

ADULT URINARY INCONTINENCE

SUMMARY

Urinary incontinence is not an inevitable consequence of ageing, when correctly diagnosed and treated most incontinent patients can be made socially continent

Physical / Behavioural therapy is the first line treatment for urge incontinence and for mild cases of stress incontinence

Oxybutynin and tolterodine are equally effective treatments for urge incontinence

Surgery may be necessary in some cases of stress and urge incontinence

INTRODUCTION

Urinary incontinence (UI) is described as an involuntary loss of urine which is objectively demonstrable and a social or hygienic problem.^{1,2,3} A recent Irish survey of 1,240 adults aged 40 years and over showed that 30% of those questioned regularly experienced bladder control problems; 14% of those in the 40-44 year age group and 36% of the 65 years and over age group were affected.⁴ Women of all ages may be affected and the incidence is higher in women than in men.^{1,2,5-7} Many accept the problem as a part of the natural ageing process.^{5,10-13}

The consequences of incontinence include economic burden, medical complications e.g. cystitis, and psychological problems e.g. depression.^{10,11} When correctly diagnosed and managed most sufferers can be cured or made socially continent.^{6,10,11,14,15}

PATHOPHYSIOLOGY

Three major components are involved in urine storage and release : the central nervous system (CNS), the detrusor muscle of the bladder and the internal and external sphincter muscles of the bladder outlet.¹⁰ (Figure 1)

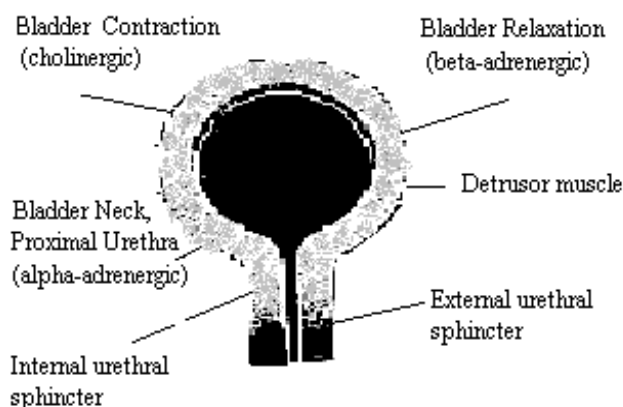


Fig 1. Bladder Innervation¹²

Urine storage is achieved by detrusor muscle relaxation and closure of both the internal and external sphincters. The CNS causes inhibition of parasympathetic

stimulation of the detrusor muscle which allows detrusor relaxation; a reflex increase in alpha adrenergic activity causes internal sphincter closure.^{10,11,16} During urination, parasympathetic stimulation causes detrusor muscle contraction while reduced sympathetic tone allows the external sphincter to relax.^{10,11,17}

AETIOLOGY AND CLASSIFICATION

Disorders of micturition can be caused by local effects on the bladder or urethra or may result from neurological disturbances. The term “neurogenic” or “neuropathic” bladder has been used to describe the latter condition.¹⁷

Urinary incontinence can be classified into four subgroups : **urge, stress overflow and mixed.**¹⁰

Urge incontinence is the involuntary loss of urine associated with a strong urge to void.^{5,6,19,20} It is the most common type of UI in the elderly and is more common in women than in men.^{7,10,18} Leakage of urine is frequent and nocturnal frequency and incontinence are common.^{7,11,18} Causes include neurological diseases e.g. multiple sclerosis, stroke, parkinsonism and genito-urinary conditions e.g. cystitis, urethritis or uterine prolapse^{5,10-12} Benign prostatic hyperplasia (BPH) is a cause of this condition in men.¹¹ In women, and in some men, there is often no overt cause.^{8,21}

Stress incontinence is characterised by the leakage of small amounts of urine when the intra-abdominal pressure is increased by activities such as coughing, laughing or sneezing.^{5,6,8,10-12,22} It is the most common cause of incontinence in women.^{8,11,17}

Causes in women include changes in pelvic floor musculature after pregnancy, oestrogen deficiency, increasing age and obesity.^{4,8,10,12} In men, stress incontinence is usually limited to those who have internal sphincter damage due to surgical procedures such as transurethral resection of the prostate or prostatectomy.^{10,11,18,22}

Overflow incontinence is associated with bladder contractile dysfunction or obstructed urinary outflow.¹¹ Symptoms include frequent or constant dribbling.^{6,17} Incomplete voiding may also be a feature.^{10,11} An underactive detrusor may occur secondary to drugs or medical conditions such as diabetes.⁶ In men, overflow incontinence may be secondary to BPH or prostatic carcinoma.^{6,17} This condition is uncommon in women but may occur postpartum or post-operatively. Treatment depends on the underlying condition.¹⁷

Mixed incontinence, a combination of urge and stress incontinence is common and should be treated from first principles.¹⁵

TREATMENT

Current management of incontinence includes behavioural therapy, drug treatment and surgery. In some patients behavioural therapy and drug treatment may have an additive effect, in others drug treatment may be used until the condition is controlled by behavioural therapy alone.¹⁶ Surgery is the mainstay of treatment for stress incontinence however mild cases may respond to behavioural therapy or drug treatment.^{7,19}

PHYSICAL / BEHAVIOURAL THERAPY

Physical / Behavioural therapy should be offered to patients as a first-line treatment^{15,16,18,23} Some physiotherapists have a special interest in this area. Mild symptoms may be alleviated by reducing excessive fluid intake and avoidance of drinks containing caffeine or alcohol.^{7,17} Excessive fluid intake may be a particular problem in patients who experience dry mouth with the antimuscarinic drugs below. Bladder retraining, pelvic floor exercises and vaginal cones are used to improve continence. Bladder retraining may decrease incontinence episodes in 75% of patients.⁵ Although generally used for urge incontinence, bladder retraining may also be helpful in mild cases of stress incontinence.⁵ Pelvic floor exercises have been shown to reduce incontinence episodes by approximately 80%.²³ The success of behavioural therapy is lower in the elderly and in the cognitively impaired.¹⁵

DRUG TREATMENT

Medication is reserved for those who do not respond to behavioural therapy.^{15,16,18,23}

ANTIMUSCARINICS

Since bladder contraction is mediated by muscarinic receptors antimuscarinic agents can be used to suppress early contractions.^{13,16,20,25} **Oxybutynin** and **tolterodine** are commonly prescribed medications. These drugs have similar efficacy.^{8,9,21} Oxybutynin may be started at a dose of 2.5mg bd or 3mg bd and increased if necessary up to a maximum of 5mg qds^{8,10,26,27} The recommended dose of tolterodine is 2mg bd. In impaired liver function or troublesome side effects the tolterodine dose maybe reduced to 1mg bd.²⁶ A dose reduction of both agents is recommended in elderly patients.^{10,26} Contraindications include untreated narrow angle glaucoma, urinary or gastrointestinal obstruction, prostatic enlargement.^{11,16} These drugs can increase bladder volume and therefore should be avoided in patients with urinary retention.^{17,26} Antimuscarinic side effects e.g. dry mouth, blurred vision and lethargy may reduce patient compliance.^{28,29} Studies have shown that tolterodine has a higher affinity for muscarinic receptors in the bladder than for receptors in the salivary glands, reducing the incidence and severity of dry mouth.^{19,21,28} Older patients may experience CNS side effects such as confusion.¹⁴ Several clinical trials have compared oxybutynin with tolterodine.²¹ Appell pooled data from 3 large studies which involved oxybutynin (5mg tds) and tolterodine (2mg bd). Both drugs were equivalent in effectiveness. Tolterodine was better tolerated than oxybutynin, causing less dry mouth (frequency 40% vs 78% and intensity 4% vs 29%), less dose reductions (9% vs 32%) and less patient withdrawals(8% vs 20%). One exclusion criterion for these studies was previous serious side effects on oxybutynin which to some extent favours the tolterodine arm of the study.³⁰ Considering the cost differential between these treatments it seems likely that tolterodine may be considered for patients who fail to tolerate oxybutynin therapy.²⁵

Emepronium, another anticholinergic agent was once popular but is considered to be of limited use.¹⁷ **Flavoxate** a smooth muscle relaxant has limited efficacy.^{8,16,18,19} **Propantheline** is no longer routinely used due to low response rate and high incidence of side effects.^{17,25,31}

OTHERS

Although unlicensed for this indication, **tricyclic antidepressants** (TCAs) are used in the management of detrusor overactivity. These agents have anticholinergic activity and inhibit noradrenaline and serotonin reuptake at the presynaptic membrane.^{11,12,31} The dosage is gradually titrated upwards to achieve the desired effect or until intolerable side effects occur.^{11,12} The usual dose of imipramine is 25-100mg

daily.^{6,10,19} Orthostatic hypotension is a troublesome side effect of TCA use however these agents may be particularly useful in patients with co-existent stress incontinence and in depressed patients.^{16,18} Clinical experience has shown that **imipramine** is also useful for stress incontinence.^{5,16} **Oestrogen** has been shown to be effective for the treatment of urge incontinence associated with atrophic vaginitis.^{11,16,24} Oestrogen replacement therapy may also be beneficial for post-menopausal women with stress incontinence as it increases the urethral closure pressure, restores perivaginal tissue integrity and increases urine storage capacity.¹² No single oestrogen preparation is more effective than another. Oestrogen may be given orally, intravaginally or as a transdermal patch.^{12,13} Women, already on standard oral oestrogen therapy may benefit from the addition of vaginal oestrogen.¹⁶ A progestogen should also be given to women with an intact uterus.^{12,32}

Drug treatment has a limited role in the treatment of stress incontinence.¹⁷ The use of alpha adrenergic agents e.g. **pseudoephedrine** is no longer recommended due to their high incidence of side effects.⁷

SURGERY

Minimally invasive procedures such as periurethral injections of collagen, can be effective, in improving urethral sphincter function in stress incontinence.^{17,19}

Surgery may be necessary in refractory cases of urge incontinence and is also used to treat stress incontinence due to the aetiology of the condition.^{6,7,19}

Cost of 28 days therapy (GMS prices November 1999)

DRUG	PRICE
Emepronium 250mg tds (Cetiprin Novum®)	£19.37
Flavoxate 200mg tds (Urispas®)	£9.98
Oxybutynin 2.5 mg bd (Ditropan®)	£8.74
5mg tds	£25.72
Oxybutynin 3mg bd (Cystrin®)	£9.86
5mg tds	£26.29
Oxybutynin 2.5mg bd (Renamel®)	£7.27
5mg tds	£21.40
Tolterodine 1mg bd (Ditropan®)	£33.33
2mg bd	£37.04

TIRIM, a nation-wide service offers information and support to all those affected by poor bladder control including family, friends and carers. Tel : 1850 476 476

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Every effort has been made to ensure that this information is correct and it is prepared from the best available resources at our disposal at the time of issue. Prescribers are recommended to refer to the drug data sheet or summary of product characteristics (SPC) for specific information on drug use.

