

Who are 'Sydney Urodynamic Centres'?

Sydney Urodynamic Centres has been providing the women of New South Wales and their doctors with a comprehensive urodynamic service for the past 20 years. They are able to scientifically assess female urinary incontinence and lower urinary tract dysfunction, provide an accurate diagnosis to the referring doctor and advise on clinical management.

The service is run by three urogynaecologists, trained and accredited in this sub-specialty by the Royal Australian and New Zealand College of Obstetricians and Gynaecologist (RANZCOG). These partners are assisted by a group of highly trained nurses who are adept at making the experience more pleasant for the women. There are seven centres around Sydney where studies can be performed in order to facilitate easy access to the service for most women.

These locations are:

SYDNEY

Sydney Urodynamic Centre
Basement, 135 Macquarie Street, Sydney

CHATSWOOD

North Shore Urodynamic Centre
Suite 70, Chatswood Village
47 Neridah Street, Chatswood

CAMPERDOWN

Camperdown Urodynamic Centre
Suite 404, RPAH Medical Centre
100 Carillon Avenue, Newtown

CONCORD

Concord Urodynamic Centre
Level 2, Concord Hospital Medical Centre
209 Hospital Road, Concord West

BANKSTOWN

Bankstown Urodynamic Centre
Suite 2, Level 1, 56 Kitchener Parade, Bankstown

LIVERPOOL

Liverpool Urodynamic Centre
Suite 20, 2nd Floor, 17 Moore Street, Liverpool

PENRITH

Penrith Urodynamic Centre
Nepean Private Specialist Centre
Suite 1, 1A Barber Avenue, Penrith

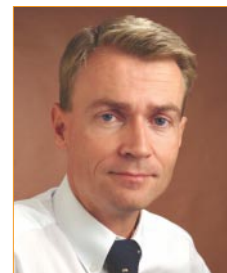
For all appointments call (02) 9790 6969

Associate Professor

Hans Peter Dietz

MD PhD FRANZCOG DDU CU

Associate Professor Dietz graduated from Heidelberg University, Germany, in 1988. After first emigrating to New Zealand, he arrived in Australia in 1997 and completed his FRANZCOG training in 1998. Between 1999 and 2002, Associate Professor Dietz undertook urogynaecology subspecialty training in Sydney, in addition to presenting a PhD thesis at the University of NSW. His major research interests include the interaction between pelvic floor biomechanics and childbirth, pelvic floor imaging, as well as the effects of anti-incontinence surgery on anatomy and voiding function. Today, he is employed as Associate Professor of the Obstetrics and Gynaecology Unit at the Nepean Campus of the University of Sydney, as well as a specialist in urogynaecology at the Sydney Urodynamic Centres.



Associate Professor

Christopher Benness

MBBS MD FRCOG FRANZCOG CU

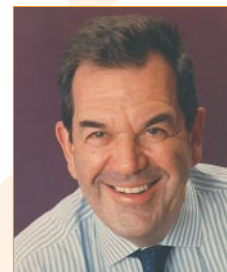
Following graduation from Sydney University, Associate Professor Benness did his specialty and sub-specialty training in both Sydney and London. An accredited sub-specialist in urogynaecology with the RANZCOG, he is a trainer and examiner in this field. He is a senior specialist in gynaecology at the Royal Prince Alfred Hospital, where he is also Head of the Department of Urogynaecology and Chairman of the Medical Board. He is active in both teaching and research, and is a Clinical Associate Professor at the University of Sydney. His main research interests are improving surgical procedures for stress incontinence and prolapse. Married to a GP, he has three young sons.



Dr Andrew Korda

MA MHL MB BS FRCOG FRANZCOG CU
FACLM

Following graduation from the University of Sydney, Dr Korda did his speciality training at the Royal Prince Alfred Hospital in Sydney, with further training in Oxford and New York. He is an accredited sub-specialist in urogynaecology, pelvic floor disorders, and reconstructive pelvic surgery. Dr Korda is also a senior specialist in gynaecology at the Royal Prince Alfred Hospital, where he is Chairman of the Pelvic Floor Unit. He is a clinical lecturer in gynaecology at the University of Sydney, and is involved in both teaching and research. Dr Korda was Chief Examiner in Urogynaecology and past Chairman of the Urogynaecology Sub-specialty Committee of the RANZCOG. He is also trustee of the Australian Bladder Foundation.



If you don't want to receive this newsletter or the details we have for you are incorrect please contact us at pracman@urodynamic.com.au or fax (02) 9790 6441.

Vesica



Sydney Urodynamic Centres newsletter for medical practitioners

Conference season 2005: What's new in Urogynaecology?

This year's main conference events in Urogynaecology were held in Copenhagen, Denmark, from 9 August to 12 August 2005 and 28 August to 3 September 2005 in Montreal, Canada. Both meetings were well attended, including dozens of Australian Gynaecologists, Urologists and physiotherapists, with several presenting.

Professor Dietz attended conferences in both these cities.

It is clear that we still have a lot to learn about bladder physiology. In a keynote speech in Copenhagen, the physiologist James Gillespie gave a fascinating account of recent research on bladder physiology.

It seems we're finally beginning to understand how bladder sensation works. As in other hollow viscera, it seems that filling is sensed with the help of frequent low-amplitude contractile activity.

This activity results in intraluminal pressure changes, the magnitude of which is dependent on filling. What this means is that detrusor activity during filling is perfectly normal. What is not normal is a detrusor contraction during filling that is strong enough to result in leakage or voiding.

The 'new' urodynamics

David Griffiths, one of the 'grand old men' of Urodynamics gave a keynote talk in Montreal on 'the new urodynamics', summarising recent research using functional MRI in order to elucidate what actually happens in the brain during the filling phase.

The main point he made was that emotion and any other distracting brain activity can alter sensation, explaining the variability of urodynamics indices such as first sensation, maximum capacity and the likelihood of unstable detrusor contractions.

This very likely explains as to why urodynamics findings vary so much from one lab to the other and on retesting. If you reduce stress levels by providing a friendly, relaxed and less technical setting, then maximum capacity will be higher and the prevalence of detrusor overactivity will be lower. David Griffiths went to great lengths to point out that this is not a weakness of urodynamic testing, it's just the way the human body works.

Stem cell research

Stem cell research is all the rage, in Urogynaecology as much as just about everywhere else. Large sums of money, time and effort continue to be poured into this area. Human applications are not in sight yet due to the neoplastic potential of stem cells.

In Urogynaecology, efforts have focussed on using muscle stem cells in an attempt to bolster urethral closure. Compared to the potential impact of regeneration of neural pathways after spinal cord injury, this field seems to be of rather minor importance, but undoubtedly we'll see much more of this research in the future.

Imaging

Imaging continues to develop at a fast pace, and it is starting to be used for neurophysiological and biomechanical work as well.

In an interesting application of 3D pelvic floor ultrasound, the group of Delores Pretorius in San Diego showed results of a study that demonstrated that pudendal nerve blockade increases the levator hiatus on ultrasound and reduces voluntary activity of the pubovisceral muscle, arguing for innervation of this muscle by the pudendal nerve rather than separate branches arising from S2-S4.

Professor Dietz presented the results of a study conducted in 2004. In a world first, he was able to show that vaginal delivery results in significant trauma to the pubovisceral muscle and that such trauma is visible on 3D/ 4D pelvic floor ultrasound in up to one third of women. This was the only Australasian presentation selected for webcasting, found under <http://webcasts.prous.com/ics2005/>. Such data agrees well with recent twin research from Illinois showing that delivery mode is the major environmental determinant of stress urinary incontinence.

Similar defects of the levator muscle can also be seen in parous, symptomatic women later in life. The trauma seems associated with prolapse, especially of the bladder and uterus and less strongly with de novo or worsened stress incontinence postpartum.

The most worrying aspect of this research however, is the fact that there seems to be an association between maternal age at first delivery and the likelihood of defects, an association that has also been observed on MRI. If this is indeed true, then we'll be facing an epidemic of pelvic floor problems over the coming decades as women today have their babies so much later in life than their mothers and grandmothers.

In the most interesting MRI study to be presented this year, Ben Adekamni from Plymouth, UK, showed that defects of the pubovisceral muscle (the 'avulsion defects' previously discussed in our newsletter) seem associated with surgical failure after conventional anterior colporrhaphy. This makes good sense and agrees with

... continued from page 1

previous work from Sydney and Townsville which showed that poor levator support seems associated with recurrence after rectocele repair. It is quite obvious that a clinically apparent anterior or posterior compartment prolapse may be due to very different anatomical situations.

Imaging may also help with the prediction of functional complications. Duncan Robinson of King's College, London, presented a study showing that bladder wall thickness measured by ultrasound can predict de novo detrusor overactivity after anti-incontinence surgery. In the future we will have to tailor our treatment to the actual anatomical situation rather than the simple visual appearance on clinical examination. This means that we should aim for the provision of sophisticated imaging services together with urodynamics and Sydney Urodynamic Centres are uniquely well placed to provide such services.

Suburethral slings

The relatively novel concept of urethral retro-resistance saw no further development at this year's meetings and the same is true for the intravaginal slingplasty, both of which seem to be rapidly going out of fashion. Having said this, the idea of providing for posterior compartment support by techniques borrowed or adapted from the posterior IVS is alive and well, even if very little actual data was shown in Copenhagen or Montreal.

The trend towards implantation of more synthetic mesh seems to be continuing, even if several reports highlighted erosion rates of 5-10%, with the highest rates found in patients who had undergone 'total vaginal mesh repair', i.e. a combination of anterior and posterior compartment mesh placement. Concomitant hysterectomy also seems to increase erosion rates.

The outstanding presentation regarding suburethral slings was Nick Tsokos' RCT of TVT versus Sparc, showing that the Sparc is a valid alternative to the original suburethral sling. As mentioned above the IVS seems to be largely forgotten.

Other competitors do not seem to fare very well in reinventing the wheel. In one instance, the Mentor tape, which is not marketed in Australia, the manufacturer seems to have invented a rectangular wheel. Touted as superior due to greater stiffness, it seems to result in a surprisingly high erosion rate, a result that could have been predicted from biomechanics work done here in Sydney five years ago.

Another paper presented by Professor Dietz was a case control series of TVT versus Monarc which showed superior satisfaction rates for the Monarc suburethral sling, but such data will have to be confirmed by RCTs.

One of the few papers focussing on conservative treatment of incontinence, presented by Wael Agur of Plymouth, UK, confirmed what had been shown by Siv Morkved from Norway last year, that intensive pelvic floor muscle exercise programmes in pregnancy have no negative effect on delivery outcome.

Detrusor overactivity and stress incontinence

Rather surprisingly, there wasn't much new on medical treatment for detrusor overactivity and stress incontinence, despite the enormous number of satellite symposia sponsored by the pharmaceutical industry. To sum up, it seems obvious that the slow release forms of Tolterodine and Ditropan are less likely to cause side effects than the original formulations. Despite this, many patients don't renew prescriptions as shown by an interesting study of pharmacy records from the US.

Newer anticholinergics such as Solifenacin or Darifenacin hold promise but are still some time away.

Regarding the pharmacological treatment of stress incontinence, the degree of marketing effort put in by pharmaceutical corporations seems massively disproportionate to the benefit ascribed to such drugs even in industry-sponsored research.

The influence of industry on research and on the practicalities of meetings continues to rise as seen from the fact that 77% of registrants in Copenhagen were industry-sponsored. Paul Hilton, a much respected senior Urogynaecologist from Newcastle upon Tyne summed it up nicely in a keynote speech in Copenhagen when he called his colleagues 'poodles' for allowing themselves to be corrupted by multinational pharmaceutical corporations.

The effect of this trend on our meetings is obvious: almost one third of all papers in Montreal were industry-sponsored. Many posters are instantly recognised as industry work as they share design and layout (following a 'corporate look'), with the names of a few clinicians added for credibility. At both meetings full-time industry employees were brazen enough to present papers that were first-authored by clinicians, in some instances without disclosing their employer.

Professor Dietz is of the opinion that action has to be taken to reduce potential bias and preserve ethical standards. The issue was discussed in an unusually heated fashion at the ICS AGM in Montreal.

Lewis Wall, the head of the ICS Ethics Committee, presented a raft of measures designed to counter this trend, including mandatory disclosure of all industry sponsorship of individuals of institutions, which would include sponsorship of registration fees, flights and accommodation, and stricter criteria on the publication of industry-sponsored research.

Christchurch 2006

The next ICS will be held in Christchurch in late November 2006 in conjunction with the annual meeting of the Continence Foundations of Australia and New Zealand.

As it's just a short hop across the Tasman for Sydneysiders, the partners of Sydney Urodynamic Centres are looking forward to meeting many of our regular readers there.

Recurrent urinary tract infections

Recurrent urinary tract infections (UTI) are a common problem with significant associated morbidity.

It has been estimated that 40% of women will have a UTI at some time in their adult life and of these, 27% will have a recurrence in six to twelve months. Three or more confirmed UTIs in twelve months constitutes the diagnosis of recurrent UTI. It is important to distinguish persistent infection from relapsed infection or reinfection.

Aetiology

Uropathic bacteria, most commonly *Escherichia Coli*, enter the bladder from the vagina or perineum, particularly with intercourse and are usually expelled by voiding. Any process that impairs voiding function or voiding frequency may predispose to the development of a UTI.

Some causes of voiding dysfunction include medications, outflow obstruction following surgery or secondary to prolapse, or ageing. A large cystocele may be associated with incomplete bladder emptying and a rectocele or fecal impaction may compress the urethra and cause outflow obstruction.

Disruption of the normal vaginal flora may predispose to UTIs and may occur following antibiotic therapy and also with the postmenopausal state. Lack of estrogen stimulation leads to a reduction in glycogen production which is required by the normal vaginal lactobacilli.

Sexual activity and contraceptive diaphragm use also predispose to UTIs. Spermicidal lubricants increase this risk. Poor oral fluid intake may result in infrequent voiding and stasis of urine in the bladder, predisposing to infection.

Recurrent UTIs may be related to a structural abnormality of the genitourinary tract such as duplex ureters, urinary tract calculus, renal abscess and vesicorectal fistula. However, only a small percentage of women with recurrent infections have an anatomical or functional abnormality. Diabetes is associated with a two to three times increased rate of UTIs. However, in most women with recurrent UTIs, the reason for their occurrence is unclear.

Investigation

Following a detailed history and examination, appropriate investigations include a mid-stream specimen of urine and renal tract imaging, usually by ultrasound. Bacteriological confirmation of the UTIs is preferred as the symptoms of a UTI can be mimicked by other conditions. Renal tract ultrasound can be combined with an x-ray of the kidneys, ureters and bladder, looking particularly for calculi. Intravenous urography is usually not required as a first-line investigation.

Cystourethroscopy is recommended in women with confirmed recurrent UTIs. It is useful in identifying morphological abnormalities, such as diverticula and exclusion of bladder tumours and calculi. Urodynamic studies should be considered in those with symptoms of voiding dysfunction and previous bladder neck surgery. Women with 'culture-negative' episodes of cystitis are often shown to have detrusor overactivity.

Treatment

After thorough clinical assessment, explanation and reassurance is important. Treatment should then aim at removing the underlying cause of the infections when possible.

Incomplete bladder emptying should be investigated and treated to overcome outflow obstruction. This can be done surgically or by the use of clean intermittent self-catheterisation. Surgical repair of a cystocele may aid voiding by unkinking the urethra. Urethrotomy to a urethral stricture may improve abnormal flow.

Women using diaphragms and spermicidal cream should consider alternative contraception.

In general, women should be advised to maintain an adequate fluid intake of at least 1.5 litres per day. Constipation and faecal impaction should be treated. Women should also be encouraged to void following intercourse. This helps flush out the bacteria which are often pushed into the bladder with intercourse.

The vaginal administration of estrogens in peri and post menopausal women is recommended (eg Ovestin cream or Vagifem twice weekly). This can raise the vaginal pH and reverse the microbiological changes that occur in the vagina following the menopause and has been shown to reduce the occurrence of UTIs in this group of women.

In the elderly, bowel management, perineal hygiene and hydration should be reinforced. In women with catheter-associated infections, catheter management should be reviewed.

Cranberry juice or tablets are a safe, naturally occurring substance that has been demonstrated to reduce the risk of UTIs in sexually active women. Cranberry juice contains fructose which may interfere with the adhesion of the fimbriae of uropathic bacteria to the bladder mucosa. The recommended dose is 300mls per day.

For women with frequent UTIs, antibiotic prophylaxis should be considered. The options are patient-initiated therapy, post coital therapy or longterm prophylaxis. Recommended antibiotics for long term low dose prophylaxis include trimethoprim (100-150mg nocte), cotrimoxazole (40/200 mg nocte), nitrofurantoin (50-100mg nocte), cephalexin (125-250mg nocte) and norfloxacin (200mg nocte). Nitrofurantoin intermittently sterilises the urine, and norfloxacin and cotrimoxazole reduce uropathogens in fecal flora.

Conclusion

Recurrent UTIs are a significant problem for women of all ages, the problem increasing with advancing age, and being a particular problem in the institutionalised elderly. Thorough assessment enables a targeted approach and appropriate management.

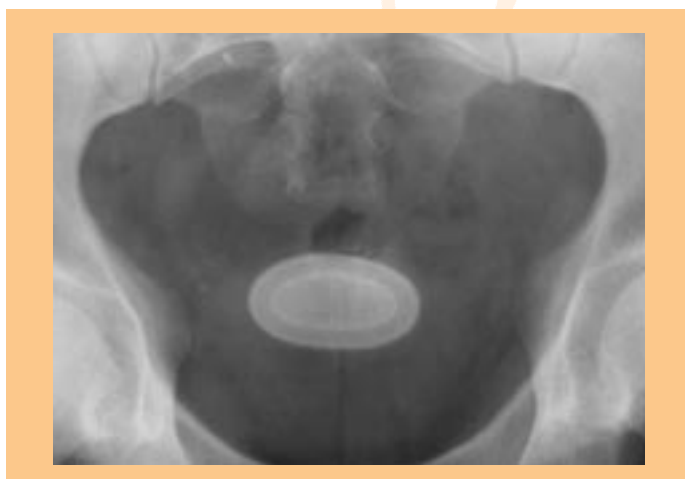


Figure 1: Bladder calculus on abdominal x-ray in woman with recurrent UTIs.