

LESSONS FROM A SYMPOSIUM ON URINARY INCONTINENCE IN THE ELDERLY - A SOLUBLE PROBLEM? HELD IN THE COLLEGE ON 6 MAY 1999

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The prevalence of urinary incontinence increases with age and causes considerable morbidity, care burden, and substantial costs to individuals and the National Health Service (NHS). Many endure the problem and the social isolation with which it is associated without seeking help. Prevalence in the community approaches one in six women of adult age, rising to one in three in private nursing home residents. The incidence is lower in men but increasing age narrows the gap. The Symposium held in the College on 6 May 1999 brought together the many disciplines involved in assessing and treating urinary incontinence. Its aims were to discuss common problems, the evidence for the different approaches to it and how services can improve. Too many common, clinical problems in geriatric medicine are 'evidence-free zones', and unfortunately this is also the case in some areas of urinary incontinence management.

DOES THE BLADDER AGE?

Ageing of the bladder is difficult to distinguish from disease. Many structural and functional changes occur with increasing age and such changes in females accelerate around the menopause, suggesting hormonal influences. After middle age the bladder becomes bigger and stiffer, as the amount of intramural collagen increases, and collagen subtypes and their ratios change. Its smooth muscle content decreases with an increasing mural fibrosis; this may be due to recurrent ischaemia associated with repeated overdistension. A loss of nerve fibres (in particular cholinergic nerve fibres) and a change in the balance of neurotransmitters locally affects neural control. At a microscopic level, many abnormalities have been described, but inconsistently.

Urodynamic studies are normal in only one in five of the elderly. The commonest patterns observed are detrusor instability (DI) and genuine stress incontinence (GSI). Urethral pressures decrease with age except in the case of DI where pressures are higher but still lower than in younger subjects with DI. In GSI there is a further decrease in urethral pressure over and above that seen in ageing alone.

The functional capacity of the bladder and bladder sensation decrease with age, leading to the requirement for it to be emptied at lower volumes and with less warning. This loss of bladder sensation is linked to perfusion abnormalities in cerebral cortical areas such as the hippocampus and cingulate gyrus. Normal bladder function requires an intact bladder, nervous supply and cerebral control.

Voiding also changes: residual bladder volume increases, with lower flow rates. Sustained detrusor contraction

becomes impaired. Urine production, and its circadian production rhythm, is altered, leading to frequency and nocturia. Loss of renal concentrating ability, increasing glomerular filtration rate whilst supine, decreased bladder capacity, drinking habits ('bedtime cocoa') and loss of circadian changes in ADH release, all contribute to this.

Correlating these changes with symptoms in health and disease is difficult. Severe urodynamic abnormalities do not predict severe clinical problem or symptoms. Nor do they correlate with response to treatment. The elderly, particularly women, with DI, seem to have a more 'aggressive' form of the condition, but have no worse a prognosis.

INTERACTIVE DEBATE - URINARY TRACT INFECTION

This session discussed urinary tract infection (UTI) in the elderly and its contribution to incontinence. The problems of diagnosis and when to treat were discussed in some depth, several areas provoking debate and some controversy further facilitated by the interactive electronic handsets installed in the lecture theatre. The questions posed and voted on were used as a springboard to discussion of the major issues arising.

Rates of UTI rise with age for both men and women, with rates for men nearing those of women as prostatic disease and outflow obstruction increase. Treatment rates of UTI do not mirror infection rates, in that as many men as women were treated, which posed the question of whether men were over-treated or women under-treated. Treatment was often initiated on the basis of symptoms alone, without cultures being sent. The relationship between lower urinary tract symptoms (LUTS) and infection is not always clear. In the elderly it is often difficult to decide who is truly asymptomatic.

The significance of asymptomatic bacteruria was a source of lively discussion about treatment. Some evidence shows that it is associated with decreased longevity, but this does not of course prove cause and effect. Other studies do not support the use of antibiotics, and show no beneficial effects thereof.

There was broad agreement that antibiotic treatment was appropriate in acute incontinence. Evidence does not support treatment in chronic (>3 months) incontinence; though many still felt that antibiotic treatment should be part of a management strategy, at least initially.

Antibiotic prophylaxis for recurrent UTI is not supported by good evidence. Careful patient selection is of much more import. Current guidelines favour the use of trimethoprim, nitrofurantoin or a quinolone, in one quarter of the normal therapeutic dose, taken post-micturition at bedtime. Cycling different antibiotics is not helpful. The use of amoxicillin and cephalosporins should be discouraged due to resistance problems and the risk of *Clostridium difficile* diarrhoea. Self-started courses of antibiotics may be of benefit, but once again evidence is lacking for this approach. Further study of longer courses

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of treatment for those with recurrent UTI is required.

A diagnostic strategy and the merits of different diagnostic methods were discussed. In the real world many are investigated for UTI without any symptoms or other indicators of infection, and 'routine' culture was part of practice in many situations. This practice is to be discouraged, as it is unproven and expensive.

In patients with new onset LUTS, with other indicators of infection such as fever, systemic symptoms or 'dipstick' abnormalities, the positive predictive value of an MSU is high (80% for one sample and 95% for two consecutive samples). The use of urinary 'dipsticks' can reduce the number of unnecessary cultures. Those testing positively for blood and protein (the presence of which is shown to be a poor predictor of infection) alone are not as helpful as those that also test for leucocyte esterase and nitrate, although the latter are more expensive. The positive predictive of dipsticks is poor, their strength lies in their high negative predictive value (i.e. if dipstick testing is negative, UTI is very unlikely). A logical strategy would be to send urine for culture where dipstick test is positive, and only to treat those with positive cultures; many recognised that in actual practice this was not always realisable. The different sources of funding of 'dipsticks' and of microbiological testing needs to be addressed if inappropriate urinary cultures are to be significantly reduced.

Finally in this session the use of cranberry juice was discussed: the conclusion was that the published evidence to back its use is not available, and is of doubtful value and conflicting.

THE UROLOGIST'S APPROACH TO MALE INCONTINENCE

Men with incontinence usually complain of LUTS, and incontinence as a symptom may need to be specifically asked about. Four main patterns predominate: post-micturition dribble (PMD), urge, overflow and stress incontinence. Assessment requires a focused clinical history, augmented by screening questionnaires, such as the International Prostate Symptom Score (IPSS). Physical examination, including a rectal examination to palpate the prostate is essential. Frequency/volume charts are helpful. Investigations should include urine 'dipstick' (and culture if appropriate), urea and electrolytes, prostatic specific antigen (PSA), uroflowmetry, and ultrasound scan for assessment of residual bladder volume.

PMD is due to an increase in the volume of urine in the bulbar urethra after voiding ceases. It may be primary (commoner with age) or secondary to urethral stricture or the presence of a urethral diverticulum. Definitive treatment should address the cause, but teaching the technique of urethral 'milking' after voiding is important.

Urge incontinence is due to detrusor muscle spasm. It may be associated with underlying bladder outflow obstruction, commonly due to prostatic disease but is also found in neurological disorders such as MS or multiple strokes. Uroflowmetry in conjunction with ultrasound can help to distinguish between the obstructed and non-obstructed varieties and this is critical to decide management. Those with obstruction require its relief and this often includes the use of alpha-blockers or 5-alpha-reductase inhibitors; surgery, usually TURP (felt to be the best option) is often necessary. For those without obstruction, bladder retraining together with the use of anticholinergics is the cornerstone of treatment. Other

options include local electrical stimulation or surgery, both of which have very variable success rates.

Overflow incontinence occurs in the context of chronic obstruction, where passive filling pressure overcomes sphincter tone. Catheterisation, either intermittent or indwelling, is required in the short term, with the suprapubic route being increasingly favoured. Surgery, normally TURP, is the definitive solution, but is not the best option for all patients.

Stress incontinence is rarer in men. It indicates sphincter deficiency, often secondary to previous surgery. Surgical treatment is best, with good results obtained using artificial sphincters. Sphincter bulking injections are an alternative, but have variable results.

'What is a significant residual volume?' was one of the questions discussed. The answer is anything over 200 ml, but the patient's symptoms must always be considered. The patients to be referred to a urologist are those with neurological problems, worrying symptoms or signs, and those whose management is difficult.

The following sessions reflected opinion from a wide range of health care professionals: gynaecologist, nurse, physiotherapist and public health physician. A recurring theme was the essential need for a pragmatic and individualised approach to patient management, guided by the best available evidence.

THE GYNAECOLOGIST'S APPROACH TO URINARY INCONTINENCE

A thorough clinical assessment is essential. A history, addressing also such gynaecological aspects as parity, postmenopausal bleeding and prolapse, should be followed by a full examination paying attention to the presence of abnormalities such as a cystocele or rectocele, pelvic floor deficiency or pelvic mass; the management of urinary incontinence can be greatly changed by the presence of these. Urine 'dipstick' is mandatory, to be followed by urinary culture as appropriate. Further investigation such as cystoscopy (carried out less frequently than in the past) and radiological investigations are sometimes required. Full urodynamic studies should only be performed where these results would affect management.

Many women have several LUTS in conjunction with incontinence. Causes of incontinence can be divided into the common - DI and GSI, less common - over-flow and fistula, and rare - congenital, diverticula. GSI is treated with oestrogens, physiotherapy or surgery. The management of DI includes behavioural therapy, medication, electrical stimulation and surgery. For both GSI and DI, the basic principle is to use the least invasive option first. The need for any surgery should be backed up by urodynamic data, as these help to select those patients who are most likely to benefit.

A continence program of instruction is effective: a randomised controlled trial supported the use of a program that included bladder retraining, normalisation of fluid intake, dietary advice, physiotherapy, general support and occasionally psychotherapy.¹ Moreover, this trial showed that equal results were achieved without the use of formal urodynamics. A further trial showed that such a program achieved just as good results with outpatients,² without the need for these patients to be admitted to hospital traditionally. Such an approach achieved cure or improvement rates of 60-70%.

Prolapse can be an important factor in the treatment of incontinence: its presence makes treatment failure more likely without effective management of the prolapse itself and indeed it may be the source of all the symptoms. A variety of surgical approaches have been tried, but there is evidence that those involving an abdominal approach are best. Success rates are good (>80%) in terms of symptom cure or improvement, but age or previous surgery decrease success and increase complication rates.

WHAT CAN THE NURSE OFFER?

Having concentrated on independent community dwellers for much of the day, this session focused on urinary incontinence in those in residential or institutional care. Key contributors to high rates of incontinence in this group are poor mobility and cognitive impairment. The emphasis in these patients still remains incontinence management rather than continence promotion for a variety of reasons including the motivation of patients and staff (who are often poorly paid). 'Pad and pants' remains the norm in nursing homes, with little attempt to reduce incontinence rates, and infrequent continence advice.

The frail, institutionalised elderly are often intolerant of investigations and treatments, and management strategies should recognise this; however, an individualised approach is essential. Toileting programs are more likely to be successful, but staffing levels often limit their use. Different programs have been studied, although patchily and often without control groups. The most successful utilised prompted voiding and individualised toileting schedules, rather than fixed toileting schedules. For the most frail, particularly those requiring hoisting, even such programs may be inappropriate, and the use of aids is more important for these patients. Female urinals may help and the use of suprapubic catheters should be encouraged in some cases.

Until recently the variety of products and aids, and their cost-effectiveness, have been inadequately evaluated, but this issue is now being addressed.

WHAT CAN THE PHYSIOTHERAPIST OFFER?

Evidence for the efficacy of physiotherapy in this area is sadly lacking. However, a key theme in this session was a firm belief that a committed therapist can achieve worthwhile results. A pragmatic, holistic and individualised approach is to be favoured. Motivation of patients and the importance of compliance (which predicts results) were stressed. The physiotherapist's approach to urinary incontinence focuses on improving mobility, the use of pelvic floor exercises (PFE) and practical advice on the 'nuts and bolts' of successful toileting.

Accurate assessment of mobility and a detailed digital assessment of the perineum are essential. PFE will not be effective if pelvic floor function is poor. Practical demonstration of PFE is necessary, as written instructions are ineffective.³ The use of biofeedback in conjunction with PFE can be helpful.⁴

The requirement for the availability of specialist physiotherapists was stressed, not only as a resource for the treatment of difficult-to-manage incontinence, but also as essential for dissemination of information and education of others.

WHAT CAN BEHAVIOURAL THERAPY OFFER?

This session discussed the treatment of DI, in particular

with behavioural therapy. Presenting features were reiterated: frequency, nocturia, urgency, enuresis, and urge, stress and intercourse-related incontinence. Aetiology is often multifactorial, and causative factors include psychological causes, outflow obstruction, previous surgery, neurological disorders, and urological pathology. Evidence for psychological influences include the presence of clear situational 'triggers' in some patients, the higher prevalence of irritable bowel syndrome and sexual problems in those with DI, and the fact that behavioural therapy is often effective. Compared to patients with GSI, patients, DI sufferers have higher anxiety ratings.

As previously documented, assessment is essential, primarily to rule out remediable pathology. Treatment options are many and it was emphasised that no single one is extremely effective. They include medication, bladder drill, other behavioural therapy, bladder distension, electrical stimulation and a variety of surgical approaches. Drug treatment of DI includes the use of anticholinergics, although oestrogens and DDAVP can also be used. Trials of anticholinergics reveal high placebo effect rates (up to 50%), but have not always assessed cure/improvement rates; these studies reveal high side-effect rates. The most commonly used agent oxybutynin is of benefit in 60% of cases, with newer agents having fewer side effects but lower effectivity. The innervation of the bladder is not purely cholinergic, therefore full efficacy cannot be expected.

The best-studied behavioural intervention is bladder drill.^{5,6} Key components of the success of this are patient understanding, meeting others with DI, training nursing staff, input/output charting, encouragement and the judicious use of drugs. Results are variable with good initial response rates (of the order 60-70%); longer-term results indicate relapse rates are high, but treatment can be repeated, with however poorer results. Other behavioural therapies such as hypnosis, biofeedback and acupuncture are less well studied, but suggest benefit in some.

CAN SERVICES IN THE COMMUNITY BE IMPROVED?

Continence services have not always been well organised and this session provided a public health physician's perspective of the problems of organisation and resources that need to be addressed to meet the needs of the bulk of those with urinary incontinence - those living in the community. The emphasis, as for those in residential settings, has in the past been on incontinence management rather than continence promotion.

A nurse-led intervention has clarified the prevalence of the problem in primary care. It established the need for treatment in those assessed and proved effective in curing or improving symptoms.^{7,8} It made clear that much incontinence goes undetected; extrapolation of the data suggests that as many as 6% of the adult female population would benefit from treatment. The intervention worked better for GSI than for DI, and led to decreased pad use. One of the main objectives of the intervention was the teaching and training of practice and district nurses to better tackle incontinence in the community and expand the service.

Delivering an effective service to the community for urinary incontinence can be achieved through a three-tier model. The first level of this is primary care, the team members being GPs, practice and district nurses, and health visitors. Those failing treatment at this level can be referred

on to a second, but still community-based, service involving continence advisors and physiotherapists with access to ultrasound and specialist services. Those with worrying symptoms or difficult management problems require referral to the third tier i.e. secondary hospital care, either the gynaecology or urology services with access to urodynamic testing. Developing such a service requires time, effort, co-ordination and resources, and research is needed to evaluate its cost-effectiveness.

CONCLUSIONS

Some general conclusions could be drawn from the symposium. Urinary incontinence is a symptom not a diagnosis; it requires thorough assessment and investigation, if warranted. The treatable should be treated, when this is acceptable to the patient, using conservative therapies first, and surgery only when these have failed. A multidisciplinary approach is crucial. Co-ordination, good service design and adequate resources are vital. The evidence base is incomplete and more good quality research is urgently needed.

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THE SPEAKERS WERE:

Dr A. Wagg	Does the bladder age?
Dr R. Masterton, Dr A. Wagg	Interactive debate: common dilemmas what would you do?
Mr L. Stewart	The urologist's approach to male incontinence.
Prof. J.G. Ouslander	Surely we don't investigate if they are very old?
Dr I. Ramsay	The gynaecologists' approach to urinary incontinence.
Ms M. Fader	What can the nurse offer?
Mrs J. Haslam	What can the physiotherapist offer?
Dr G. Jarvis	What can behavioural therapy offer?
Dr J. O'Brien	Can services in the community be improved?

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