

Symptoms

Lower Urinary Tract Symptoms (LUTS) is a term that covers symptoms that result from conditions and diseases affecting the bladder and the urethra. These are:

- Storage symptoms which include the overactive bladder symptoms (urgency, urgency incontinence, frequency and nocturia) as well as pain and stress incontinence.
- Voiding symptoms which include slow and/or interrupted stream, terminal dribble hesitancy and straining. Suspicious symptoms such as haematuria (blood in the urine) and dysuria (pain passing urine) may indicate bladder tumour or urinary tract infection.
- Post micturition symptoms which include post micturition dribble (or incontinence) and the sensation of incomplete emptying.

Assessment

History:

Assessment begins with taking a history and the following questions will be asked about each of the above symptoms:

- If the above symptoms are present.
- Their frequency and severity.
- Any variation between night and day.
- Any precipitating or relieving factors.
- The coping measures used by the patient to improve the symptom.
- The impact of the symptoms on quality of life and social functioning.

Increasingly, validated questionnaires are being used to research patients' LUTS. The International Consultation on Incontinence has developed a modular questionnaire, the ICIQ (www.iciq.net). The ICIQ has modules for men and women covering LUTS, effect on quality of life and sexual function.

Frequency Volume Chart

Both the patient and their nurse/doctor gain great knowledge and insight into the individual's LUTS if a frequency volume chart (bladder diary) is completed.

For four days, the patient records the time they get up and go to bed, their fluid intake and the volume of urine passed each time they go to the toilet. The patient may also be asked to record every episode of incontinence and the use of incontinence pads. It may be necessary to ask patients to keep a food diary to assess the quantity of water containing foods eaten each day. It is possible to add additional requests for information such as urgency episodes, but care must be taken not to overload the patient with demands for information.

The frequency volume chart is particularly helpful in assessing polyuria/excessive urine production/ and nocturnal polyuria /excessive urine production during the night

Clinical Assessment:

Physical Examination

- Simple cardiac and respiratory examination to exclude signs of heart failure.
- Abdominal examination to exclude a pelvic mass or palpable bladder. This should include rectal examination.
- Simple neurological examination
- Pelvic examination in women to assess oestrogen status and the presence of pelvic organ prolapse.

Urine Analysis:

This should be performed on every patient and is done with a diagnostic urine "dipstick" to:

- Exclude blood in the urine
- Exclude the possibility of urinary tract infection. This may be indicated by a positive test for nitrites, protein or white cells and would be confirmed by urine culture.
- Exclude glucose in the urine.

Urinary tract imaging (ultrasound or X-ray):

- This is not routinely indicated unless there is a specific indication such as blood in the urine.

Urinary tract endoscopy;

- Similarly this is not indicated unless there is a specific indication such as blood in the urine or a symptom such as bladder pain.

Urodynamic Studies:

Many patients are treated with an empirical diagnosis provided the treatment is safe and/or relatively inexpensive. For example, provision of aids, lifestyle interventions, pelvic floor muscle training for stress incontinence and bladder training and antimuscarinic drugs for overactive bladder.

Should a patient fail to respond to the above measures, or if treatment is potentially hazardous and expensive, or if the symptoms are adversely affecting the patient's quality of life, then a urodynamic diagnosis is desirable.

Urodynamic studies range in complexity;

- Urine flow measurement and the assessment of bladder emptying (by ultrasound) is a simple screening test for voiding dysfunction.
- Filling cystometry is the test of choice for storage symptoms such as OAB or incontinence of any type.
- Pressure flow studies of voiding are able to confirm whether the patient's symptoms are due to bladder outlet obstruction or an underactive detrusor.

Complex urodynamic tests such as;

- Video-urodynamics are indicated when information on lower urinary tract structure combined with information on lower urinary tract function is also required.
- Ambulatory urodynamics are useful if conventional studies don't provide the answers.

In conclusion, the assessment of LUTS should be methodical and extensive enough to provide the basis for managing the patient's symptoms.

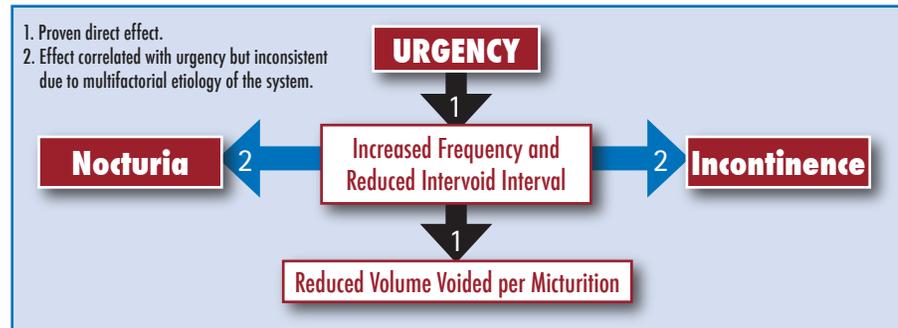
Symptoms

The function of the lower urinary tract (bladder) is to temporarily store a continuously increasing amount of urine at low pressure and expel it under appropriate and socially acceptable circumstances. The reservoir function of the bladder during the filling phase (which represents the majority of its activity cycle) is characterised by a permanently low pressure within it over a wide volume range, with a bladder outlet that remains firmly closed, even under conditions of abdominal straining. Conversely, during voiding the bladder should be able to develop a sustained contraction of sufficient strength with the bladder outlet offering a low resistance to urinary flow to ensure complete emptying of the bladder. The Standardisation Committee of the International Continence Society specifies the international standard definitions for the symptoms, signs and conditions associated with lower urinary tract dysfunction. These are detailed in their most recent report (the Standardisation of Terminology of Lower Urinary Tract Function) which is available on the ICS website (www.icsoffice.org).

OAB is a symptom syndrome that is defined as 'urgency, with or without urgency incontinence, usually with frequency and nocturia (sleep-disturbing voiding)' – these symptoms are suggestive of bladder overactivity (urodynamically demonstrable involuntary bladder contractions – see below) but can be due to other forms of voiding or urinary dysfunction – these terms can be used if there is no proven infection or other obvious pathology.

At this juncture it is useful to consider the definition of the various terms applied to the symptoms of the OAB syndrome:

- **Urgency:** The complaint of a sudden, compelling desire to pass urine that is difficult to defer (for fear of leakage)
- **Urgency incontinence:** The complaint of involuntary leakage of urine accompanied or immediately preceded by urgency
- **Frequency:** (Going more than 8 times in 24 hours) usually accompanies urgency with or without urge incontinence and is the complaint by the patient who considers that he/she voids too often by day.
- **Nocturia:** Usually accompanies urgency with or without urge incontinence and is the complaint that the individual has to wake at night one or more times to void.



The symptom of urgency is the most troublesome and drives the other symptoms of syndrome: Various studies have reported that this symptom complex affects 16 -17% of the population worldwide. Incontinence occurs in approximately a third of these individuals. This symptom complex increases in incidence with increasing age and affects between 70-80% of people by the age of 80. It is the most common reason why men seek advice for 'prostate related problems' and is more likely to be associated with incontinence in women than men. It is often not recognized but is a treatable condition, and this group of symptoms are the most bothersome to patients, producing devastating effects on quality of life.

Whilst OAB is a symptom complex clearly distinct from bladder overactivity –which can be proven by specialist investigation- the majority of people with OAB are thought to have this underlying diagnosis. As mentioned above, the detrusor pressure normally remains low during bladder filling. The occurrence of involuntary bladder contractions during the filling phase of an urodynamic (bladder function) study, spontaneously or on provocation, is called 'detrusor (bladder) overactivity. Detrusor overactivity may have several causes. Idiopathic detrusor overactivity (where there is no identifiable cause) is the most common type. Idiopathic detrusor overactivity may of course be due to unrecognised neurogenic (neurological – nerve related dysfunction) or due to myogenic (muscle related problems); which are thought to be the most common recognised causes of bladder overactivity. There is a clear age-related increase in bladder overactivity with is exacerbated by cognitive impairment.

Assessment

Clinical diagnosis is based on a careful history supplemented by the use of a bladder diary filled in by the patient documenting how often they void over a 24 hour period. Recognizing the possibility that symptoms of

OAB are present and their significance is the most important first step, towards effective treatment of the condition. Please refer to Factsheet No 1.

Treatment

Behavioural therapy and pharmacotherapy are the mainstay of treatment and there is a continuing search for more effective and selective drugs with minimal side effects. About 50% of patients gain satisfactory benefit from pharmacotherapy. Behavioural therapy involves altering a patient's drinking pattern by drinking less before bed or before a journey, while retraining the bladder to hold on for a longer time. A fluid/volume chart helps with this. Lifestyle interventions in the form of cutting out of caffeine and alcohol, and fluid restriction can be helpful. Most people suffering from this problem can attempt this before seeking advice. A number of drugs are available with proven effectiveness including darifenacin, solifenacin, tolterodine, trospium, oxybutynin and propiverine. Recently, the focus has been on minimally invasive therapies such as intravesical injection of botulinum toxin or neuro-modulation. Surgery for detrusor overactivity should be reserved only for patients for whom all conservative treatment modalities have failed, since all surgical procedures bring with them potential risks and complications.

Conclusion

'Overactive bladder' is the term applied to an extremely bothersome and common complex of symptoms often unrecognised as a diagnosis in the population; being associated with underlying bladder overactivity in the majority of cases. This condition causes enormous disruption of quality of life often leading to social isolation with important psychological and financial consequences and may even lead to increased mortality in the elderly.

Symptoms

Stress urinary incontinence (SUI) is the complaint of involuntary leakage of urine on effort or exertion, or on sneezing or coughing. It is the most common presenting symptom for which women seek the advice of a clinician. Stress incontinence is uncommon in the male population and usually follows prior surgery. Any incontinence in an elderly male should always raise the suspicion of chronic urinary retention. The presence of pelvic organ prolapse in women can be associated with stress urinary incontinence. The latter may be "masked" by the prolapse itself and is only detected after reposition of the prolapse or becomes evident after pelvic floor reconstructive surgery.

Urgency urinary incontinence is the complaint of involuntary leakage accompanied by, or immediately preceded by a strong desire to void. Mixed incontinence is the complaint of involuntary leakage associated with urgency and also with exertion, effort, sneezing or coughing. A history of incontinence with these other symptoms could suggest the possibility of detrusor overactivity (DO).

Assessment

(See Factsheet 1). Based on a history and clinical examination of the pelvis, it is possible to reach a presumed diagnosis of SUI due to sphincteric incompetence, as a basis for treatment with lifestyle modification and physiotherapy.

Urodynamic stress incontinence can only be diagnosed after performing urodynamics, and is the involuntary leakage of urine per urethram during periods of raised intra-abdominal pressure, in the absence of a detrusor contraction. Therefore, the International Continence Society recommends a full clinical and urodynamic assessment to objectively assess stress urinary incontinence, chiefly before surgery.

Treatment

A conservative approach is justified if symptoms are only mild, or easily manageable. When a woman's family is incomplete, or when symptoms manifest during pregnancy, surgery should be avoided. If surgery is considered unwise because of medical illness, when surgery is refused, or

if the waiting time for surgery is long, the symptoms may be ameliorated by appropriate conservative interventions. Drug regimens avoiding diuretics, control of chronic cough and constipation, cessation of smoking, exclusion or treatment of urinary tract infection, and weight reduction are desirable.

In recent years there has been a wide variety of new continence devices developed. Although interest continues with clinicians and patients, many of the devices have never made it on to the market or have been removed from the market shortly after release. Some products are available on the Internet but until they become more widely available, they will continue to be limited to specialist units in controlled trials.

The mainstay of treatment for stress urinary incontinence is physiotherapy, with recourse to surgery when indicated and desired. Physiotherapy modalities include pelvic floor muscle training, electrical stimulation, vaginal cones, and the use of biofeedback. Physical therapies represent the least invasive, but effective option for treating stress urinary incontinence. For this reason they are commonly used as first-line treatment. Many women's symptoms are cured or improved so that they do not require surgery, with its potential complications.

A new drug has been marketed, specifically for the treatment of stress incontinence. In randomised, double-blind, placebo-controlled trials comparing duloxetine 80mg/day and placebo. Incontinence was significantly reduced in comparison with the placebo arm with comparable improvement in the women most severely affected, with more than 14 incontinence episodes per week. The most common adverse effects are nausea, dry mouth, fatigue, insomnia, and constipation.

It is appropriate to review the outcome of initial treatment, with referral for specialist management where treatment fails.

'Complicated' incontinence (in the presence of pain, haematuria, or recurrence after previous corrective surgery) also requires specialist management.

Considering other medical conditions and their treatment may help, by changing medication to an alternative that has fewer

effects on the bladder or by improving the control of conditions affecting lower urinary tract function.

Traditionally, surgery for stress urinary incontinence has relied upon colposuspension or open sling procedures with comparable results. One must consider the risks of morbidity and mortality when counselling regarding surgery, and be aware of the risks of de novo detrusor overactivity and voiding difficulty, failure of the procedure, and future recurrence.

Over the last 20 years, attention has been directed at developing less invasive procedures with reduced morbidity, hospital stay and time taken to return to normal life.

Of the minimally invasive, mid-urethral supports, tension free vaginal tape (TVT) has been the most extensively investigated. In a trial to compare TVT with colposuspension as a primary treatment for SUI, no significant difference was found between the groups for cure rates. However, surgery with TVT led to more operative complications than colposuspension, but colposuspension was associated with more postoperative complications and longer recovery.

Coaptation of the urethral mucosa is an important part of the continence mechanism. If it fails, reduced pressures are needed to overcome the continence mechanism, and so peri-urethral bulking agents aim to create artificial cushions at the bladder neck.

Male stress urinary incontinence is common after radical prostatectomy and the artificial urinary sphincter is the most effective treatment of choice to overcome it.

Conclusion

Urinary incontinence remains a common and distressing condition, which adversely affects the quality of life of women. The advent of urodynamic studies has enabled an accurate diagnosis to be made in most cases.

Recent advances in the management of stress urinary incontinence have favoured a less invasive approach, and whilst initial results are promising, long-term results are awaited. Effective management is based on a multi-disciplinary, multi-modal approach.

Painful Bladder Syndrome Including Interstitial Cystitis

Symptoms

Painful bladder syndrome (PBS) has a major impact on the patient's quality of life. The frequent and painful need to urinate means that the patient is constantly looking for the next toilet. This can form a serious obstacle to work, travel, social life and relationships. Lack of sleep due to pain and frequent night-time urination causes fatigue, lack of concentration and irritability, while painful sexual activity may have a dramatic effect on a marriage or partnership.

Painful bladder syndrome is a chronic, painful condition of the bladder of unknown origin. Although the symptoms may initially resemble a bladder infection, urinalysis appears normal and a urine culture is negative. Interstitial cystitis (IC) is a subgroup of PBS patients with inflammatory changes in the bladder. Further specification of these changes awaits more research, but includes cystoscopic and morphological findings.

This distressing and potentially debilitating bladder condition is characterised by bladder pain, with a frequent and often intense desire to urinate including at night. The pain, which in some patients may be very severe, typically increases as the bladder fills and is temporarily alleviated when it is emptied. This pain may be suprapubic, in the bladder/urethra, vaginal, in the penis, scrotum, testicles and perineum and may radiate to the lower back and groin. It may be burning or stabbing pain or a feeling of pressure or heaviness. Both male and female patients may experience pain with sexual activity. The course of the disease may be characterised by exacerbation and remission ("flares") or the pain may be continuous.

PBS/IC is believed to affect mainly women (+ 90%) and is found worldwide in all age groups, including children.

PBS/IC is associated more commonly than

normal with a number of other disorders including allergies, irritable bowel syndrome, fibromyalgia, systemic lupus erythematosus and Sjogren's syndrome.

Assessment

Due to the lack of any clinical diagnostic criteria or any specific test, diagnosis is based on symptoms, examination, urinalysis and the exclusion of any identifiable causes such as benign or malignant tumours, bladder or genital bacterial or viral infection, radiation, chemical or tuberculous cystitis, bladder or urethral obstruction, prostate disorders and any other pelvic/ gynaecological disorders.

A cystoscopy under anaesthesia with hydrodistension and bladder biopsy may provide information concerning the presence of glomerulations (pinpoint haemorrhages), inflammation and an increased number of mast cells in the bladder wall, bladder capacity and Hunner's ulcer. The findings may provide support for a diagnosis and form a useful guide for the type of treatment to be followed. "Classic" IC with ulcers may lead to a fibrotic, contracted bladder which is not seen in non-ulcerative PBS/IC. Many patients may never progress further than a relatively mild form of the disease and may have a normal bladder capacity under anaesthesia.

Treatment

Since there is as yet no cure for PBS/IC, treatment is aimed at alleviating the symptoms and improving the patient's quality of life. Treatment is highly individual since no therapy exists that is equally effective for all patients. It may consist of diet modification, one or more oral drugs, bladder installations or injections, neuromodulation or surgical interventions. Surgery is considered to be a last resort but may be the only option for severe, refractory cases.

Conclusion

PBS/IC is a difficult condition: difficult to diagnose, difficult to treat and difficult for the patient to cope with.

Symptoms

Pelvic organ prolapse (POP) or genital prolapse is the herniation of pelvic organs through the urogenital diaphragm into the vagina.

Epidemiological data on the prevalence of genital prolapse are scanty and mainly based on surgical data bases. Given an average life expectancy of 79 years, the lifetime risk of a woman undergoing at least one operation is about 11.1% in this population. Analysis of the component procedures show that 40.1% of all pelvic floor operations address the anterior vaginal compartment, 18.0% address all three compartments, and 15.6% address both the anterior and posterior compartments. Repeat procedures comprise about 30%, highlighting the risk of recurrence.

Several large surgical data base studies confirm an annual age related surgical incidence in the range of 10 to 30 per 10,000 women.

The population prevalence for prolapse Stage II or higher is between 2 and 4% but may be much higher in clinical populations seeking gynaecological care.

The number of women with POP who never seek medical attention is unknown.

Clinical features of genital prolapse include a variety of symptoms typical of this condition such as the sensation of a lump, a dragging feeling and/or lumbar pain together with other associated disorders related to urinary, bowel and sexual functions. Patients could present with urinary incontinence, faecal and/or flatus incontinence, sensory and emptying abnormalities of lower urinary tract, defaecatory dysfunction and constipation, sexual dysfunction and chronic pelvic pain.

Urinary incontinence in association with pelvic organ prolapse (POP) can be overt or occult.

Overt incontinence means that the patient is symptomatic: there is a genital prolapse, the patient complains of stress or mixed incontinence and at physical examination the stress test is positive, resulting in urinary loss at coughing or during Valsalva.

Occult incontinence may also be referred to as masked or latent incontinence: there is a genital prolapse, the patient does not complain of urinary incontinence or she refers in the past a period of mild stress incontinence which then spontaneously disappeared. During physical examination, there is no visible stress incontinence when the prolapse is out, but after prolapse repositioning, the stress test becomes positive.

So occult incontinence is defined by a positive stress test only after prolapse repositioning.

Occult incontinence is related to the issue of de novo stress incontinence after surgical prolapse repair which ranges from 15 to 80% and is a very unfortunate event both for the patient and the surgeon. It is conceivable that most of patients with de novo stress incontinence had occult stress incontinence before surgery.

Assessment

The ICS Standardisation Committee has produced a standardised validated system: POP-Q ICS system which enables a numeric and reproducible prolapse classification. It is critical that the examiner sees and describes the maximum protrusion noted by the individual during her daily activities.

For general assessment see Factsheet 1.

Treatment

Prevention of genital prolapse is theoretically feasible by identifying risk factors and avoiding child birth induced pelvic floor damage.

Life-style interventions (such as Body Mass Index reduction and stopping smoking) may be helpful.

Pelvic floor muscle training can be useful in both the prevention and in the treatment of low degree prolapse; it is useless in cases of high degree prolapse, even though it can have a role before and after surgical treatment.

Pessaries can be indicated in the frail elderly or in patients refusing surgical treatment.

In cases of symptomatic genital prolapse, surgical repair is the standard treatment, excluding patients not suitable for an operation due to age/comorbidity. Genital prolapse surgical repair can be performed vaginally, abdominally, vaginally and abdominally, and laparoscopically.

Each route has indications, advantages and disadvantages.

Conclusions

Careful decision making is based on the recognition of the following variables:

Precise anatomic defects, aetiology, exacerbating and promoting events, patient's desires and expectations especially related to sexual activity, age and performance status, native tissue quality and durability, risk factors and life style.

Risk factors are: familial, body mass index, previous prolapse surgery, defective connective tissue, constipation and straining at stool, denervation and myopathy, leading to a wide levator ani hiatus.

Symptoms

Inability to control the bowels or “faecal incontinence” is a socially devastating symptom.

Faecal incontinence is surprisingly common, affecting about 5% of all adults, both men and women. One adult in every hundred has a regular problem. There are many possible underlying causes, the most common of which include:

- **Childbirth.** The muscles of the anal sphincter can be stretched or even torn during vaginal birth. This is most likely if the birth is difficult or the baby needs the help of instruments to be born.
- **Anal sphincter damage** can also be caused by other injuries, or inadvertently during surgery (such as an operation for haemorrhoids (piles).
- **Anal conditions** such as haemorrhoids or prolapse can cause leakage.
- **Diarrhoea.** Anyone with an upset stomach may have to run for the toilet if stool is loose. Some people have bowel disorders that give them regular diarrhoea: a few cannot reliably make it to the toilet in time.
- **Nerve damage.** People with neurological conditions may have difficulty with sensation, or with making the muscles work as they wish, or both. Spinal cord injury, multiple sclerosis and spina bifida are among many conditions which can lead to faecal incontinence.
- **Frail elderly,** especially those in Nursing Homes, may become very constipated for a variety of reasons due to poor health, medications, diseases, immobility and

loss of independence. Severe constipation (“impaction”) may eventually cause leakage from the bowel (“overflow diarrhoea”).

- Many **other factors** can affect bowel function, including anxiety, medications diet alcohol and caffeine as well as toilet accessibility for people with disabilities.

Urgency incontinence: the person knows that a toilet is needed urgently, but just cannot hold on long enough to make it to the toilet in time. This is usually the result of loose bowel motions and/or weak anal sphincter muscles.

Passive incontinence: stool leaks, usually without any warning or sensation. This is often the result of nerve damage, weak muscles or severe constipation.

Assessment

The majority of people with faecal incontinence are too embarrassed to seek professional help, or they wrongly assume that nothing can be done. This is a pity as the majority can be improved, and many cured.

The first step is an individual assessment to determine the cause. This will include detailed questions as to the history and pattern of the problem, related medical conditions and medications, diet and fluid intake, and questions to ensure that there are no “sinister symptoms” (such as bleeding, anaemia or unexplained weight loss) which might suggest bowel disease or even colon cancer (the second most common cancer in Western countries). The assessment and a physical examination may

enable a diagnosis. Sometimes further tests to image the anal sphincter muscles (by ultrasound or MRI), to inspect the lining of the bowel (endoscopy) or to test the nerve and muscle function of the lower bowel (Anorectal testing) are indicated.

Treatment

Treatment will depend on the cause. Sometimes a fairly simple adjustment of diet and medications is sufficient. Anti-diarrhoea medication often helps those with loose stool. Bowel and anal sphincter retraining are commonly used (this may be with the aid of specialist equipment, termed “biofeedback”).

Some causes of faecal incontinence are amenable to surgical correction. If the muscles have been damaged, a direct sphincter repair may be indicated. Complex injuries may need complete reconstruction or implantation of a neosphincter or a nerve pacemaker (sacral nerve stimulation). Several new approaches are in development, but have yet to be proven.

Living with long term faecal incontinence limits quality of life. Few products are suitable. Skin breakdown and social isolation are complications.

Conclusion

There is a need for much greater public awareness and for more professional interest and research into the neglected area of faecal incontinence.

Symptoms

Since the innervation of the lower urinary tract (LUT) is both complicated and subtle it is of no surprise that LUT dysfunction occurs in most neurological conditions to a variable degree.

The symptoms are related to the disease, dysfunction or injury type and degree (central versus peripheral and complete versus incomplete). In most neurological diseases there is a certain degree of filling/voiding function impairment. Examples of such diseases could be: stroke, Alzheimer disease, dementia, Parkinson's disease, multiple sclerosis, spinal cord injury, neuropathy.

Both storage and voiding symptoms could be present and a mixture of them is frequently observed.

In cases with storage symptoms the most frequent is neurogenic detrusor overactivity (a term used instead of idiopathic detrusor overactivity in cases of neurogenic bladder). Stress incontinence occurs as a result of injury to the sphincteric muscle itself or its innervation.

Voiding symptoms include incomplete (or lack of) bladder emptying as a result of poor bladder contraction (hypocontractility) or lack of contraction (acontractility). The outflow bladder obstruction also results in impaired bladder emptying and is caused by lack of synchronization between sphincteric relaxation and bladder contraction (detrusor/sphincter dyssynergia).

Assessment

The diagnosis of neurogenic bladder dysfunction is made based on a detailed assessment of information gathered from a full clinical assessment including history, with particular reference to clinical symptoms and signs, a physical examination with neurological testing and evaluation of the urine. For details see Factsheet 1.

To provide a clear functional diagnosis urodynamic investigation using a graduated series of tests is needed with special

emphasis on videourodynamic investigation. In addition to regular assessment; more refined tests, including nerve conduction studies, evoked potential studies and imaging of the nervous system are often helpful.

This combination of factors allow a detailed definition of the type of neurological dysfunction with particular reference to the various factors which are involved relating both to the detrusor, bladder neck, urethral sphincter mechanism and the inter-relationship between these.

Treatment

One of the main goals of treatment is to produce a low pressure continent urinary reservoir and to allow the appropriate regular emptying of urine at a socially convenient time at low pressure to avoid upper urinary tract complications and prevent urinary infection. Conservative treatment may consist of behavioural therapy, catheterisation (intermittent catheterization), the use of drugs which promote both storage (anticholinergics) and emptying (alpha adrenergic antagonists) and electrical stimulation.

Triggered voiding is to be used only in patients whose situation has proven to be urodynamically safe and stable and who can manage reflex incontinence. Bladder expression is basically dangerous and its indications are limited.

Timed voiding, habit retraining and prompted voiding can be used as part of each individual rehabilitation. Clean intermittent catheterisation (CIC) is safe and effective both in the short and in the long-term and CIC is recommended as first choice of treatment for those with inability to empty their bladder adequately and safely, but proper education and teaching is necessary. Indwelling catheters particularly when placed transurethraly can not be recommended for long term use in neurological patients, when all other measures are inappropriate then a suprapubic catheter is to be preferred.

External appliances are particularly useful for controlling urinary incontinence in neurological patients. Drugs which relax the bladder can be helpful. When these simple measures fail and before proceeding to more invasive treatment options, minimally invasive procedures, such as bladder and/or sphincter botulinum toxin injections should always be considered. Electrical stimulation of the third sacral nerve route is also recommended and there is an increasing interest in the use of intervesical electrical stimulation.

More complex surgical procedures include the use of sacral anterior nerve root stimulation which can to some extent restore a degree of bladder function and can also be useful with regards to erectile function. If the bladder outlet is constricted due to spasm of the sphincter then cutting this can be helpful. If the bladder is overtly overactive then the pressure in the bladder can be decreased and its capacity can be increased by using a segment of bowel (enterocystoplasty). This is a well tried and trusted technique which has been used for many years although it is not without complications and any of these patients require careful supervision and follow-up.

An artificial sphincter on the other hand can be used to provide control of the bladder outlet in patients with incontinence and occasionally sling procedures are of some use.

If all treatment modalities fail, then a diversion of urine preferably using a continent technique can be very helpful but should only be carried out in specialised units.

Conclusions

There is a great deal of ongoing research looking at all of these different aspects. Proper dysfunction oriented management of patients with neurological diseases affecting the bladder will substantially increase both quality of life and survival.

Bladder Dysfunction In The Frail Elderly

Symptoms

The elderly experience the same symptoms of bladder dysfunction as adults of all ages with the addition of worsening confusion in the case of urinary infection and the background influence of multiple medications, metabolic, cerebrovascular and age related cerebral dysfunction. However, in the frail elderly who may require assistance with toileting and hygiene, the impact on the quality of life of the carer as well as the patient needs to be considered. Urinary incontinence and nocturia are major sources of carer stress and a high risk factor for admission to institutional care. We also need to consider locomotor factors which may influence continence. Even if the mechanisms for maintaining continence are intact, difficulty in reaching the toilet due to severe arthritis, inability to climb stairs or Parkinson's disease will render the patient incontinent.

The impact of chronic medical conditions such as cardiac failure and chronic cough on symptoms of bladder dysfunction means a thorough medical assessment is essential.

Polypharmacy is a common problem in the elderly population. Many drugs in common usage can worsen symptoms by causing incomplete bladder emptying or constipation. Urinary frequency around the timing of diuretic therapy can be a problem and correlating symptoms with the timing of drug therapy can be helpful.

Assessment

The history should include an assessment of the patient's quality of life and the impact on the patient's main carer. A detailed social

history including ease of access to toileting facilities and ability to perform self care should be recorded. It is helpful to perform a formal test of cognitive function with the Abbreviated Mental Test score or Mini Mental State. A Barthel score to assess functioning in the activities of daily living can also be helpful.

A bladder diary (see Factsheet 1) is very helpful, but if this is difficult for the patient to carry out, a useful amount of information can be obtained from recording timing of voids, incontinent episodes and timing of drinks alone.

A general physical examination should be undertaken to exclude cardiac failure and neurological disease. The history should be able to ascertain whether the presence of an enlarged prostate or genital atrophy is the main cause of the patient's symptoms or a secondary finding. Faecal impaction is common in the frail elderly and should be excluded. An assessment of ability to stand from sitting, gait pattern and ability to coordinate lower body undressing in order to void is useful.

Detailed urodynamic investigation is not routinely necessary or desirable in a frail patient but a frequency volume chart should be used wherever possible with an ultrasound for post void residual.

Treatment

The elderly should not be denied any appropriate therapy on the grounds of age alone. Investigations into suspicious symptoms such as haematuria (blood in the urine) should be undertaken. Surgery may be

indicated in those who fail on conservative measures and who are medically fit.

Aggressive management of concomitant medical conditions should be undertaken. Constipation should be treated appropriately.

Drug therapy should be rationalised and any unnecessary drugs discontinued.

Behavioural modification including prompted voiding can be very helpful even in moderately confused patients. Antimuscarinic drugs are helpful, although drugs which cross the blood brain barrier may increase confusion.

Rehabilitation where necessary should be offered. The provision of aids such as raised toilet seats and urinals with one way valves can significantly help patients whose continence is in part due to locomotor difficulties. The concept of social continence should be considered. Often the patient and carers goal may be to keep the patient dry in certain social situations or at night. Reaching these goals may prevent the need for long-term care.

Conclusion

Bladder dysfunction and urinary incontinence can be personally and socially devastating to an elderly patient. They should not be denied access to any appropriate treatments and a full medical and social assessment is essential. This is a very important issue which will have far reaching social and economic implications in view of the increasing age of the population and the greater age related prevalence of these problems.

Enuresis & Children's Incontinence

Symptoms

Bladder dysfunction is the most common chronic disease in children. A major impact in quality of life and especially on self-esteem is well established. Therefore it is recommended that assessment and treatment should occur in children after their fifth birthday.

Enuresis (bed wetting) is defined as a normal micturition at the wrong time (night) in the wrong place (bed) without any daytime symptoms. We speak about primary enuresis when a child was not yet continent in night-time for at least six months. Secondary enuresis means a symptom free interval of at least six months.

There are several causes of enuresis: -night-time polyuria, - night-time bladder storage problems and a combination of both. A lack of the child awakening prior to voiding is also discussed. It is very important to differentiate this from children's incontinence where children are suffering from daytime symptoms with frequency (>7/day) and urgency, their bladder capacity is decreased in an age related fashion and they lose smaller amounts of urine in night-time but sometimes wet several times the same night.

By coping mechanisms such as restricted fluid intake, an increased voiding frequency and typical manoeuvres designed to teach them to hold on - children might be misdiagnosed as enuretics because this is the symptom which bothers the family most.

A subgroup of children suffering from lower urinary tract symptoms are those with an emptying dysfunction of bladder and bowel which may lead to recurrent urinary tract infections, urinary incontinence, reflux of urine to the kidneys, faecal soiling and/or constipation.

Assessment

A careful history focusing on bowel and voiding habits should be checked to get information about dysfunctional voiding. The main diagnostic tool is the use of a

bladder diary (refer to factsheet 1) including registration of nocturnal diuretic volume (pad weight+1st micturition) for nocturnal polyuria and definition of the individual functional bladder capacity (highest voided volume in daytime) combined with an ultrasound assessed post voiding residual urine.

An age-adjusted functional bladder capacity can be calculated. An adequate bodyweight adjusted fluid intake should be provided. All other investigations are as for adult procedures with the footnote that invasive procedures in children are recommended only for treatment failure patients and neurogenic or very complicated patients.

Treatment

Behavioural modification should first be utilized with timed drinking and voiding and consumption of 75% of fluid until 5pm using a body weight of just volume of intake and a restriction of "sweet" fluids. There should be instruction of how to sit on a toilet (supported with feet at right angles and arms on the legs) drinking and micturition should be regulated every two - two and a half hours.

When a child has emptying problems, double voiding especially before bedtime should be performed. Biofeedback training is an option for persistent dysfunctional voiding.

For enuresis use of an alarm to wake the child up as a form of treatment is an established option. Medical treatment with an agent to reduce production of fluids by the kidneys has been proven to be both effective and safe.

For incontinent children, the next step after behavioural modification is the use of a drug which reduces overactivity in the bladder. The primary therapy for neurogenic children is an anti-muscarinic treatment. Neurogenic children are diagnosed and treated as Factsheet 5.

Conclusion

Enuresis and incontinence in children both have a great negative impact on quality of life, with enormous effects on both the child's normal development and that of the family. The several treatment options outlined above are readily available and are effective and safe.

The International Continence Society was founded in 1971 by Eric Glen under the name of the "Continent Club" and held its first annual meeting the same year in Exeter where 60 participants attended. In 2005, we have over 2,000 members from 70 different countries with over 3,000 delegates attending ICS 2004 in Paris.

The ICS aims to provide education and advancement of sciences concerned with urinary tract and pelvic dysfunction including urology, neurourology, gynaecology and urodynamics. The Society also promotes research into the causes, remedies and relief of incontinence and provides access to the results of that research via website, email, post, telephone, paper publication, newsletters and presentations, annual congresses and courses.

Our Annual Meeting is hosted by a different member each year, selected by members ballot four years in advance.

- **2005 Montreal, Canada**
Chair, Jacques Corcos
- **2006 Christchurch, New Zealand**
Chair, Ted Arnold
- **2007 Rotterdam, The Netherlands**
Chair, Ruud Bosch
- **2008 Cairo, Egypt**
Chair, Sherif Mourad

Our membership subscription remains at £50 per annum and includes:

- Six bi-monthly copies of the Journal Neurourology and Urodynamics
- 40% reduction in registration to our Annual Meeting

- The ICS members' book and certificate
- Two bi-annual ICS newsletters
- Access to other members worldwide
- Information and education via our website, office, courses and meetings.

Today, the society employs three full-time staff at its head office in Bristol, UK and has an Executive Board comprising four voluntary directors. There is also an Advisory Group and many committees dedicated to various tasks ensuring the Society's charitable objectives are maintained (see chart below).

