hammock” onto which the urethra is compressed when intra-abdominal pressure is increased (Herschorn, 2004). The bladder, urethra, vagina and uterus are attached to the pelvic walls by a system of connective tissue called the endopelvic fascia (Herschorn, 2004). The structures attaching the uterus to the pelvic wall, the cardinal ligaments, derive strength from the supportive collagen and the attachment of the endopelvic fascia which is predominantly fibrous collagen (Herschorn, 2004). Within the urethra, there is a large amount of connective tissue, which contains elastin fibres and is thought to aid in urethral closure pressure (Herschorn, 2004). Collagen is a fibrous protein which is the main component of connective tissue. Collagen provides tensile strength to skin, tendons and bones. More than 20 subtypes of collagen have now been identified, with types I, III and V providing the strength to soft tissues. Type I is non-elastic and provides resistance to tensile strength, where type III has elastic properties and is found in more flexible tissues, type V is a minor fibrillar collagen widely distributed in a variety of tissues (Lammers et al, 2012). Increases in type III and type V collagens are associated with a decrease in the mechanical strength of connective tissue due to decreased fibre size. Collagen disorders can also arise from genetic factors which affect normal collagen production (Lammers et al, 2012).

There are a number of different types of urinary incontinence:

- Stress incontinence is the involuntary leakage of urine associated with effort and exertion (such as sneezing or coughing), which raises the intrabdominal pressure and puts pressure onto the pelvic floor leading to leakage of small volumes of urine.

- Urgency UI is the involuntary leakage of urine, which is accompanied by or immediately precedes a sudden urgent desire to void, that cannot or is difficult to delay. Urgency UI can lead to larger volumes of leakage.
- Mixed UI is the involuntary leakage of urine associated with both the sudden urge and exertion. So the individual will experience both small and larger volumes of incontinence
- Overactive bladder (OAB) is defined as urgency that occurs with or without urgency UI, but usually with frequency and nocturia. Frequency is defined as voiding >7 times in 24 hours. When OAB occurs with incontinence, it is referred to as “OAB wet” , where there is no incontinence this is known as “OAB dry”. These combined symptoms can suggest detrusor overactivity, but can also result from other forms of urethrovesical dysfunction.
- Overflow is involuntary leakage associated with poor bladder emptying and in women can be the result of pelvic surgery, constipation, pregnancy, prolapse, medication and neurological impairment.
- Nocturnal enuresis is the involuntary leakage of urine at night and can be associated with OAB, medication and sleep apnoea.
- Functional incontinence, has no organic cause and is associated with cognitive or physical factors that impair the person's ability to reach or use the toilet effectively.

(National Institute for Health and Clinical Excellence (NICE) , 2013)

TIME OUT

Incontinence can be associated with falls, pressure sores and depression in older women

What other issues/conditions can you think of that are associated with incontinence in older women?

Assessing incontinence

As women may be reluctant to discuss a problem due to embarrassment, trigger questions should be routinely used during contacts such as smear tests, diabetic follow-up or routine health checks, to identify women who may have an incontinence problem. It is also essential to understand what type of incontinence a woman has before instigating treatment. The most useful trigger questions will provide some information about the woman's pattern of voiding, fluid intake and lifestyle and should be open ended e.g. how often do you go to the toilet to empty your bladder during the day/at night?; do you ever have to rush to the toilet urgently to empty your bladder? rather than asking closed questions such as "do you have any problems with your bladder?". If a woman responds positively then further assessment can be undertaken using an appropriate tool.

An holistic continence assessment must have the following components:

- Medical and surgical history
- History of incontinence and urinary symptoms
- The effect on the woman's quality of life/lifestyle
- Diet and fluid intake (including type and volume of fluid)
- Bowel habit and any associated bowel symptoms
- Cognitive and functional ability (manual dexterity, mobility)
- Medication history (including over the counter, herbal remedies and recreational drugs)
- Investigations – urinalysis must always be performed to rule out UTI as a cause and bladder scan where indicated to determine residual urine.

- Physical examination – including assessment of the pelvic floor and abdominal examination – this should be undertaken by a healthcare professional such as a specialist women’s health physiotherapist or continence advisor who is competent to undertake this type of examination.

(NICE, 2013)

Once an initial assessment has been made a referral to a specialist continence service may also be considered for treatment such as medication or pelvic floor exercises. Healthcare professionals should be aware of what local services are available to patients and how to make a referral, many continence services have an open referral policy so women can contact and arrange an appointment to suit themselves.

If you are not already aware of your local continence services, find out where they are and how they can be contacted.

Risk factors

Pregnancy and Childbirth

Urinary incontinence and overactive bladder symptoms in older women can be as a result of a number of abnormalities in the function of the lower urinary tract, secondary to other illnesses or as a result of reduced mobility, dexterity or cognitive function. Women are at a higher risk of UI mainly due to the pelvic floor damage associated with child birth (Connolly et al, 2007 and Seshan and Muliira, 2013). The risk is highest with the first child, and there is an increased risk in women who have their first child over the age of 30. Pregnancy leads to

mechanical and hormonal changes which can impair pelvic floor muscle function. Fetal weight on the pelvic floor throughout pregnancy, together with hormonal changes such as increased progesterone, decreased relaxin and decreased collagen levels, may lead to reduced strength, supportive and sphincteric function of the pelvic floor muscles (Seshan and Muliira, 2013). The effects of pregnancy can then be compounded by the delivery, which has the potential to damage the muscles and nerves of the pelvic floor, increasing the risk of UI (Seshan and Muliira, 2013). Vaginal delivery can cause pelvic organ prolapse, a condition where the weakened pelvic floor muscles enable the pelvic organs (bladder and uterus) to slip into the vaginal canal leading to incontinence (Friedman and Stothers, 2011, Herbert, 2009 and Sangsawang, 2014). Although surgery can correct pelvic organ prolapse, the surgery can also increase the risk of UI (Brown et al, 2000). Larger birth weight babies, multiple deliveries and the use of instrument assisted birth methods can cause major trauma to the pelvic floor therefore reducing perianal floor strength increasing the risk of UI (Friedman and Stothers, 2011, Hayman, 2005, Williams, Herron-Marx and Knibb, 2007 and Thomas et al, 2007). It is also unclear whether cesarean delivery can help to prevent or reduce the risk of UI, as the weight of the baby and hormonal changes may have already lead to UI (Sangsawang, 2014).

Other factors that increase a women's risk of developing UI include, genetics, age, obesity, smoking, high impact exercise, diet, the menopause and neurological disease (Walker and Gunasekera, 2011 and Newman, Cardozo and Sievert, 2013).

Genetic factors:

Collagen is the main connective tissue within the body and there are several types. Recent studies have identified genes responsible to encoding collagen within the muscle tissues can

predispose some women to stress incontinence (Friedman and Stothers, 2011 and Altman et al, 2007). Women with stress incontinence are known to have less collagen concentration in their skin and peri-urethral tissue and a decreased ratio of type III collagen (Patel, Amrute, and Badlani, 2007). The results of a study on female twins by Altman et al (2007), demonstrated that although genetic factors contributed to the occurrence of stress incontinence and pelvic organ prolapse, the influence of environmental factors such as smoking and obesity were also major factors.

Age related changes

As women age, muscle mass generally decreases, studies by Perucchini et al, (2002) demonstrated a 3% reduction in urethral striated muscle. Part of maintaining continence relies on the urethra forming a watertight seal. Urogenital tissue is dependent on oestrogen stimulation to maintain normal structure and function. oestrogen receptors are found in the vagina, vulva, urethra and bladder neck (Goldstein, 2010 and Blakeman, Hilton and Bulmer, 2001). The physiological effect of the menopause leads to declining levels of circulating oestrogen putting postmenopausal women at risk of urogynaecological dysfunction, urgency, frequency, dysuria, incontinence and recurrent urinary tract infections (MacLennan, 2000 and (American College of Obstetricians and Gynaecologists Women's Healthcare Physicians., 2004). The reduction in oestrogen also increases the risk of atrophic vaginitis. Atrophy or inflammation of the vagina due to a lack of oestrogen can lead to decreased strength in the pelvic floor muscles. The atrophic vaginal mucosa also causes vaginal discomfort, burning, itching and associated dyspareunia (Goldstein, 2010). Arthritis is strongly associated with incontinence. This could be secondary to mobility problems or an autoimmune interaction which creates urge type symptoms (Jackson et al, 2004).

There are several factors associated with aging that can play a role in age related incontinence such as impaired mobility, cognitive state and environmental factors such as toilet access (MaGrother, Resnick, and Yalla, 1998).

Urinary Tract infection

Women are at a higher risk of urinary tract infection (UTI) due to their anatomy, with around one in three women experiencing a UTI in their lifetime and 20% experiencing a recurrence (Chung, Arianayagam and Rashid, 2010 and Nazarko, 2013). Bacteria trigger localised infection that irritates the bladder mucosa and causes a strong urge to void. A study by Moore et al, (2008) demonstrated that women who experience UTI's will experience urinary incontinence both during and following an infection. Urge incontinence may also be a sign of a UTI, which can also be accompanied by urinary frequency, dysuria and malodorous urine.

Constipation

Constipation is reported up to three times more often in women than men and rises with age, doubling by the age of 60 (Wald et al, 2008). Since the rectum is in close proximity to the bladder, it shares similar nerve innervations. Impacted stool elicits local, spontaneous neurogenic activity which can prompt urinary frequency and incontinence.

Affects of medication

A number of medications can exacerbate incontinence in older women. In the UK, older people make up a fifth of the population but consume almost half of prescription items, with adults aged more than 65 years taking an average of two daily prescribed drugs

(Duerden, Avery and Payne, 2013). Polypharmacy is generally defined as the use of four or more drugs, and is prevalent in more than 10% of community-dwelling people aged greater than 65 years in the UK (Gorad, 2006). Certain medications such as α -adrenergic blockers, neuroleptics, benzodiazepines, anticholinergics, anti-Parkinsonian agents, β -blockers, angiotensin-converting enzyme inhibitors, narcoleptics, or psychotropic medications may exacerbate incontinence. Sedatives and benzodiazepines may interfere with the patient's ability to control bladder function, resulting in iatrogenic urge incontinence and diuretics increase urinary volume and potentially exacerbate symptoms of urinary incontinence (British Medical Association and Royal Pharmaceutical Society, 2014).

Fluid Intake

Some beverages may affect bladder function, provoking urgency, discomfort or stimulating diuresis. Over and under hydration can affect continence. Many women who have incontinence, reduce the amount of fluid they drink, hoping that they will urinate less often or be less wet when incontinent (Segal, Saks and Arya, 2011). Unfortunately the smaller amount of urine may be highly concentrated and thus irritate the bladder mucosa. Highly concentrated urine may cause more frequent urination and also encourages bacterial growth and potentially UTI's. General recommendations are that women drink around six to eight glasses of fluid through the day. Some, such as coffee and carbonated beverages act as bladder irritants and stimulants and may increase urgency, frequency and episodes of incontinence (Dallosso et al, 2003 and Townsend, Richter and Grodstein, 2013). Artificial sweeteners, such as saccharine have also been shown to increase urinary frequency and urgency when compared with drinks that are unsweetened.

Smoking and incontinence

There are studies suggestive of a positive association between smoking and incontinence, however these studies are limited and this area requires further research (Bump and McClish, 1992 and Hannestad et al, 2003). Urge incontinence is three times more likely in women who smoke than those who have never smoked (Samuelsson., Victor and Svardsudd, 2000). There are a number of theories as to why smoking increases the risk, including toxins that can be bladder irritants and nicotine –induced bladder contractility. The urethral sphincter has nicotine receptors which influence the contractility of the urethral sphincter. It is logical to relate the chronic cough that many smokers suffer with increased pressure on the pelvic floor and bladder and therefore incontinence. Smoking may also increase vaginal atrophy, as it reduces oestrogen bioavailability and diminishes the blood supply (Baron, La and Levi, 1990).

Body Mass Index

Being overweight is a major risk factor in the development of all types of incontinence, the higher the BMI the greater the risk (Hunnskaar et al, 2000 and Danforth et al, 2006).

In the 80's research started to appear that linked physical activity in athletes and non-athletes to urinary incontinence (Bo, 1992). Exercise particularly high impact exercise, such as running makes women more susceptible to UI, and often leads to them abandoning exercise activities (Goldstick and Constantini, 2014). About 30% of women who exercise experience urinary leakage during at least one type of exercise (Nygard et al, 1990). High impact exercise where both feet leave the ground (running, jumping, trampolining) involves abrupt and repeated increases in intra-abdominal pressure.

Urge incontinence is more common amongst postmenopausal women, in particular those who have a history of diabetes, hysterectomy and two or more urinary tract infections within the past year.

Neurological Disease

The function of the lower urinary tract is to store and expel urine in a coordinated and controlled manner. This function is regulated by the central and peripheral nervous systems. Urinary symptoms can result from neurological disease in the brain, sacral spinal cord, peripheral nervous system or supra-sacral spinal cord. Although there are no figures available for the overall prevalence of neurological conditions in women, the number of people affected increases with age and the number of those with urinary incontinence varies between different neurological disorders (Mac Donald et al, 2000). Urinary incontinence affects between 40 and 60% of people admitted following a stroke, with 25% continuing to experience problems on discharge and 15% remaining incontinent at one year (Thomas et al, 2008). Between 30-70% of people with Parkinson's disease and approximately 75% of those with multiple sclerosis experience lower urinary tract symptoms and incontinence (Fowler et al, 2009 and Chaudhuri, 2003). Post-menopausal women with diabetes are more likely to experience urinary incontinence and those with a higher BMI increase this risk significantly (Lewis, 2005).

Neurological impairment

The pattern of bladder and sphincter dysfunction depends on the area affected.

Neurological disease can produce fixed or relatively stable injuries to the nervous system as in spinal cord injury or progressive damage such as found in multiple sclerosis or Parkinson's

disease (NICE, 2012) . The symptoms experienced by individuals may relate to impaired storage of urine and/or difficulties with bladder emptying. Impaired storage results in increased voiding frequency, incontinence and overflow incontinence. There is also a marked increase in urinary tract infections in people with neurogenic lower urinary tract dysfunction, which can aggravate incontinence. Table 1 provides examples of neurological conditions affecting the lower urinary tract and the effects on bladder and sphincter function (adapted from NICE, 2012)

Table 1. Examples of neurological conditions affecting the lower urinary tract and the effects on bladder and sphincter function (adapted from NICE, 2012) .

	Acquired, stable conditions	Acquired, progressive or degenerative conditions	Affect on bladder function	Affect on sphincter function
Brain conditions	Stroke Head injury	Multiple sclerosis Parkinson's disease Dementia Multiple system atrophy	Overactive – neurogenic detrusor overactivity – more commonly Underactive – less commonly	Usually normal Co-ordinated with bladder function
Suprasacral spinal cord conditions	Spinal cord injury	Multiple sclerosis Cervical spondylosis with myelopathy	Overactive – neurogenic detrusor overactivity	Un-coordinated with bladder
Sacral spinal cord or peripheral nerve conditions	Cauda equina syndrome Diabetes Spinal cord injury Peripheral nerve injury from radical pelvic surgery	Peripheral neuropathy	Underactive Impaired compliance in some	Underactive

Promoting continence

All healthcare professionals can play a role in recognising and promoting urinary incontinence. Identifying the main risk factors and educating women on how to modify these, can have a positive impact on existing incontinence problems as well as preventing future problems. Remember that health promotion needs to take a collaborative approach to be effective, negotiating small changes to someone's lifestyle may be more effective in the long term, for example, suggest changing a couple of cups of coffee a day to an alternative decaffeinated drink rather than removing coffee altogether. If the individual notices an improvement in symptoms they may then decide to remove coffee completely. Table 2 provides an overview of the main risk factors and some suggestions for the education and support that could be provided.

Identified Risk factor	Suggested education and support to provide
Fluid Intake	<ul style="list-style-type: none">• Review the type and quantity of fluid intake with the individual – this may mean suggesting increasing or decreasing fluid intake• If caffeine intake is high – suggest changing to decaffeinated alternatives• Acidic drinks such as fresh fruit juices and carbonated drinks can also make urgency and frequency symptoms worse

Pregnancy and childbirth	<ul style="list-style-type: none"> • Pelvic floor exercise education should be provided in schools for younger women as part of health and sex education • Pelvic floor exercises should be taught to all pre and post natal women and reinforced at smear tests and general health checks • Leaflets are an effective way of getting information to a larger number of women – the leaflet should provide information on how to access a more comprehensive assessment if they have symptoms
Constipation	<ul style="list-style-type: none"> • Asking some general questions about a womans bowel habits should form part of a routine health check • If the women identifies straining to go on a regular basis – education can be provided around appropriate fibre and fluid intake
Medication	<ul style="list-style-type: none"> • As part of an holistic assessment a review of medications should be

	<p>undertaken – it may be possible to change some medications to alternatives with lower side effect profiles.</p>
Smoking and obesity	<ul style="list-style-type: none"> • Healthcare professionals should take every opportunity to educate about the risk factors of smoking and obesity to health in general, but linking these to incontinence symptoms may provide an added incentive

Consider what could you introduce in your practice/local area to promote continence or encourage women to seek help?

After reading the article, review your continence assessment form. does it include questions on lifestyle and risk factors?

Conclusion

Older women are at a greater risk of developing urinary incontinence. Many will not seek help due to embarrassment, health or cultural beliefs. There are a number of lifestyle changes that can be modified to prevent and improve incontinence symptoms. Healthcare professionals should be equipped to recognise risk factors and to educate women in order to promote continence.

Time out

Now that you have completed the article, you might like to write a reflection on what you have learned and how this may influence your future practice.

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