VOLUME 101 | SUPPLEMENT 5 | JUNE 2008 BJU INTERNATIONAL

BAUS Annual Meeting, 23–27 June 2008, Manchester Central

Poster Sessions

Tuesday 24 June

Poster Session 1
11.30-12.30 Charter Room 3
PROSTATE CANCER DIAGNOSIS
Chairman: Mr Nick George
Posters P1-P10

Poster Session 2
14.00-16.00 Charter Room 3
BENIGN PROSTATIC ENLARGEMENT
Chairman: Mr Mark Speakman
Posters P11-P23

Poster Session 3
14.00-16.00 Charter Room 1
BLADDER DYSFUNCTION, RECONSTRUCTION AND TRAUMA
Chairman: Mr Ian Eardley
Posters P24-P38

Wednesday 25 June

Poster Session 4
11.00-12.30 Charter Room 3
ANDROLOGY
Chairman: Mr Steve Payne
Posters P39-P48

Poster Session 5
14.00-16.00 Charter Room 3
MANAGEMENT AND GOVERNANCE
Chairman: Mr Krishna Sethia
Posters P49-P63

Poster Session 6
14.00-16.00 Charter Room 1
UPPER TRACT STONES AND IMAGING
Chairman: Mr Sam McClinton
Posters P64-P78

Thursday 26 June

Poster Session 7
11.00-12.30 Charter Room 3
BASIC SCIENCE
Chairman: Professor Kilian Mellon
Posters P79-P88

Tuesday 24 June, 11.30–12.30
Prostate Cancer Diagnosis
Chairman: Nick George

P01

The natural history of a raised PSA without invasive investigation

D. CONNOLLY, A. BLACK, L.J. MURRAY, A. GAVIN and P.F. KEANE
Department of Urology, Belfast City Hospital, Cancer Epidemiology and Prevention Research Group, Centre for Clinical and Population Sciences, Queen's University Belfast; Northern Ireland Cancer Registry, Queen's University Belfast, Belfast, UK

Introduction: In Northern Ireland during the mid-1990s, many men with moderately elevated PSA levels did not proceed to prostate biopsy. We followed these men to assess the natural history of a raised PSA without invasive investigation.
Patients and Methods: From a regional PSA database, men who had their first PSA test between 1994 and 1997, were aged <60 years old and had a moderately elevated PSA [=age-specific reference range (ASRR) and <10.0 ng/ml] were identified. Those with no diagnosis to explain their raised PSA were invited for repeat PSA testing.
Results: One thousand, three hundred and fifty-two men were included. 148 (10.9%) have died with 11 (7.4%) of these from prostate cancer. Of the remainder (n = 1204), 386 (32.1%) underwent prostate biopsy/TURP before 2004. Of the remaining 818 men, repeat PSA data were available in 546 (67.0%). Mean PSA decreased from 4.82 ng/ml to 4.68 ng/ml (P = 0.57). The majority of men showed a decrease in PSA with over half returning to normal levels (Table).

TABLE: for P01

Repeat PSA	Number of men (%)	Mean PSA change (ng/ml)	PSA velocity (ng/ml/year)
<ASRR	339 (62.1)	-2.64	-0.27
Decreased but ≥ ASRR	31 (5.7)	-1.04	-0.11
Increased	176 (32.2)	4.83	0.49
Total	546	-0.14	-0.02

Conclusion: In this population, a moderately elevated PSA returned to normal in the majority of men. This may have important implications for using a single PSA in population screening. The risk of prostate cancer when PSA remained above normal is currently being investigated.

P02

The value of PSA testing in men older than 65 years

D. CONNOLLY, A. BLACK, L.J. MURRAY, A. GAVIN and P.F. KEANE
Department of Urology, Belfast City Hospital; Cancer Epidemiology & Prevention Research Group, Centre for Clinical and Population Sciences, Queen's University Belfast; Northern Ireland Cancer Registry, Queen's University Belfast, Belfast, UK

Introduction: The use of PSA testing in older men may lead to overdiagnosis of clinically insignificant prostate cancers. We assessed baseline PSA levels and the risk of clinically detected prostate cancer and prostate-specific mortality in men ≥ 65 years.
Patients and Methods: From a regional PSA database, all men aged ≥ 65 years who had their first PSA between 1994 and 1998 were identified. These were followed for prostate cancer diagnosis and mortality until 2003. The absolute risk and hazard ratio for cancer diagnosis and mortality, based on baseline PSA, was determined.
Results: 36003 men were included. Mean age was 74.9 years and mean follow-up 5.4 years. 2153 (6.0%) men were diagnosed with prostate cancer. 13074 (36.3%) died, with prostate cancer the cause of death in 673 men (5.1% of deaths). Within age groups, the absolute risk and hazard ratio of cancer increased incrementally with baseline PSA (Table). Prostate-specific mortality remained low (<5/1000 person years) at all PSA categories <15.0 ng/ml. All-cause mortality was similar in PSA categories <10.0 ng/ml, and was much greater than prostate-specific mortality across all PSA categories.
Conclusion: In these men, death from prostate cancer was infrequent when baseline PSA was <20.0 ng/ml. A conservative approach to investigation may be appropriate in men ≥ 65 years.

P03

Abstract withdrawn.

P04

Pharmacokinetic description of MR enhancement patterns as a means to differentiate between malignant prostate lesions and normal peripheral zone

B. ZELHOF, M. LOWRY, S. KRAUS and L. TURNBULL
Centre for MR Investigations, University of Hull and Castle Hill Hospital, Hull, UK

Introduction: Dynamic contrast-enhanced MRI (DCE-MRI) is able to reveal the altered vascular features of malignancy by measuring vascular permeability and blood flow.

TABLE: for P02

Absolute rate of cancer/1000 person years (Hazard Ratio*)

PSA level	65–69	70–75	75–79	≥80	Prostate specific mortality†	All cause mortality†
0.0–1.99	0.8(1.0)	1.2(1.0)	1.5(1.0)	2.3(1.0)	0.3(1.0)	57.7(1.0)
2.0–3.99	3.2(3.8)	2.3(1.9)	2.6(1.8)	4.4(1.9)	0.6(2.3)	61.3(1.0)
4.0–5.99	7.7(9.2)	5.7(4.7)	4.0(2.7)	5.6(2.5)	1.1(3.8)	60.3(1.0)
6.0–7.99	12.8(15.3)	10.9(8.9)	9.8(6.6)	9.2(4.0)	1.8(6.4)	65.0(1.0)
8.0–9.99	20.1(23.8)	16.5(13.4)	10.2(6.9)	11.2(5.0)	3.3(11.8)	64.2(1.0)
10.0–14.99	22.6(26.7)	29.1(23.1)	21.1(14.0)	15.6(6.6)	3.9(13.5)	76.2(1.1)
15.0–19.99	44.2(51.3)	37.0(28.9)	36.3(23.4)	35.8(14.6)	8.4(28.6)	86.6(1.2)
≥20.0	105.1(115.2)	107.0(79.1)	131.6(77.2)	115.2(45.8)	34.0(112.8)	112.9(1.5)
No. of cancers	476	580	509	588	673	13074
No. of patients	9933	9884	7978	8154	36003	36003

*0.0–1.99 used as reference category, †All men, age-adjusted

This study aims to assess the potential of MR enhancement parameters to differentiate between malignant prostatic lesions and normal peripheral zone (PZ).
Methods: Twenty-five patients underwent DCE-MRI on a three Tesla scanner prior to radical prostatectomy (RP). Enhanced and normal PZ regions were identified with reference to the whole mounted RP slides. Parameters extracted from changes in signal intensity of the DCE images were obtained. These parameters included the maximum enhancement index (MaxEI), time to maximum (Tmax), EI at 30 second, and the shape of signal intensity change (initial and final slope).
Results: Malignant lesions had a 51% higher MaxEI compared to normal PZ and reached maximum enhancement in 2.57 min compared to 3.37 min for normal PZ. Tumours demonstrated rapid contrast washout which is reflected in the final slope of the curve being negative as opposed to positive for normal PZ.
Conclusion: The described parameters reflect blood flow and immature vascularity in tumour foci causing rapid leakage of contrast into interstitial space. This technique provides a better MR localisation of malignant lesion based on its abnormal vascular morphology.

P05

Correlation of apparent diffusion coefficient with cell density in prostate cancer at 3 Tesla MRI

B. ZELHOF, G. LINEY, M. PICKLES, G. RODRIGUES, S. KRAUS and L. TURNBULL
Centre for MR Investigations, University of Hull and Castle Hill Hospital, Hull, UK

Introduction: Notwithstanding the increasing use of diffusion weighted magnetic resonance imaging (DW-MRI) in prostate cancer, there has been little work examining the relationship between apparent diffusion coefficient (ADC) values and histopathology data. This work aims to assess the diagnostic potential of ADC parameters via correlation with cell density (CD) obtained from radical prostatectomy specimens.
Methods: Sixteen patients underwent DW-MRI at 3.0 Tesla prior to radical prostatectomy. Using pathology slides, areas from the tumour and normal peripheral zone (PZ) regions, were analysed using software that utilizes adaptive histogram thresholding to segment the stained cell nucleus, thus providing an estimation of CD. ADC values were determined from the MR data using the whole mounted specimens as reference.
Results: ADC values were significantly lower ($P = 0.001$) in regions pathologically determined as tumour (1.44 ± 0.19 mm^2/s) compared to normal PZ (1.84 ± 0.22 mm^2/s). The average CD was higher ($P = 0.001$) in tumour compared to normal PZ ($19.2 \pm 7.2\%$ versus $9.0 \pm 3.4\%$). ADC values correlates well with CD regardless of tissue type ($r = -0.678$, $P < 0.0005$).
Conclusion: The increase in CD evident in areas of prostatic tumour reflects the decrease in extracellular space resulting in reduced ADC values. This work has demonstrated that ADC measurement may provide important information in diagnosing prostate cancer.

P06

Magnetic resonance imaging of the prostate following high intensity focused ultrasound (HIFU)

R. WALKDEN, R. ILLING, H. AMED, C. ALLEN, M. EMBERTON and A. KIRKHAM
University College Hospitals NHS Foundation Trust, UK, London, UK

Introduction: HIFU for the treatment of organ confined prostate cancer and salvage therapy following external beam radiotherapy (EBRT) failure is gaining in popularity. It is important to know the completeness of ablation following treatment as further ablations can be carried out. It is also important to monitor for recurrence and any potential complications. Contrast enhanced MRI currently appears to be the most accurate imaging modality to achieve this.
Material and methods: Pre and post treatment MRI scans using T1 ,T2 and post contrast T1 weighted images from our institution were assessed in patients undergoing both whole and hemi gland HIFU. Multiple parameters were looked at including prostate volume, enhancement pattern and presence of complications.
Results: There was a consistent sequence of changes within the prostate following HIFU on contrast enhanced MR imaging. MR imaging was also capable of identifying the main complications of HIFU including urethrorectal fistula, urethral stricture and osteomyelitis.
Conclusion: MR after HIFU provides information about completeness of ablation and complications and as such can help identify patients who need retreatment or close monitoring.

P07

The accuracy of prostate biopsies in predicting final histological outcome. An audit of 200 radical prostatectomy specimens

B. EDDY, C. CORBISHLEY, M. PERRY and M. BAILEY
St. George's Hospital, London, UK

Introduction: Much reliance is placed on biopsy histology with the assumption that final histology will be similar. We compared biopsy and radical specimen histology and tried to identify features that could predict poor outcome in patients undergoing RRP. In particular we wanted to identify capsular invasion (T2) or penetration (T3) on biopsy and see if this could predict T3 disease or predict positive margins.
Methods: Retrospective review of histopathology reports of biopsies and radical specimens were performed for patients who had a RRP between 2000 and 2006 inclusive.
Results: Two hundred patients were used. Gleason score was identical in 58% but upgraded in 26%; Capsular invasion was seen in 16 (8%) of biopsies but 134 (67%) of RRP's; Capsular penetration was found in 43 (21.5%) of RRP's but only in six biopsies. Perineural invasion was seen in 56% of radicals but only 17% of biopsies. Mean tumour volume was 2.91 ml. Correlation between tumour volume in biopsies and final specimens was poor. Biopsies predicted the correct side in 62%.
Conclusion: Biopsies predict Gleason grade accurately but sensitivity for capsular invasion and penetration is poor. Correct side was predicted in only 62% of patients therefore this should not be relied upon when choosing a side for a nerve sparing procedure.

P08

Prognostic value of TRUS biopsy in patients over 70 years with intermediate PSA: a 10 year follow up study

Z.K. MOHAMED, D. GREENE, T.R.L. GRIFFITHS and J.L. DOMINGUEZ-ESCRIG
Sunderland Royal Hospital, Sunderland, UK

Introduction: With radical treatment reserved for patients with a 10 year life expectancy, the role of invasive investigations in elderly is controversial.
Aim: To evaluate the long term benefit of TRUS biopsy in patients older than 70 with elevated PSA and normal DRE.

Patients and Methods: Retrospective study of 417 consecutive patients aged 70 or above referred with PSA>4 ng/ml. PSA, histology, bone scan, treatment and follow-up were gathered.
Results: Four groups; A and B consist of patients with PSA ≤ 15 with normal or abnormal DRE, respectively. C and D of patients with PSA>15 and normal or abnormal DRE, respectively. Incidence in GroupA was 14.8% versus GroupB 38.5%, GroupC 31.5% and GroupD 85.2%. GroupA had lower grade disease, negative bone scans and 75% of patients managed with watchful waiting. With up to 10 years follow-up, Log Rank analysis of cancer-specific and overall survival, failed to demonstrate a statistically significant difference between patients with initial positive or negative biopsy ($P = 0.108$). Differences were significant in the other groups.
Conclusion: Data questions the value of biopsy in elderly patients with normal DRE and a PSA ≤ 15 and demonstrates that a conservative approach is effective and safer, in this group.

P09

A validated nomogram to predict which patients need repeat extended core prostate biopsy

M.A. ROCHESTER, N. PASHAYAN, A. DOBLE and J. MCLOUGHLIN
Addenbrooke's Hospital and West Suffolk Hospital, Cambridge, UK

Introduction: Little data is available to determine which patients should undergo repeat biopsy after initial benign extended core biopsy (ECB). We present a predictive nomogram to aid decision-making in this setting.
Materials and Methods: Patients with previous benign ECB who underwent repeat biopsy between 1999 and 2006 were included. Association between age, volume, stage, previous histology, PSA kinetics and positive repeat biopsy was studied. Variables were entered stepwise into logistic regression models. Probability of positive biopsy was estimated as: $1/1 + e^{-(a+ß1 \times 1 + ß2 \times 2\ ßn \times n)}$. The model was validated using repeat biopsies from 2007.
Results: Five thousand, four hundred and ninety-eight biopsies were performed. 4664 were first-time, 817 were repeats. Initial biopsy was malignant in 39%. Cancer was detected in 31% (229/745) of repeat biopsies. The most accurate predictive model combined age, PSA, PSA velocity, free:total PSA ratio, prostate volume and clinical stage. HGPIN did not improve prediction. The area under the ROC curve (AUC) for this model was 82%.
Conclusions: We present an accurate multivariable web-based predictive tool to determine the risk of positive repeat prostate biopsy with AUC better than previous published nomograms. This can be used by urologists in an outpatient setting to aid decision-making for men with prior benign histology who are considering repeat biopsy.

P10

A modified 'template' transperineal prostate biopsy technique – can side–effects be reduced and high cancer detection rates maintained?

C. KASTNER, M.C. NUTTALL, E. AU, A. MOHAN, J. BREWIN and R. POPERT
Department of Urology, Guy's and St Thomas' NHS Foundation Trust, London, UK

Introduction: Template prostate biopsies have a high cancer detection rate. Compared to trans-rectal biopsies, reduced infection rates are reported, but the need for general anaesthesia and higher urinary retention (AUR) rate generally limits use to a secondary investigation. We have modified a previously published template technique to reduce trauma to minimise this problem.
Method: Fifty-nine patients with various indications for prostate biopsy under general anaesthesia underwent 24 template biopsies. 32 patients having undergone saturation biopsies acted as comparisons. Data regarding prostate cancer characteristics, procedural complications and histopathological results were analysed.
Results: Mean age in the template and saturation groups was 62 and 64 years, respectively. Similarly, the mean PSA was 8.9 and 8.5 ng/ml. Likewise, overall cancer detection rates were 54% and 34% in the two groups, and in the high PSA/abnormal DRE subset were 60% and 33%, respectively ($P < 0.05$). Complications were lower in the template group (3.3% versus 12.5%: $p < 0.05$) - contrasting with 6.6% with the original template technique.
Conclusion: The modified transperineal template biopsy technique has few complications. Cancer detection rate is maintained and superior to saturation biopsies. Template biopsy is the procedure of choice in our institution for either biopsies under general anaesthesia or extensive prostate biopsies.

Tuesday 24 June, 14.00–16.00
Benign Prostatic Enlargement
Chairman: Mark Speakman

P11

Simple drinking advice: an effective treatment for men with moderately severe, uncomplicated, lower urinary tract symptoms

J. BREWIN, S. CLOVIS, M. NUTTALL, P. ACHER, P. DASGUPTA and R. POPERT
Guy's and St Thomas' NHS Trust, London, UK

Introduction: Conservative management for men with uncomplicated LUTS ranges from simple advice in the outpatient clinic to a comprehensive self management programme as described by Brown et al (BMJ 2007;334:25). We studied the effects of simple drinking advice when given by a specialist nurse in a dedicated LUTS clinic.
Patients and Methods: All men who attended the LUTS clinic between 2002 and 2007 had IPSS and QoL scores recorded prospectively. Patients were given reassurance and verbal and written drinking advice by a specialist nurse. Medical treatment was not routinely started unless the patient was symptomatic at subsequent visits. All men with moderate LUTS (IPSS 8–19) not taking an alpha-blocker or 5a-reductase inhibitor were included.
Results: Ninety four men with a mean age of 64.5 years (range 43–89) were included. There was a significant improvement in IPSS and QoL after drinking advice was given. The mean improvements in IPSS and QoL scores were 6.6 and 1.2 respectively ($P < 0.001$). All components of the IPSS improved significantly, except for straining. Frequency improved most markedly.
Conclusion: Simple drinking advice when given by a specialist nurse in a dedicated clinic is an effective non-pharmacological treatment for men with moderate, uncomplicated, LUTS.

P12

Celecoxib: a useful adjuvant treatment for nocturia in benign prostatic hyperplasia

S. FALAHATKAR, S. TAVASOLI YOSEFABAD, G. MOKHTARI, A. KAMRAN NOSHAD, Z. PANAHANDEH and M. AKBARPOUR
Guilan University of Medical Science, Urology Reseach Center, Rasht, Iran

BPH is responsible for LUTS in men and nocturia is the most prevalent presenting symptom. Nocturia causes significant bother to the patient. Celecoxib is a low price, available drug and could be effective in decreasing the incidence of nocturia. Among patients with LUTS suggestive of BPH, those had IPSS score 8, prostate volume 20cc, enrolled in study. The included patients had nocturia ≥2 despite previous standard medical treatment. Patients underwent primary uroflowmetry and received 100 mg celecoxib at 9 PM every night along with previous treatment for 1 month. Reevaluation of patients with second uroflowmetry and determining incidence of nocturia after treatment performed. Forty patients with mean age of 64.3 ± 7.7 years, mean prostate size of 41.8 ± 13.2cc, initial mean IPSS score of 18.2 ± 3.4 and initial mean Qmax of 12.5 ± 2.5 ml/s enrolled in study. The effects after treatment assessed as excellent (nocturia disappeared or decreased by 2 < voids/night), improved (nocturia decreased by 1 void/night) and unchanged, were obtained in 70% ,12.5% and 17.5% of patients, respectively. Mean frequency of nocturia decreased from 5.17 ± 2.1 before treatment to 2.5 ± 1.9 after it ($P = 0.00$). Mean IPSS score and Mean Qmax of patients after treatment were 15.5 ± 4.2 ($P = 0.00$) and 12.9 ± 2.7 ml/s ($P = 0.05$) respectively. Nocturia improved or disappeared in 82.5% of patients. The result of our study advise celecoxib along with standard medical treatment for BPH as a useful alternative treatment.

P13

Haematuria related to benign prostatic hypertrophy: prospective analysis of 165 men identified in a single centre haematuria clinic

N. VASDEV, D. WALIA, W. ROBSON, J. KELLY and R. PICKARD
Department of Urology, Freeman Hospital, Newcastle upon Tyne, UK

Introduction: Benign-prostatic-hypertrophy (BPH) is often considered as a cause of haematuria in men once infection and urological cancer have been excluded.
Materials and Methods: Our analysis in Investigation of 1061 men referred to a designated haematuria clinic between April 2003–March 2006 identified 165 (16%) as having haematuria related to BPH.
Results: This subgroup of 165 men had median (IQ range) age of 73 (45–94) years. The degree of haematuria was gross in 127 (77%) men, 37 (21%) men had significant associated pain or LUTS and 65 (39%) had previously undergone TURP. The Management options selected for these men consisted of reassurance alone in 43 (26%), finasteride in 103 (62%) and TURP in 19 (12%). At a mean (range) follow up of 18 (7–22) months men managed with reassurance alone or TURP had no further episodes of haematuria whilst two men treated with finasteride re-bled but did not require further intervention. A further two men elected to stop finasteride due to erectile dysfunction and gynaecomastia respectively.
Conclusion: Haematuria secondary to BPH is a common diagnosis. Treatment options include reassurance, finasteride and persistent haematuria with LUTS can be managed by TURP. The lack of any subsequent cancer diagnosis in the present cohort suggests that repeat cystoscopy and imaging are not necessary.

P14

Variables and derivatives from the frequency volume chart (FVC) have moderate correlation with the IPSS in men with LUTS – a prospective clinical study

P. MARIAPPAN, P. RAJAN, K J. TURNER and L.H. STEWART
Department of Urology, Western General Hospital, Edinburgh, UK

Introduction: The frequency volume chart (FVC) is frequently used along with the IPSS to evaluate LUTS in men, especially in those with storage symptoms. We describe the associations and correlations between variables from the IPSS and FVC.
Patients and Methods: Consecutive men aged 40 and above with LUTS completed the IPSS and a 3-day FVC. We excluded men with previous bladder outflow surgery and/or receiving anticholinergics. Information was recorded on a prospectively maintained database. Standard FVC variables were used to calculate other indices. Appropriate statistical analysis was carried out.

Results: Data from 206 men were suitable for analysis. Mean (+ SD) patient age and IPSS were 67.1 (11.9) years and 12.7 (7.4), respectively. Controlling for age, the IPSS questions 2 (frequency) and 7 (nocturia) correlated well with FVC variables daytime frequency (R = 0.51, $P < 0.001$) and actual nocturnal voids (ANV) (R = 0.40, $P < 0.001$), respectively. ANOVA revealed significant differences in daytime frequency, ANV, maximum voided volume and nocturnal bladder capacity index (NBCI) between strata of symptom severity. Multivariate logistic regression analysis revealed daytime frequency and NBCI predicted a quality of life score >3.
Conclusions: FVC variables and the respective IPSS questions for storage symptoms appear to have significant, albeit moderate correlation.

P15

Intra vesical prostatic protrusion on TRUS associated with known predictors of progressive BPH

J. GRAHAM, M. HEHIR and K. RIDDLE
Forth Valley Hospital, Falkirk and District Royal Infirmary, Falkirk, UK

Introduction: Intra-vesical prostatic protrusion (IPP) measured by trans-abdominal ultrasound correlates with bladder outflow obstruction. Age, PSA and Prostate volume are well-established predictors of BPH progression. Comparisons between TRUS-measured IPP and predictors of BPH are assessed.
Method: Three hundred and thirty-five men previously assessed in a prostate clinic participated. PSA, TRUS Prostate volume and IPP were measured. The IPP was then split into tertiles and compared with age, PSA and Prostate volume.
Results: Eighty-six per cent of men had IPP found on TRUS.

TABLE: for P15

			IPP (Intra vesical Prostatic Protrusion in tertiles)		
		No.	Low	Med	High
PSA	0–1.4	174	95 (55%)	51(29%)	28(16%)
	1.5–3.9	114	27(24%)	40(35%)	47(41%)
	4–9.9	43	7(16%)	12(28%)	24(56%)
	>10	4	1	1	2
P.Vol	<30 ml	113	72(64%)	36(32%)	5(4%)
	30–59 ml	147	46(31%)	55(37%)	46(31%)
	>60 ml	68	6(9%)	13(19%)	49(72%)
AGE	<50	4	2	2	0
	50–59	62	37(60%)	19(30%)	6(10%)
	60–69	135	47(35%)	38(28%)	50(37%)
	>70	134	44(33%)	45(33%)	45(33%)

Conclusion: Increasing IPP becomes evident with Age, PSA and Prostate Volume. IPP may be an independent risk factor for BPH progression.

P16

Relationship between intravesical prostatic protrusion (IPP), prostate volume (PV), IPSS, PSA and uroflowmetry in men with LUTS

P. MARIAPPAN, S. LEUNG, A. INNES, G. DAVIES, P. BOLLINA and S.A. MCNEILL
Department of Urology, Western General Hospital, Edinburgh, UK

Introduction: Intravesical prostatic protrusion (IPP) has been shown to be better than PV as a predictor of BOO in an Asian cohort (Lim KB et al, International J Urol 13: 1509–13, 2006). We assessed the value of the IPP in Caucasian men with LUTS.
Patients and methods: Consecutive men aged 40 and above, with LUTS and elevated age-adjusted PSA prospectively completed the IPSS and underwent TRUS biopsies at which time PV and IPP were measured by two investigators. Men with moderate to severe LUTS subsequently underwent uroflowmetry. Men with previous surgery for BOO were excluded from the study.
Results: A total of 201 men were recruited with a mean total IPSS and PV of 8.6 and 55.6 ml, respectively. IPP correlated well with PV (R = 0.51, $P < 0.001$). When controlled for age and PSA, PV had stronger correlation with IPSS question 5 (poor flow) (R = 0.25, $P = 0.001$) compared with IPP (R = 0.17, $P = 0.02$). PV also mildly correlated with total IPSS and the AUA quality of life score (QoL). Multivariate logistic regression analysis revealed only PV predicted moderate to severe LUTS (OR = 1.0, 95% CI = 0.9–1.0, $P = 0.034$) and QoL >3 (OR = 1.0, 95 % CI=1.0–1.1, $P = 0.002$).
Conclusions: In this cohort, prostate volume appeared to have better association with LUTS compared with IPP.

P17

Holmium laser ablation of prostate (HoLAP) – an efficacious and safe induction to holmium laser prostatectomy

C. KASTNER, O. ELHAGE, J. BREWIN, M. NUTTALL and R. POPERT
Department of Urology, Guy's and St Thomas' NHS Foundation Trust, London, UK

Introduction: Prostate laser ablation techniques are increasingly utilised for patients with small to medium-sized prostates due to their safety, efficacy and short learning curves. Laser enucleation (HoLEP) has advantages over TURP in larger prostates but a longer learning curve. We compare our experience with both techniques.
Patients and Methods: Two prostate volume-matched (>50cc) groups of patients were prospectively studied. Group one ($n = 30$) were consecutive patients undergoing HoLEP well into the experience of a single surgeon. Group two ($n = 32$) had HoLAP at the beginning of the learning curve of several surgeons, one experienced in HoLEP, the others were trainees.
Results: There was no significant difference in mean age or prostate volume between the groups. After HoLEP and HoLAP, IPSS fell from 23–8 and 25–8, respectively; flow-rate improved from 9–22 ml/s and 8–17 ml/s respectively; post-void residual volume improved from 217–50 ml and 388–175 ml respectively ($P < 0.001$). PSA reduction was 34% and 45%, respectively. No difference in complications was observed.

TABLE: for P17

Variable (mean)	HoLEP (N = 30)		HoLAP (N = 32)	
Age (years)	68.4		69.8	
Prostate volume (ml)	37.3		42.3	
Lasing time (min)	38.7		34.6	
Door-to-door time (min)	60		47.7	
	Pre	Post	Pre	Post
IPSS	23.3	7.7	25.8	8.6
Flow (ml/s)	9.5	22.3	7.9	17.0
Residual Vol (ml)	217	50	388	175
PSA (ng/ml)	3.8	2.5	5.5	3.0

Conclusion: HoLAP early in the learning curve delivers an outcome comparable to HoLEP and can be recommended as a safe and efficacious induction to Holmium laser prostatectomy.

P18

The case for the holmium laser

G.O. HELLAWELL, A DE SOUSA, T. PHAM and M. FRYDENBERG
The Monash Medical Centre, Melbourne, Australia

Introduction: The holmium laser provides safe and effective treatment for stones and benign prostate disease, however the financial cost is often viewed as prohibitive. We reviewed all cases that utilized holmium laser and determined the overall holmium laser costs based upon this series.

Patients and Methods: A retrospective review of all holmium laser cases since 2003. The extent of holmium laser use was recorded and an estimate of cost was made based upon published data for holmium laser enucleation of prostate (HoLEP) applied to our series.
Results: In a four year period there were 445 cases involving holmium laser. There were 179 (40.2%) ureteroscopic cases, 152 (34.2%) HoLEPs, 55 (12.4%) bladder stones, 42 (9.4%) urethral strictures and 17 (3.8%) bladder neck incisions. The estimated cost per case for HoLEP over conventional (TURP) was £105 that fell to £36 per case for the series overall.
Conclusion: The holmium laser can be utilized in multiple areas in urology. The financial savings provided by HoLEP results in a very small additional cost for the holmium laser overall. The financial cost per case for holmium laser are therefore low and should not discourage urology units from acquiring this indispensable urological tool.

P19

Holmium laser enucleation of the prostate (HoLEP) is safe and efficacious in treatment of urinary retention

A.D. LAMB, C.J. SHUKLA, M.A. ROCHESTER, S. MATHIAS, M. AKHTAR and T.F. AHO
Department of Urology, Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK

Introduction: Patients with urinary retention have been shown to have worse outcomes after prostatectomy when compared with those who simply have lower urinary tract symptoms. We assessed outcomes after Holmium Laser Enucleation of the Prostate (HoLEP) in these two groups.
Patients and Methods: Three hundred and twenty-eight patients underwent HoLEP between July 2004 and August 2007 in a single institution with three operating surgeons. 178 of these operations were for patients with acute or chronic urinary retention (Group 1). Group 2 were those without a catheter preoperatively. Data recorded prospectively included: enucleation and morcellation time and efficiency, catheter time, success of catheter removal, complications, and duration of hospitalization. International Prostate Symptom (IPSS) and Quality of Life (QOL) Scores, maximum urinary flow rate (Qmax) and post void residual volume (PVR) were assessed 3 months postoperatively.
Results: Mean patient age was 71 years (both groups). Mean tissue resected was similar in both groups (64 g:Group 1, 58 g:Group 2). There were no significant differences in any of the parameters described above. Of note, 78% of both groups successfully passed initial trial without catheter, and only 3% of Group 1 remained catheterised long term.
Conclusion: HoLEP is a safe and effective treatment for patients with urinary retention.

P20

Does laser ablation prostatectomy lead to oncological compromise?

A.J. KING, S.M. BIERS, H.C. OLIVER and A.S. ADAMSON
Royal Hampshire County Hospital, Winchester, UK

Introduction: We assessed the rates of incidental TURP-detected prostate cancer, to investigate whether introducing laser ablation prostatectomy would disadvantage our patients by failing to provide tissue for histopathological analysis.
Patients and Methods: Between 1996–2006, information was retrieved from operating and coding records, patient case notes, histopathology databases, and local data submitted to the BAUS Cancer Registry and South West Cancer Intelligence Service, to assess detection of prostatic adenocarcinoma from TURP tissue chips.
Results: Incidental prostate cancer rates have declined since 1996 (22%). Between 2001–2006, an average of 124 new prostate cancers were detected per year (range 111–135), with TURP operation rates remaining stable. The incidence of newly diagnosed TURP-detected prostate cancer was only 1.5–5.6% of all new diagnosis prostate cancers per year. New cancers had a mean Gleason score of 5.7 ± 0.3 (± standard error of the mean) compared to 8.0 ± 0.3 in previously suspected or proven cancers. 82% of new diagnosis patients were allocated to active surveillance, whilst 18% were given hormone therapy. There have been no prostate cancer-related deaths in this group to date (follow-up 1–6 years).
Conclusion: Incidental cancer detected from TURP has a small incidence, favourable histology and outcomes, and would not appear to contraindicate laser ablation prostatectomy.

P21

Is TURP a dying operation?

M.R. QUINLAN, S. CONNOLLY and T.E.D. McDERMOTT
Department of Urology, Adelaide and Meath Hospital incorporating The National Children's Hospital (AMNCH), Tallaght, Dublin, Republic of Ireland

Introduction: TURP was once both the most common therapeutic urological surgery performed in Ireland and the unequivocal gold standard treatment for BPH. Improved pharmacological therapy and understanding of the natural history of BPH have impacted on this prevalence however. We wished to assess the transformation in TURP practice, if any, in Ireland over the past decade by examining the numbers of the operation being carried out in each health board region over 2 different time periods (1996–1998 and 2001–2003).

TABLE: for P21

	TOTAL TURPs '96-'98	AVGE./ YEAR	POP.	AVGE./ 100,000 POP.	TOTAL TURPs '01-'03	AVGE./ YEAR	POP.	AVGE./ 100,000 POP.	CHANGE
ERHA	2095	698.33	129893	537.62	1486	495.33	152439	324.94	-39.6%
NEHB	747	249	35536	700.7	482	160.66	41709	385.19	-45%
NWHB	530	176.66	28362	622.88	356	118.66	31588	375.65	-39.7%
WHB	731	243.66	47039	518	644	214.66	52821	406.39	-21.5%
MWHB	739	246.33	38308	643.02	496	165.33	44237	373.74	-41.9%
SHB	937	312.33	66133	472.28	749	249.66	75992	328.53	-30.4%
SEHB	1002	334	47982	696.09	713	237.66	55738	426.39	-38.7%
MHB	589	196.33	25142	780.88	459	153	28602	534.93	-31.5%
NAT	7370	2456.66	418395	587.16	5385	1795	483126	371.54	-36.7%

Key: HB(Health Board); HA (Health Authority); ER (Eastern Regional); NE (North East); NW (North West), W (West); MW (Mid West); S (South); SE (South East); M (Midlands); AVGE. (average); NAT. (national); POP. (male population = 50)

Materials and Methods: Numbers of discharges of patients with a procedure code of TURP (ICD-9-CM 60.2) between 1996–1998 and 2001–2003 were obtained from the National Hospital Inpatient Enquiry (HIPE) database maintained by the Economic and Social Research Institute (ESRI). Population data was obtained from National Censuses. Calculations were expressed per 100,000 of the male population ≥ 50 years of age.
Results: The number of TURPs performed has fallen from a national average of 587.16/annum/100,000 of the male population ≥ 50 between 1996–1998, to an average of 371.54/annum/100,000, a drop of almost 40% (see table).
Conclusion: The Irish experience of BPH treatment likely mirrors that seen across developed nations globally. Implications may exist for standards of care, clinical practice and training.

P22

Voiding success following TURP

N.P. MUNRO, M. NOVOTNA and R. CHAHAL
Mid Yorkshire NHS Trust, Wakefield, UK

Introduction: The National Prostatectomy Audit has investigated outcomes following TURP. However data regarding voiding success (TWOC) after TURP is sparse. We aimed to compare voiding success of a random sample of elective and post-AUR TURP, to predict and reduce TWOC failures.
Methods: A 150 cases identified by clinical coding to have undergone a TURP in 2005 were subjected to a casenote review, of which 136 underwent analyses.
Results: The TURP were performed following AUR (n = 56) or for symptoms (n = 70). The age of those undergoing surgery following AUR was older (76.3 versus 72.7 years) and resection volume was slightly greater (29 versus 25 g). Following surgery for AUR 39% fail to void compared with 14% following elective surgery ($P < 0.001$). After 3 TWOC >98% of all cases were voiding successfully. TWOC failures were associated with advanced age and a lack of BPH medication pre-AUR. There was no clear association with retention volume, delay to surgery and TWOC, prostate size and resected volume.
Conclusions: Initial voiding failure occurs in 39% of TURP following AUR. however it is difficult to predict such individuals from current clinical parameters. There is no evidence from this study to delay initial TWOC in these patients.

P23

Three years of nurse led TURP follow-up, efficient and acceptable to most patients

J.J. ORD, Y. HAFFENDEN, R. MORLEY and A.N. CHRISTOPHER
Kingston Hospital, Kingston, UK

Introduction: Nurse led follow-up of TURP is not accepted by all urologists but has the potential to avoid unnecessary clinic appointments.
Patients/Methods: Three hundred and four men undergoing TURP from 21/04/2004 to 31/05/2007 followed-up by a twelve-point questionnaire and IPSS score at six weeks. The protocol determined that those with stress incontinence (SUI) causing bother, cancer, IPSS 20-35, and clots or a catheter still *in situ* were seen again.
Results: Ninety-six per cent of patients returned the questionnaire. The median post operative IPSS score was three. Patients reported a 1.3% SUI and 12% erectile dysfunction rate consistent with standard TURP. 84% of patients had not needed to see their GP, 10% once, 6% more than once. 4 % of patients thought the questionnaire follow up not a good idea and 21% would have preferred a clinic appointment instead. This group (21%) had a significantly higher median post-operative IPSS score of 9 compared with the group that stated that they did not prefer a clinic appointment (median post-operative IPSS score 0) ($P < 0.0001$). However some of these 21% were subsequently given a clinic appointment automatically by the protocol such that only 15% of patients overall would have preferred a clinic appointment but did not get one. Over the course of three years 244 routine clinic appointments were avoided, equivalent to 5 full clinics of 15 patients per year.
Conclusion: Postal nurse led TURP follow-up was acceptable to most patients. The definitive follow-up protocol remains to be defined to maximise patient satisfaction.

Tuesday 24 June, 14.00–16.00
Bladder Dysfunction, Reconstruction and Trauma
Chairman: Ian Eardley

P24

Quality control in urodynamics: the benefits of audit

I.P. WHARTON, J.K. PARKIN, S. ROTH and R. SRIRAM
University Hospital of Coventry and Warwickshire, Coventry, UK

Introduction: Since treatments are selected according to urodynamic results, it is essential that accuracy is not compromised by a lack of quality control. Unfortunately, previous studies have suggested that poor quality control is commonplace. We therefore investigated the quality control within our practice and whether feedback led to long-term improvements.
Materials and Methods: In 2005, 100 consecutive urodynamic traces (March 2004-January 2005) were retrospectively reviewed. Each trace was analysed using criteria developed from the ICS 'Good Urodynamic Practice' guidelines. The results were reviewed, with aspects of quality control requiring improvement highlighted. In 2007, without prior consultation, another 100 consecutive tests (March 2006-January 2007) were analysed.
Results: In each review, patient demographics were well matched. The 2005 review highlighted deficiencies in cough frequency during filling and quality of cough pre-voiding. In the 2007 review there was a marked improvement in both criteria. However, a reduction in quality of cough post-voiding was observed.

TABLE: for P24

	Urodynamic Trace Review	
Criterion	2005	2007
Baseline detrusor pressure, -5 to 10 cm H2O	94%	98%
Good Quality Cough Signal:		
Pre-filling	94%	95%
During filling	95%	92%
Pre-voiding	66%	87%
Post-voiding	84%	64%
Regular coughs during filling (≥ every 60secs or 50ml infused)	34%	76%
Vesical line remains in-situ	96%	97%

Conclusion: This study highlights the value of internal audit in the quality control of urodynamic studies. Within our department, sustained long-term improvements have been demonstrated. However, by completing the audit cycle we have also shown that new deficiencies may be unearthed. An ongoing audit process is therefore required to maintain optimum urodynamic standards.

P25

Ambulatory urodynamics is the most clinically and cost effective form of urodynamics

D.N. WOOD, J. OCKRIM, R. HAMID, P.J.R. SHAH and T.J. GREENWELL
University College London Hospitals, London, UK

Introduction: We assessed and compared the diagnostic yields and costs of ambulatory (ACMG), video (VCMG) and non-imaging (CMG) urodynamics.
Methods: The reports and traces of 182 consecutive ACMG, 1224 VCMG and 627 CMG between 2002 and 2004 were reviewed. The diagnoses made on ACMG were compared with VCMG and CMG to assess yield. Their respective costs are £465, £300 and £410 (Trust Provider Tariff).
Results: Definitive diagnoses (Δ) were made in significantly more patients having ACMG (97%) than in patients having VCMG (76%) or CMG (65%) ($P < 0.01$). 36% of VCMG and 63% of CMG patients progressed to ACMG. 12% of VCMG patients and 28% of CMG patients required ACMG, as their initial urodynamic diagnosis did not correspond to their symptoms (Table 1).

*TABLE 1: for P25. Mean cost per diagnosis (*P < 0.01)*

Test	Mean Cost per Δ £	% Progressing to ACMG	Mean Additional Cost per Δ	Mean Total Cost Per Diagnosis
ACMG	479	NA	NA	479*
VCMG	395	36	173	567
CMG	631	63	302	933

Conclusion: CMG is not a cost effective method of urodynamic diagnosis. A strategy of initial ACMG provides the most cost effective means of urodynamic diagnosis. Where facilities for ACMG are restricted, VCMG with ACMG for diagnostic failure is appropriate.

P26

Patients' perspective of the efficacy of intradetrusor botulinum toxin-A injections for treatment of neurogenic detrusor overactivity secondary to spinal cord injury

S. HORI, P. PATKI, K.H. ATTAR, S. ISMAIL and P.J.R. SHAH
Department of Neuro-urology and Spinal Injury Centre, Royal National Orthopaedic Hospital, Stanmore, UK

Introduction: Neurogenic detrusor overactivity is successfully treated and the therapeutic efficacy maintained with single and repeat Botulinum Toxin-A (BTX-A) treatment. We present patients' perspective on satisfaction with BTX-A, their views on opting out or continuing with this treatment over long term and its impact on the future provision of this service.
Methods: Since 2003, 72 patients on repeat BTX-A treatment participated in a 5 min telephone questionnaire covering various aspects of their treatment. Questions regarding patient satisfaction were rated on a scale from 1–10 (1 = not satisfied to 10 = very satisfied).
Results: The mean patient satisfaction score was 6.2 with 48 patients still undergoing regular treatment. 90% of these patients would consider continuing this as a long term option. Only 14.6% of patients would consider an alternative permanent surgical option in the next 5 years. The yearly new patient recruitment rate was high (mean 14.4 patients) and the yearly dropout rate was low (mean 4.8 patients).
Conclusion: With high satisfaction and a low yearly dropout rate, the number of patients on BTX-A continues to rise. The majority consider continuing BTX-A injections in the long term increasing the future demands of this service, which would require innovative service provision.

P27

The experience with periodic intra-detrusor injection of botulinum neurotoxin type-A

S. KHAN, V. KALSI, A. APOSTOLIDIS, S. ELNEIL, C.J. FOWLER and P. DASGUPTA
National Hospital for Neurology and Neurosurgery, UCL Hospitals NHS Foundation Trust, Guy's and St Thomas' Hospital NHS Foundation Trust and King's College School of Medicine, London, UK

Introduction: Patients with chronic intractable detrusor overactivity (DO) have been offered intra-detrusor botulinum neurotoxin type-A with good response. The need for sustained relief from OAB symptoms has led to periodic re-injections.
Methods: All patients had urodynamic assessment to prove detrusor overactivity prior to injections. Idiopathic DO was treated with 200 u and Neurogenic DO with 300 u of Botox®. Urogenital Distress Inventory (UDI-6), Incontinence Impact Questionnaire (IIQ-7) and EQ 5D scores were used pre and 4 weeks post treatment. Paired and nonparametric statistical analyses were performed.
Results: One hundred and ninety-four cases (118 NDO, 76 IDO) have been administered 355 injections since 2002. Eighty-two have returned for retreatment. Mean inter-injection period was 16.33 ± 0.9 months. Subsequent injection periods were 14.9 ± 0.7 (n = 48), 13.22 ± 0.9 (n = 21) and 12.63 ± 0.8 (n = 8) months. Maximum Cystometric Capacity improved by 296.9 mls ($P < 0.0001$) after injection 1. Similar significant improvement was seen with re-injections. UDI6 score showed mean reduction from 10.76 to 4.22 and IIQ7 score from 13.24 to 3.1 ($P < 0.0001$).
Conclusion: Periodic injections with Botox® for intractable DO provide a sustained improvement in symptoms, quality of life scores and urodynamics.

P28

A randomised, controlled trial comparing TVT, pelvicol and autologous fascial slings for the treatment of stress urinary incontinence in women

K. GUERRERO, K. WAREHAM, S. ISMAIL, M.G. LUCAS and S.J. EMERY
Joint Urogynaecology Unit, Swansea NHS Trust, Swansea, UK

Introduction: Insertion of a midurethral sling is now widely accepted as the standard approach to primary surgery for stress incontinence (SUI). There remains uncertainty about the optimum material. This randomised controlled trial compares three materials inserted through a suprapubic route - Tension free vaginal tape (Gynecare TVT), Porcine Dermis (Bard Pelvicol) and autologous rectus fascia.
Patients and Methods: Women requiring primary surgical treatment for urodynamic SUI were recruited in 4 UK centres and randomised into 3 arms. Assessments included BFLUTS and EuroQOL preoperatively, and at 6 weeks, 6 and 12 months post op. Dry and improved rates were derived from these questionnaire responses.
Results: Two hundred women were randomised ranging in age from 31–80 years (mean 52). High reoperation rates were observed in the Pelvicol group after 6 months so this arm was closed with only 50 patients. 71 patients had TVT and 79 autologous fascia. The primary outcomes are shown in the table.

TABLE: for P28

	TVT	Pelvicol	Autologous Fascia
Number	71	50	79
Mean theatre time (mins)	35	36	54
Mean post op length of stay (days)	2.9	3.9	4.7
Dry rates			
• 6/52	53%	60%	66%
• 6/12	50%	44%	48%
• 12/12	56%	22%*	48%
Improved Rates			
• 6/52	91%	91%	94%
• 6/12	91%	73%*	95%
• 12/12	93%	61%*	90%
Re operation rate	0%	18%*	0%
ICSC rates			
• 6/52	1.5%	0	9.9%
• 6/12	0	0	1.5%
• 12/12	0	0	0

* $P < 0.001$

Conclusions: Pelvicol is an inferior material for midurethral sling support and cannot be recommended. At 12 months follow up there is no detectable difference in clinical outcome between TVT and autologous fascia but TVT consumes less hospital resources in terms of operating time and length of stay.

P29

The MiniArc™ single-incision sling system for female stress urinary incontinence: early results

G.H. URWIN and S.R. HEATON
York Hospital, York, UK

Introduction: Transobturator sling placement in the treatment of female stress urinary incontinence (sui) seeks to minimise the surgical risks of the retropubic route. This study aims to evaluate the effectiveness and safety of the MiniArc™ (American Medical Systems, Minnetonka, USA) in the treatment of female sui.
Patients and Methods: From July to December 2007, 36 female patients with sui were implanted with the device. Patients were evaluated pre-operatively and at 6, 12 and 26 weeks post-operatively by cough testing and UDI6 and IIQ7 questionnaires. Procedure times, blood loss and intra-operative complications were recorded.
Results: The average patient age was 51 years (range 38–77). The mean operative time for sling placement was 8 ± 0.36 mins (range 4.25–12 mins) and mean estimated blood loss was 62 ± 15 ccs (range 5–382 ccs). No patient required a blood transfusion and no intra-operative complications were observed. No patient required catheterisation post-operatively. At 26 weeks, 87.5% of patients were dry by either subjective or objective measures with significant improvements in quality of life assessments.
Conclusion: The MiniArc™ shows promising early results as a minimally invasive surgical approach to female sui, with rapid operating times, minimal morbidity and high patient satisfaction.

P30

European multicentre study into the efficacy of the argus sling for the treatment of postprostatectomy incontinence

B.J. DUGGAN, H.J. KNOPF and W.A. HUBNER
Belfast City Hospital, Belfast, UK

Background: Male urinary incontinence post prostatectomy has treatment options ranging from simple pelvic floor exercises to insertion of an artificial urinary sphincter (AUS). Most patients with mild/moderate incontinence prefer "something less invasive" than the AUS. The Argus sling is suitable for such patients as it is less invasive,

adjustable and does not require manipulation before voiding.
Patients: Two centres in Germany, 1 centre in Austria and 1 centre in Northern Ireland took part in the study. 115 patients were recruited over 2 years,106 patients had previous radical prostatectomy and 9 had previous TURP. Previous treatments (bulking agents, pro ACT balloons and AUS) had been attempted in 36 patients. Each patient had an Argus sling inserted using both perineal and suprapubic incisions, average operative time was 55 min.
Results: Follow up ranged from early post operative data up to 17 months. 31 patients needed readjustment (14 needed loosening because of voiding difficulties and 17 needed tightening because of persisting incontinence). Early followup data shows 80 patients (70%) dry (i.e. no pads). 23 patients felt improved but were not completely dry (still needed pads).12 patients needed the sling removed either because of erosion, infection or breakage of the sling arm.
Conclusions: Early follow-up data on the Argus sling demonstrates it is a safe and efficacious surgical treatment option for men with post prostatectomy incontinence.

TABLE 1 for P31 Quality of life outcome measures in respondents (male n = 75, female n = 9)

	Not at all/ Slight (%)		Moderately (%)		A lot (%)		Mean Bother score (SD)	
	Male	Female	Male	Female	Male	Female	Male	Female
Household tasks	79	100	16		5		2.2 (3.1)	0
Outside activities	79	100	12		9		2.9 (3.3)	0.8 (2.1)
Physical activities	74	89	15	11	11		2.9 (3.4)	1.6 (3.1)
Social life	80	100	9		11		2.4 (3.3)	0.6 (1.8)
Relationships	69	67	21	33	10		3.0 (3.6)	2.5 (3.7)
Sex life	29	56	9	22	62	22	5.1 (4.2)	2.8 (4.0)
Family life	78	78	17	22	5		2.4 (3.2)	1.4 (2.6)
Depressed	81	89	12	11	7		2.9 (3.3)	3.1 (2.6)
Anxious	80	89	13	11	7		2.7 (3.2)	3.0 (3.3)
Sleep	75	100	13		12		2.8 (3.5)	1.0 (2.8)
Tired	72	78	20	22	8		3.2 (3.0)	2.5 (3.6)
Pad usage	38	100	12		50		4.0 (3.6)	1.4 (2.9)
Fluid intake	75	67	16	33	9		2.6 (3.2)	2.9 (3.6)
Change clothes	76	100	10		14		3.9 (3.3)	2.1 (3.1)
Smell	72	67	12	22	16	11	4.0 (3.7)	3.9 (4.1)
Embarrassed	83	78	8	22	9		3.1 (3.4)	3.0 (3.3)
Overall			†		†		3.3 (3.0)	2.1 (2.5)

P31

Quality of life outcomes after an artificial urinary sphincter: the patients' perspective

M. BELAL, N. GARDINER, S. AL-HAYEK, K. HORSALL and P. ABRAMS
Bristol Urological Institute, Southmead Hospital, Bristol, UK

Aims: The aim of this study is to examine the patients' quality of life after placement of artificial urinary sphincters (AUS), using validated patient administered questionnaires; the International Consultation on Incontinence Questionnaires (ICIQs).
Patients and methods: A total of 199 patients received AUS (AMS 800 urinary sphincter) (178 male, 21 females) at a single teaching tertiary centre from 1984 to 2005. 160 patients were eligible to receive the male or the female version of the ICIQ-LUTSqol questionnaires by post.
Results: Eighty-four patients returned their questionnaires (75 men, 9 women), an overall response rate of 53%. The mean age was 64 years (range 21–86 years)Most male respondents reported good quality of life outcomes with sexual dysfunction as the greatest impact, caused presumably by previous surgery. Pad use had a substantial impact on quality of life in male respondents and is not unusual after AUS placement. In contrast, female respondents report better quality of life outcomes after AUS implantation. The most bothersome aspect was smell. AUS placement at the bladder neck in women may explain the better outcomes.
Conclusion: Patients reported good quality of life outcomes after AUS placement, with better outcomes in women.

P32

Erosion rate of replacement and redo artificial urinary sphincter compared with primary implantation

D.E. ANDRICH, J.P. HIRST and A.R. MUNDY
Institute of Urology, London, UK

Introduction: The AUS is an established treatment for sphincter weakness incontinence (SWI). More and more patients are reaching the end of the lifespan of the device or otherwise require replacement of the device.
Methods: Over a 3 year period, 104 consecutive AUS were implanted and outcomes were recorded prospectively. 76 bulbar AUS (59 primary, 10 replacement [same cuff sheath] and 7 redo [new cuff placement]) were implanted in 67 men with sphincter weakness incontinence following radical prostatectomy or TURP and 9 with other causes. 28 bladder neck (BN) AUS (18 primary, 8 replacement, 2 redo) were implanted in 19 men and 9 women with different aetiologies (14 neuropathy, 5 trauma, and 9 others).
Results: There was no infection/erosion in the replacement bulbar AUS group; but 1.7% (1/59) in the primary bulbar AUS group and 43% (3/7) in the redo-bulbar AUS group. There was no infection/erosion in the replacement BN AUS group; but 17% (3/18) in the primary BN-AUS group and 50% (1/2) in the redo-BN AUS group.
Conclusion: The infection/erosion rate is higher in redo surgery and the technically more difficult surgery of BN-AUS implantation. However, replacement of a failed device is not associated with a higher risk of infection/erosion.

P33

Fellowship curriculum in reconstructive urological surgery: when does a trainee become a trainer?

D.E. ANDRICH and A.R. MUNDY
Institute of Urology, London, UK

Introduction: Fellowship training is a new concept in the UK. We report our experience of fellowship training in Reconstructive Urological Surgery.
Methods: Log book review and prospective outcome analysis were used to

compare the surgical activity and outcome of the Fellow with the Trainer in the following categories: 403 men undergoing urethroplasty: Simple: BMG substitution and simple anastomotic bulbar urethroplasty; Complex: penile/full length urethroplasty, trauma related urethroplasty, revisional surgery. 104 patients having an artificial urinary sphincter: Simple: primary + replacement bulbar AUS; Complex: redo bulbar AUS, any BN AUS. 34 patients undergoing fistula repair: All complex. 51 patients having abdominopelvic reconstruction or diversion procedures: Simple: first time; virgin abdomen; Complex: revision; previous surgery.
Results: The frequency and complexity of surgical procedures performed, as shown by the logbooks, are mirrored year on year by the success rates and complication rates both the fellow and the trainer as shown by continuous prospective audit.
Conclusion: It is feasible to train in reconstructive urological surgery within 3 years and achieve comparable outcomes for most procedures, but careful stratification of procedures is necessary. An ongoing apprenticeship thereafter is desirable for major complex procedures.

P34
Bladder neck closure in patients with neurogenic bladder and acquired megaurethra: 12 years' experience
S. L. HOUSLEY and I. G. CONN
Southern General Hospital, Urology Department, Govan Road, Glasgow, UK

Introduction: Our department has treated patients with neurogenic bladders for many years. We looked at patients who had iatrogenic urethral damage from long-term catheters.
Patients and Method: We studied 22 men and women who underwent bladder neck closure between 1995 and 2006. We divided them into 2 groups: 17 had abdominal closure and 5 had perineal or transvaginal closure. A combined mean follow-up of 35 months enabled us to assess success and complication rates.
Results: Abdominal closures: 13 patients had follow up. Twelve were completely dry immediately and 1 with a minor leak healed spontaneously at a month, giving a success rate of 100%. Four patients had minor wound problems and 1 required ITU admission for seizures and LRTI. Three have been treated for bladder stones. Perineal/transvaginal closures: 4 patients had follow up and only one was completely dry post op. Two others responded to bed rest and bladder drainage to become dry by a month, giving a success rate of 75%. One has been treated for bladder stones and 1 for upper tract calculi.
Conclusion: In our experience bladder neck closure by an abdominal route gives guaranteed success rates without longer hospital operation times or hospital stays.

P35
Surgical management of uro–rectal fistula following salvage HIFU for recurrent cancer of the prostate after radiotherapy
D.E. ANDRICH and A.R. MUNDY
Institute of Urology, London, UK

Introduction: Recently, salvage HIFU (sHIFU) has been offered to patients presenting with locally recurrent prostate cancer after External Beam Radiotherapy (EBRT) and Brachytherapy but we are only now starting to appreciate the incidence and magnitude of complications of this treatment.
Material and Methods: Prospective analysis of 8 patients who presented with severe perineal pain and sepsis due to a URF 3–8 months after salvage HIFU. Prior to reconstruction all patients had loop colostomy and SPC. Four patients who developed URF following sHIFU after EBRT were managed with salvage prostatectomy and omental wrap; 1 patient refused reconstruction. Three patients following sHIFU after EBRT + Brachytherapy underwent excision of prostatic cavity, vesicourethral anastomosis (VUA) and gracilis or omental wrap.
Results: All patients had successful closure of their URF and proceeded to reversal of colostomy without complications. Healing was prolonged in all (4–16 weeks). All patients were incontinent of urine using an external urinary device or pads. Two patients are awaiting insertion of bulbar AUS.
Conclusion: Surgery of URF following salvage HIFU for recurrent prostate cancer after radical radiotherapy is difficult. All patients were cured of their URF and perineal pain, but healing of the VUA is prolonged due to radiation damage.

P36
Medium-term outcome of buccal graft urethroplasty for recurrent bulbar strictures
M. SHABBIR, B.E. HUGHES, T. SWALLOW, M.J.A. PERRY and N.A. WATKIN
St. George's Hospital, London, UK

Introduction: While optical urethrotomy has acceptable results in the short term, long term outcome is poor with high rates of recurrence. We assessed the medium term outcome of buccal graft urethroplasty for recurrent bulbar strictures.
Methods: Fifty patients with recurrent bulbar strictures (1.5–7 cm, mean 3.5 cm) underwent a buccal graft 'Barbagli' urethroplasty. Patients were followed up at 3, 6, 12, and 24 months with flow rates and symptomatic review. Further follow up was by annual postal questionnaires. 'Success' was classified as an absence of symptoms, normal bell-shape flow curve, and absence of further instrumentation including CISC.
Results: Mean follow up was 34 months (9–78 months). Forty-five patients had no symptoms with normal voiding (90%). One patient (2%) developed a distal stenosis requiring graft revision (successful). Another patient (2%) had distal stenosis requiring graft revision (unsuccessful) and declined further surgery. Two patients (4%) had proximal stenoses requiring optical urethrotomy (longest 24 months ago) and now void normally. A further patient (2%) had a mild proximal stenosis and flat topped flow rate (Qmax 20 ml/s) but no symptoms.
Conclusion: The Barbagli dorsal onlay buccal graft repair is an excellent option for recurrent bulbar urethral strictures with favourable and reproducible medium term outcome.

P37
Sterile abscess formation following periurethral injections for stress urinary incontinence – an unrecognised complication
N. COULL, K. DOVER and R.M.H. WALKER
Epsom and St Helier NHS Trust, Epsom, UK

Introduction: Stress urinary incontinence in women is a common problem which has a profoundly negative effect on their quality of life. The minimally invasive technique of periurethral bulking injections is popular due to its low complication rate and

suitability as an office procedure. Published complications are minimal.
Patients and methods: Fifty-five women underwent periurethral injections with a dextranomer/hyaluronic acid gel polymer (Zuidex) applied using a specifically designed applicator by a single consultant urological surgeon. All were followed up in outpatient clinics to assess outcomes and any complications.
Results: Twelve of 55 patients (22%) developed sterile abscesses following the procedure (1–12 months post operatively). Clinically this was characterised by a symptomatic periurethral swelling. MRI scans performed prior to operative intervention demonstrated a loculated periurethral swelling, similar in appearance to a female urethral diverticulum. Management was with incision and drainage transvaginally in most cases.
Conclusion: We believe that the incidence of sterile abscesses following this procedure is significant, and that clinicians should be made aware of this potential complication. In our series we use MRI scans and operative photographs to demonstrate the management of this problem.

P38

Management of female urinary retention: 11 years experience

I. AHMAD, D.R. SMALL, N. SARATH KRISHNA and I.G. CONN
Southern General Hospital, Glasgow, UK

Introduction: We undertook a review of all female retention patients to assess incidence, aetiology and treatments.
Patients and Methods: Three hundred females presented with retention in 11 years (7% of the male incidence). Eighty-one presented more than once. Median age was 67. Aetiology included urethral stenosis (n = 51), urinary tract infection (n = 33), constipation (n = 23), neurological causes (n = 17), gynaecological causes (n = 21), non urological post-operative patients (n = 29), medications (n = 7) and clot retention secondary to bladder cancer (n = 12).
Results: Ultrasound (n = 240) was carried out in the majority of cases, cystoscopy (n = 140), and urodynamics in a minority (n = 62). Twenty-six had urethral pressure profiling. These were case-matched for age and parity, the retention group having significantly higher closure pressures – median 88 versus 59 (P = 0.02). Two hundred and forty five had successful trials without catheter. Prior to this, treatments included cystoscopy and urethral dilatation (n = 73), laxatives (n = 25) or antibiotics (n = 29). Initially 50 patients were taught to carry out intermittent self catheterisation; 34 patients were unable to perform this. Fifty-six were left with long-term catheters (n = 56).
Conclusions: Retention represents 7% of female emergency admissions. However only 6% were secondary to neurological causes. In a third no aetiology was found. Approximately half of those who successfully voided did so with no treatment.

Wednesday 25 June, 11.00–12.30
Andrology
Chairman: Steve Payne

P39

Limited shock wave therapy (SWT) versus Sham treatment in Peyronie's disease: results of a prospective randomised controlled double blind trial

S. CHITALE, M. MORSEY, L. SWIFT and K. SETHIA
Norfolk and Norwich University, Hospital NHS Trust, Norwich, UK

Introduction: Role and duration of Shock Wave Therapy (SWT) in men with Peyronie's disease remains debatable. We present results of a prospective randomised controlled trial (RCT).
Patients and Methods: Thirty-six men were randomised to six sessions of SWT or sham treatment. Geometrical measurements of penile length, deformity and abridged IIEF, VAS were recorded and six monthly re-evaluated. Patient and assessor were blinded to treatment type. Statistical analysis was performed using standard nonparametric tests.
Results: Sixteen received SWT, with 20 controls. Mean age was 59 years (range 28–77).There were improvements in the dorsal and lateral angle of 5.3 (± 11.66) and 3.5 degrees (± 17.38) in the control & of 0.9 (± 16.01) and 0.3 degrees (± 15.56) in SWT group. Mean reductions in curved and straight lengths were 0.2 (± 0.58) cm and 0.1 cm (± 0.8) in the control and 0.1 (± 0.9) cm and 0.1 (± 1.49) cm in the SWT group. Mean changes in IIEF & VAS were 0.1 (± 3.32) & –0.8 (± 1.77) for the control and 0.56 (± 2.6) & –1.05 (± 1.79) for SWT group.
Conclusion: We have shown no significant difference in change in variables in Peyronie's disease treated with short term SWT. RCTs using longer term SWT are needed.

P40

Penile prosthesis insertion in Peyronie's disease

G. GARAFFA, A.M. ABDEL RAHEEM, A. SPILLINGS, S. MINHAS, A.N. CHRISTOPHER and D.J. RALPH
St Peter's Department of Andrology, UCLH, London, UK

Introduction: The long-term results of the insertion of penile prosthesis in patients with Peyronie's Disease (PD) are presented.
Methods: A penile prosthesis was inserted in 98 patients (mean age 53.7years) with PD causing significant erectile dysfunction (ED)(n = 92) or extensive curvature with penile shortening (n = 6). A 3-pieces-inflatable prosthesis was inserted in 67 patients and a malleable in 31. A residual curvature >20° after implantation (n = 27) was corrected intraoperatively by the moulding technique (21), plication (2), plaque incision(1) or plaque incision + grafting(3). No further treatment was performed in case of curvature <20° (4) or of straight penis.
Results: After a median follow-up of 13 months (1–120 mts) 91patients have a stright penis and 4 a minor curvature that doesn't impede penetration. Further surgical management of residual curvature was required in 4 cases (Nesbit = 2, grafting = 1, moulding = 1). Revision of the prosthesis was necessary in 26 patients (elective exchange of a malleable to inflatable prosthesis = 2, auto-inflation = 4, soft glans = 5, downsizing of the rods = 5, infection = 2, repositioning of the pump = 4 and correction of residual curvature = 4). Satisfaction rate was 97% and 96% of patients have resumed sexual intercourse postoperatively.
Conclusions: The insertion of a penile prosthesis in patients with PD corrects both the penile deformity and the associated ED allowing maintenance of penile length and function.

P41

Penile reconstruction for benign disease with the use of skin grafting

G. GARAFFA, A. SACCA', A. ABDEL RAHEEM, S. MINHAS, N. CHRISTOPHER and D.J. RALPH
St. Peter's Department of Andrology, UCLH, London, UK

Objectives: The long term results of penile reconstruction for benign disease with the use of skin grafts in 59 patients are reported.
Patients and methods: The patient's aetiologies included Balanitis Xerotica Obliterans (BXO, n = 20), traumatic amputation (n = 5), excessive circumcision (n = 12), frenular pathology (n = 7), end stage lymphoedema (n = 6), iatrogenic skin loss (n = 4), hypospadias surgery (n = 3), buried penis (n = 1) and Fournier's gangrene (n = 1). All BXO and Lymphoedma patients had the disease area excised and grafted. The traumatic and circumcision injuries had skin added. Split skin grafts harvested from the inner thigh were used for glans and coronal pathology in 34 patients, whereas full thickness grafts from non-hair-bearing areas were used on the shaft to prevent erectile dysfunction due to graft contraction in 25 patients.
Results: After a median follow-up of 21.5 months(1–60), all patients were satisfied with the outcome although partial graft loss and subsequent contracture did occur in 7 patients. These were managed successfully by delayed excision and re-grafting. The happiest were the BXO and trauma groups where effectively extra skin had been added. An improvement in cosmesis and sexual function was reported by 53 patients with an overall satisfaction rate of 93%.
Conclusion: Loss of penile skin of various causes can be reliably managed by skin grafting.

P42

Impact of IOG guidance on their management and outcomes of patients with carcinoma of the penis

A. BAYLEY and K.K. SETHIA
Norfolk and Norwich University, NHS Trust, Norwich, UK

Introduction: The IOG guidance on the management of patients with carcinoma of the penis states that treatment should be provided supraregionally to populations of 4 million or greater. This study assesses the impact of this guidance on the management and outcomes of patients with the disease.
Methods and Results: We compared the records of 44 patients with cancer of the penis treated in our institution between 1969 and 1990 (group 1) with 101 treated from 1992–1996 ie after supraregional centralisation of the service (group 2). There was no significant change in the stage or grade of the tumours. However the table

shows that in modern times there was a significant increase in the amount of penis-preserving and nodal surgery performed as well as a fall in mortality.

TABLE: for P42

	Group 1	Group 2	
Mean age	68	66	NS
Penis-preserving surgery (%)	14	53	$P < 0.01$
Node surgery (%)	14	68	$P < 0.01$
Recurrence rate (%)	20	11	$P < 0.05$
Mortality (12 months) (%)	24	4	$P < 0.05$

Conclusions: The centralization of surgery for carcinoma of the penis results in improved outcomes both in terms of penis preservation and improved survival.

P43

Specialist review of penile cancer histology is required before supranetwork treatment planning as part of cancer guidelines

C.M. CORBISHLEY, M. LYNCH, Y. SMITH, M.J.A. PERRY, B. HUGHES and N.A. WATKIN
St George's Healthcare, NHS Trust, London, UK

Introduction: Penile cancer is rare with most pathologists seeing only 2–4 cases per year. Typing grading and staging of the primary lesion is important for treatment planning and prognosis.
Methods: The original or recut microscope slides from the primary lesion were reviewed by a specialist Histopathologist, compared with the original report and subsequently correlated with the final histology following definitive treatment.
Results: Seventy-one cases were formally reviewed over the study period. One patient was incorrectly diagnosed (Squamous carcinoma but was Melanoma on review), 8 were upgraded, 23 had incorrect or absent stage, 52 had no tumour subtype, 17 had absent or incorrect margin status. Basaloid and Verrucous subtypes were frequently not recognised. Following definitive surgery the final histopathology showed excellent concordance with the review report.
Conclusion: Although IOG for Penile cancer do not specify central review, our results indicate that it is imperative to ensure correct diagnosis, grading and staging in this rare tumour and therefore appropriate clinical management.

P44

Pathological factors affecting survival following lymphadenectomy for penile cancer

R.W. REES, P.A. HEGARTY, A. MUNEER, A. FREEMAN, D.J. RALPH and S. MINHAS
Institute of Urology, UCLH, London, UK

Introduction: Lymph node status is the most important prognostic factor in survival from penile cancer. The aim of this study was to compare pathological variables, including lymph node density (LND), in determining survival following lymphadenectomy.
Methods: All patients undergoing inguinal lymphadenectomy at a supra-regional centre for penile cancer were reviewed. Tumour grade, lymphovascular invasion, and depth of invasion of the primary lesion were recorded, and LND calculated (number of lymph nodes involved/total number removed).
Results: One hundred and four patients underwent lymphadenectomy according to EAU guidelines. Fifty-four cases had nodal disease. Mean duration of follow-up was 40 months. For the negative and positive lymphadenectomy patients respectively, overall mortality was 4% and 37% ($P < 0.05$), lymphovascular invasion 20% and 48% ($P = 0.02$), Grade 3 primary tumours 44% and 70%, and depth of invasion 31.9 mm and 30.2 mm. There was a significant difference in LND between survivors (0.13) and those who died (0.30) ($P = 0.05$).
Conclusion: Patients with high grade tumours and presence of lymphovascular invasion have a higher risk of nodal involvement. Lymph node density can subcategorise node positive cases relative to risk of death and may aid selection of cases for adjuvant therapy.

P45

Lymph node metastasis in intermediate risk penile squamous cell cancer – a multi-centre experience

B.E. HUGHES, J.A.P. LEITJE, B.K. KROON, C. CORBISHLEY, N.A. WATKIN and S. HORENBLAS
St George's Hospital, London, UK and The Netherlands Cancer Institute, the Netherlands

Introduction: The risk of lymph node metastasis (LNM) in G2T1 penile cancer has been previously reported as 25%–66% and is classified as 'intermediate risk' in the EAU guidelines 2004. Our combined prospective database of 900 patients was interrogated to establish the risk more precisely.
Materials and Methods: One hundred and fifteen of 900 (13%) patients with G2T1 cancers were identified and grouped into 3 cohorts depending on how their inguinal node status was determined: early bilateral dissection (eLND), dynamic sentinel node biopsy (DSNB) and surveillance. Mean follow-up was 42 months.
Results: Fourteen of 115 (12%) had at least one lymph node metastasis at presentation or during follow up. One hundred and six (92%) patients had impalpable lymph nodes (cN0) at presentation. Of these, 10 had prophylactic eLND (0% positive); 63 had DSNB (8% positive); 33 were observed (12% positive). In cN0 patients the overall risk of LNM was 8%. Nine of 115 (8%) patients had palpable inguinal lymph nodes at presentation and underwent eLND (56% positive).
Conclusion: The risk of LNM in G2T1 penile cancers is 'intermediate'' but is considerably lower than previously reported. Prophylactic bilateral node dissection may be too morbid to justify a detection rate of 8% in patients with impalpable nodes at presentation.

P46

Multi-institutional evaluation of sentinel node biopsy for penile carcinoma

B.E. HUGHES, J.A.P. LEITJE, B.K. KROON, C. CORBISHLEY, N.A. WATKIN and S. HORENBLAS
St George's Hospital, London, UK and The Netherlands Cancer Institute, the Netherlands

Introduction: Dynamic sentinel node biopsy (SNB) is used to determine the inguinal node status of clinically node-negative (cN0) penile carcinoma patients. Reservations to SNB are that results are mostly from one institution and the supposed long learning curve associated with the procedure. We address these issues by analyzing SNB results from two centers using the same protocol.
Methods: Our combined database of 325 SNB patients was interrogated to calculate sensitivity. The first 30 procedures at StG were assessed for a learning curve.
Results: Combined sensitivity was 94%. At NKI, 46 of 351 (13%) cN0 groins in 195 patients were tumour positive with 3 false negatives occurring at 4, 5 and 8 months

after SNB (sensitivity 94%, median follow-up 22 months). At StG 39 of 248 (16%) cN0 groins in 130 patients were tumour positive with 2 false negatives occurring at 5 and 7 months after SNB (sensitivity 95%, median follow-up 18 months). None of the false-negative cases at StG occurred in the first 30 procedures.
Conclusion: SNB is a reliable and reproducible procedure. There was no learning curve at StG that influenced sensitivity. We suggest that SNB be used to assess cN0 patients to reduce morbidity without compromising oncological safety.

P47

Management of chronic ulceration after radiotherapy for penile cancer

M. SHABBIR, B.E. HUGHES, T. SWALLOW, C. CORBISHLEY, M.J.A PERRY and N.A. WATKIN
St. George's Hospital, London, UK

Objective: We assessed the outcome of patients referred to our supra-regional penile cancer unit with chronic ulceration after radiotherapy.
Methods: Over the last 7 years, 17 patients were referred for opinion after numerous biopsies for chronic ulceration. Fourteen patients underwent glansectomy and resurfacing, 1 had partial penectomy, and 1 radical penectomy. One patient required wide local excision and full thickness skin graft.
Results: 15/17 (88%) patients had malignant disease ranging from G1pT1 to G3pT2a SCC. Two patients had chronic inflammation and radiation induced changes only. The mean time from initial radiotherapy to definitive surgery was 9 years (1–29years). No patients had complications related to surgery or graft take post radiotherapy. After a mean follow up of 3 years (1–6years), 16/17 patients were disease free. No patients had nodal metastases despite the delayed presentation. One patient with aggressive G3pT2 sarcomatoid SCC disease died the year following surgery with a brain metastasis.
Conclusion: The development of a non-healing area or chronic ulcer post radiotherapy should be considered tumour recurrence until proven otherwise. These patients are at increased risk of occult disease and have a considerable delay to diagnosis and definitive surgery. Despite previous radiotherapy, all cases were amenable to surgery and grafting.

P48

Surgical reconstruction in men with advanced genital tumours; is palliative surgery a viable option?

R.W. REES, A. MUNEER, N. BORLEY, D.J. RALPH and S. MINHAS
Institute of Urology, UCLH, London, UK

Introduction: The surgical management of advanced genital malignancy is difficult and traditionally patients are treated with palliative chemo/radiation therapy. The impact of radical surgical treatment on quality of life and survival has not been evaluated in these men. The aim of this study was to assess the surgical techniques employed and outcome in this difficult group of patients.
Patients and methods: Thirteen patients with advanced genital malignancy underwent surgical reconstruction at a tertiary referral centre. Techniques for genital/abdominal reconstruction included: vertical rectus abdominis flap, standard advancement flap, scrotoplasty, full/partial thickness skin grafting. Three patients underwent tunical reconstruction with tutoplast/permacol. Two patients had ileal conduit formation and 1 patient required an end colostomy.
Results: Mean age of patients was 66 years and average hospital stay 15 days. Two patients had undergone previous chemotherapy/radiotherapy, whilst 9 patients received post operative adjuvant therapies. Mean survival from surgery was 46.7 weeks (5–81 weeks) with 7 patients alive to date. Significant complications occurred in 2 patients who required surgical wound debridement.
Conclusion: A variety of surgical techniques can be used to accomplish genital/abdominal reconstruction in men with advanced genital tumours. This results in excellent cosmesis, improvement in quality of life and confers significant survival benefit.

Wednesday 25 June, 14.00–16.00
Management and Governance
Chairman: Krishna Sethia

P49

Does teaching affect outcome with major open surgery?

K. GRAY, D. NICOL and P. HEATHCOTE
Princess Alexandra Hospital, Brisbane, Australia

Introduction: Surgical training aims to become more efficient with trainees entering specialist training with less experience. Achieving competency in complex operations like Radical Retropubic Prostatectomy (RRP) is an increasing challenge. Teaching must not compromise patient outcomes. To address these issues we developed a modular teaching programme.
Methods: We prospectively and independently compared 75 consecutive RRPs performed by a consultant urological surgeon and the next 63 RRPs involving a trainee following the modular framework. RRP was subdivided into 13 discrete modules of varying degree of difficulty. Each procedure a variable number of modules were performed by the trainee depending on experience and intraoperative factors to maintain operating momentum and avoid trainee and mentor fatigue.
Results: Age, PSA, clinical stage and Gleason score were comparable. Average operative time was one hour 40 min and one hour 30 min, average blood loss 395 and 396 mls respectively. Positive margins in the absence of extracapsular extension occurred in 13% and 5% of cases. Urinary continence (no daily pads) at twelve months was 91% in both groups.
Conclusion: Teaching RRP within a modular framework does not affect operative outcomes or functional results. Structured objectives and defined audit processes resolve conflict between patient outcome and training.

P50

Revalidation in urology. Validating a questionnaire to address the "Relationships with Patients" aspect of "Good Medical Practice"

A.M. SINCLAIR, T. GUNENDRAN, A. ANDERSON, B. BRIDGEWATER and I. PEARCE
Manchester Royal Infirmary and South Manchester University, Hospital Trust, Manchester, UK

Introduction: Revalidation should encompass each of the seven pillars of good medical practice as laid down by the GMC in 2006. At present the only tool available to address "Relationships with patients" is the negative subject of hospital complaints. More robust assessments are required to assess patients' perspectives regarding doctors' communication skills and their relationships with patients. The Picker Institute reviewed 10 questionnaires for gathering patients' feedback. The SheffPAT questionnaire is the only one that is validated and recommended from the UK in the Picker Institute Review.
Patients and Methods: A pilot study is under way using the SheffPAT questionnaire given to 50 consecutive patients following consultation with a single consultant. The pilot will trial 6–8 consultants initially.
Results: The results will be analysed by Healthcare Assessment and Training (HcAT) who addressed validity, reliability and quality assurance for SheffPAT in Paediatrics.
Conclusions: This pilot will address if SheffPAT is an appropriate tool to be used for patient feedback in urology. Secondly it will provide a template on which to develop a Urology Specific Questionnaire utilising SheffPAT. Presenting this Pilot study at BAUS will hopefully generate discussion which can be taken into consideration when developing this important aspect of revalidation.

P51

The diagnostic urologist: is this what 'Office Urology' should be?

R.S. HAMM, M.V.P. FORDHAM, K.A. WOOLFENDEN, P.A. CORNFORD and K.F. PARSONS
Royal Liverpool and Broadgreen University, Hospital Trust, Liverpool, UK

Introduction: Changes are necessary to the working patterns within Urology. We present the model of the 'Diagnostic Consultant Urologist' as a crucial member of our consultant team.
Materials and Methods: In 2006, our department appointed a new consultant colleague whose duties were only outpatient based, and were predominantly diagnostic to work in a purpose built integrated urological treatment centre. Prospective data has been collected on every patient seen over the first 8 months.
Results: Over 600 new patients have had first outpatient appointments. 74.9% were discharged from outpatients after one clinic visit. 11.6% have had curative operations by the diagnostic urologist. 11.6% of patients have been referred to a specialist consultant urological surgeon for further complex investigation or surgical treatment after initial evaluation. Only 16.7% have had more than one clinic visit or are undergoing continuing treatment.
Conclusions: A consultant diagnostic urologist who undertakes no more operating under general anaesthesia than simple penoscrotal surgery and diagnostic rigid cystoscopy is able to diagnose and treat nearly 90% of unselected urological referrals from primary care.

P52

Ten years of training – a urological training scheme audit revisited

M.L. KUJAWA, S. SRIRANGAM, M. MOKETE, D.A. JONES, A. THOMPSON and C.D. BETTS
North West Urology Training Scheme, North West (Manchester) Deanery, Manchester, UK

Introduction: At BAUS 2002, an audit of our regional training scheme was presented. The aim was to demonstrate evidence of a structured, complete and quality program. It concluded that areas of good practice and specific weakness could be identified and fedback to trainers. The cycle was repeated in 2005 and 2007 to check recommendations had been addressed, ensure continuing quality and assess response to a new teaching program.
Methods: All current trainees and recently appointed consultants during the audit periods completed identical questionnaires relating to their appointment, education, deanery issues and individual hospital posts. Aspects including appraisal in post, academic/research opportunity and patient management were examined in detail. Operative surgery was marked according to opportunity, supervision, teaching and appropriateness of cases. The data was collated and presented graphically to compare posts over ten years.

Results: Over all audit cycles 203 out of 227 questionnaires were returned. Generally, the graphs showed that training is highly regarded and continues to improve. Weaknesses in certain posts have been addressed and standards have risen accordingly.
Conclusions: PMETB requires that deaneries show evidence of structured good quality training programs. Our audit achieves this aim using this tool and we would recommend it to other schemes.

P53
The threat to the consultant urological surgeon – is it real?
N. GEORGE and T. HULME
South Manchester University, Hospital Trust, Manchester, UK

Great uncertainty exists as to whether the advent of the consultant urologist (CU) will adversely affect the practice of the urological surgeon (CUS).
A prospective study of all new letters to a 'general' urological surgeon with specialist sub-interest was undertaken during 2006 (8 weeks) and 2007 (9 weeks). Within the 4 nationally agreed pathways [general urology (GU), LUTS, haematuria (H) and ED] independent triage (urological expertise) identified referrals suitable for CU practice; ALL patients with any past history, previous investigations or treatment for any reason were triaged to CUS. HSC letters were excluded from analysis

TABLE: for P53

412 referralsl (17 weeks)	GU	LUTS	H	ED
Overall proportion	60.0	25.0	9.0	5.4
Triage to CU 2006	67.6	66.0	50.0	100
2007	44.6	56.3	47.6	100
2006 outcomes, all patients analysed				
Incorrect triage to CU	5.7	14.2	7.1	-
CUS	6.6	9.5	21.4	-

Conclusions:
1. Overall, up to 50–60% of referrals may be competently managed by a consultant urologist
2. Independent informed triage works well with high percentage correct allocation
3. Incorrect triage underscores the critical importance of integrated (CU/CUS) units
4. Reduction in 'core' workload greatly enhances quality of practice for consultant urological surgeon.

P54
The use of standardised consent forms in urology: the gold standard in documentation
R. ASHRAFI, T. AOJANEPONG, C.Y. LI and J.M. BARUA
King George Hospital, Ilford, London, UK

Introduction: The British Association of Urological Surgeons (BAUS) has produced with the Department of Health (DOH) standardised consent forms for most urological procedures. We wanted to compare our department to the national standard before introducing these forms in our department.
Patients and Methods: Patients undergoing surgery within our department had their consent forms reviewed and compared against the BAUS forms. The patient case notes were also reviewed to see if the risks and complications were documented in the final clinic letter before an operation and in the pre-op ward round.
Results: In 22 procedures only one patient had the risks/complications documented in the final clinic letter and this was incomplete and none had anything written in the pre-op ward round. There were 22 procedures carried out that had specific BAUS forms and there were a total of 82 risks/complications documented out of 220 mentioned in the BAUS forms, an average consent documentation rate of 37% and by grade it was 54% for SHOs, 36% for SpRs and 27% for staff grades.
Conclusion: The use of standardised consent forms will encourage best practice and help develop a national gold standard regardless of the doctors grade.

P55
The procedure band, a simple way to prevent wrong site surgery? – a 40,000 patient trial
M.J. HENLEY, J. RAI, N. HERSEY and C.P. CHILTON
Derby Hospitals, NHS Foundation Trust, Derby, UK

Introduction: Research published by the National Patient Safety Agency suggests that there are over 400 incidents per year of wrong site surgery in the UK, or 2 serious incidents per acute trust. We sought to introduce a simple system to minimise the chance of error.
Materials and Methods: We designed a modified patient identity band with a number of areas including the procedure name to be completed during the patient's journey to surgery. The band is initialled by the patient as well as members of the surgical and anaesthetic team. The band is worn by the patient until the moment of surgery. A final check is performed at this point, whereby the band is removed, demographic and procedure details checked by scrub nurse, ODA, anaesthetist and surgeon. The band is then filed in the notes as a record of the process.
Results: Worn by 40,000 patients and used for over 12 months. Minor error rates were similar but identified earlier and prior to the patient being put at risk.
Conclusions: Wearing of the band by the patient encouraged interaction, put them at the centre of the process and brought the team into the checking process. A larger study is recommended.

P56
Survey of charity services supporting urological patients with cancer
S. GORDON, B. EDDY, C. SPRING, P. HEYWOOD and A. RANE
Surrey & Sussex Healthcare Trust, Redhill, UK

Introduction: Patients receiving a diagnosis of cancer often seek help from charitable sources. We have surveyed patients' knowledge and experiences of charitable organisations.
Patients and Methods: A patient questionnaire was designed to assess patient support services provided by charities and other bodies and the usefulness of charity websites.
Results: Preliminary results have revealed 63% of patients found publicity about cancer symptoms encouraged medical advice to be sought. 81% of patients with prostate cancer found paper based literature useful. Phone advice was useful for 38% of patients with 19% unaware of its availability. Group therapy with similar patients was helpful for 25%. 38% had no internet access and a further 13% were unaware of websites. Patients generally rated the websites as useful but no reliable differentiation could be found between the sites. Awareness of charitable organisations was very variable but Macmillan Cancer Support and Cancer Research UK were known by the majority.
Conclusion: Patients require and seek support regarding a cancer diagnosis above that provided by clinicians. We have shown the importance of different methods to effectively reach the majority of patients. A large proportion of our patients have no internet access and traditional forms of advice need to be maintained.

P57

The successful sustainable elimination of a waiting list for urology outpatients

T.S. O'BRIEN, K. THOMAS, M. PARDOS–MARTINEZ, S. WILLIS, V. PETERS and E. JENKINS

Guy's and St Thomas' Hospitals, NHS Foundation Trust, London, UK

Introduction: Timeliness is one of the six key indicators of a high quality service so the elimination of delays is an organisational priority. In 2007 we made our goal 'the implementation by January 2008 of a system to see all new urology referrals within 10 days of receipt of referral'.

Methods: We introduced:

1. Dedicated 'new referral' team.
2. Single queue (reduced from 53) for referrals.
3. Weekly clinico-clerical referral meetings.
4. Referral database.
5. Demand/capacity analysis.
6. A backlog reduction scheme based around the provision of one-stop clinics (offering consultations, imaging and cystoscopy backed-up by real-time generation of correspondence) in addition to normal clinic capacity.

Results: Median waiting time for an OPD appointment in January 2007 was 53 days. Median number of referrals per week was 84 (range 41–133): Total referrals = 4221. Four hundred and ninety-two patients have been seen in 16 one-stop clinics.

The waiting time for outpatient referrals received on December 31st is 10 days.

Conclusions: One-stop clinics can reduce delays and eliminate back-log without creating problematic 'follow-up bubbles'. The establishment in 2008 of 3 one-stop diagnostic clinics weekly (capacity 40 per clinic) as the sole route for new referrals gives grounds for optimism with respect to sustainability.

P58

Clinical coding of urological outpatient referral activity – an insight into previously uncharted territory

R. MANIKANDAN, N. ATHMANATHAN and S. VESEY

Southport and Formy Hospitals, Southport, UK

Aim: To detail routine urological outpatient activity with respect to referral reasons, diagnosis reached and patient outcomes.

Materials and Methods: Over a six year period the outpatient activity of one urologist was prospectively recorded. The reasons for referral, ultrasound scan requirements, procedures performed or listed, diagnosis reached, and eventual patient disposal, were all coded and documented.

Results: 12,096 individual outpatient attendances were studied. New patients accounted for 4,694 (39%) of referrals. Target patients (2-week rule) accounted for 21% of new patient attendances. The cancer detection rate in this group was 35%. Overall prostate cancers formed the commonest cancer diagnosed (53%), bladder (33%), kidney (8%) and testis (5.8%). Cancer was diagnosed in 17% of new patients while cancer related activity accounted for 43% of follow up activity and 33% of activity overall. Ultrasound scans (urologist operated) were performed on 71% of new patients and on 40% of total clinic attendees. Of new patients seen, 43% were directly listed for a procedure.

Conclusion: A significant proportion of urological outpatient activity relates to cancer detection and management. Interventional procedures are required in a large proportion of new patients seen. Because of demand, ultrasound scanning should be an integral tool in all urology clinics.

P59

Choose and book – how efficient is it?

S. PISIPATI and S.R. PAYNE

Manchester Royal Infirmary, Manchester, UK

Introduction: Conventional, paper-based, urological referral has been challenged by the computer-based, choose and book (C&B) system. To determine the efficiency of this new system, we audited the appropriateness of these bookings, the percentage that required re-direction and the reasons for doing so.

Method: One thousand, one hundred and forty-seven electronic bookings were made to different urological clinics between June 2006 and August 2007. The patient's age, date and type of clinic originally booked to, via C&B, and finally re-directed to was collected from our C&B record, PAS and Medisec.

Results: Twenty-three per cent of C&B appointments had to be re-directed. 65% of these inappropriate referrals were to the wrong clinic, 19.5% to the wrong consultant, 8.6% to the wrong speciality and 3 patients to the wrong hospital. Additionally, 32.3% were inappropriately prioritised, 7% being given inappropriate urgency and 25.3% not enough priority.

Conclusions: Although, C&B facilitates patients to make their choice of appointments, nearly a quarter of our patients had arrangements made inappropriate to their needs. This meant consultants still had to screen referrals and increased the workload of clerical staff. Refinement of C&B pathways may reduce this inefficiency but the inflexibility of this system makes it an inefficient way of referring urological cases.

P60

Economic burden of bladder cancer in the UK

P. WHELAN, M. TAYLOR and D. WRIGHT

Pyrah Department of Urology, St James's University Hospital, York Health Economics Consortium, University of York, Leeds and York, UK

The economic cost of managing bladder cancer in the UK is substantial. The 10-year cost of each year's incidence of newly diagnosed cases has been estimated at approximately £300 million. The main costs are clinical investigations and surgical intervention with associated inpatient care which account for 20% and 57% of the amount, respectively. The total annual cost of managing non-muscle invasive bladder cancer is approximately £100 million, whilst investigation of patients who are found not to have bladder cancer is £33.5 million a year. We have developed an economic model which utilises the EORTC non-muscle invasive bladder cancer nomogram to generate a projected financial cost for the clinical management of a given presentation of bladder cancer (Sylvester et al. Eur Urol 2006; 49: 466–477). It is therefore possible for a funding authority to apply our economic model to produce projected 10-year costs for a specific community. In addition, the economic model can also be used to assess new diagnostic tests, for example urinary markers, and treatment interventions to determine their true effectiveness, both economically and clinically. We will discuss how the model will be validated and potentially incorporated into future prospective clinical trials.

P61

Is your department missing out? The hidden cost of the internal referral

M.J. WALLARD and H.K. SHARMA

Bedford Hospital, Bedford, UK

The primary aim of this audit was to quantify the cost of non-urgent inter-departmental urological referrals. Internal referrals

to the urology department were analysed prospectively over a 6 month period, and assessed by a consultant urologist to determine whether they were true acute urological referrals, or conditions unrelated to the patient's presenting complaint, which could be managed as an outpatient. Standard outpatient tariffs were used to calculate the potential annual loss in revenue to the department Ninety-one referrals were analysed. 77% of patients had not previously been seen in the urology department, and 60% of referrals were from Care of the Elderly physicians. The commonest indications for referrals were failed TWOC, LUTS, chronic retention and recurrent UTI, accounting for just over 50% of referrals. Only 29% of admissions were deemed acute urological conditions requiring inpatient referral. The overall annual 'loss' in revenue based on standard outpatient tariffs for consultation and imaging was estimated to be £28,818.

Urology departments are under increasing pressure to improve performance and maximize revenue; this study suggests that internal referrals represent a significant proportion of departmental activity, and may be an important in negotiating standard tariffs with primary care trusts.

P62

Tackling the tackle – are too many cases of genital chlamydial infection presenting as acute epididymitis slipping through the urological net?

J. PHILLIPS, A. DESHPANDE, S. PATIL, P. RAJJAYABUN, D. GIEBALY and D. ROSARIO

Royal Hallamshire Hospital, University Hospital of North Staffordshire and Sandwell Hospital, Sheffield, Stoke and Birmingham, UK

Introduction: Over 75% of cases of epididymo-orchitis in men <35 years of age are caused by Chlamydia trachomatis. British rates of genital chlamydial infection in men and women <35 years of age have risen alarmingly over the last 10 years. There are specific guidelines for the management of sexually active young men with epididymitis, many of whom present initially to the urologist. This audit assessed compliance with these guidelines by urologists within 3 regionally separate UK teaching hospitals.

Methods: All urological admissions for acute scrotum or UTI in males <35 years were audited at each hospital for a designated 12 month period.

Result: Compliance to the recommended guidelines was extremely poor in all 3 centres, reflected by low rates of diagnosis for STIs, and compounded by widespread use of suboptimal antibiotics. Whilst urologists were unsurprisingly poor at sexual contact tracing, referral to GUM departments was also poor.

Conclusion: The management of young males presenting with acute epididymitis in all 3 centres fell markedly short of the recommended guidelines. Urologists have an important role in the effort to curb rising genital chlamydial infection rates, particularly as we may often be the first and only symptomatic presentation amongst sexually active young men.

TABLE: for P63

	No. of operations	Units Transfused (*cell salvage ml)	Average transfusion ml (Units)	Total Cost (£)
Hospital E				
Cystectomy	42	124	738 ml (3 units)	18,848
Open Nephrectomy	38	59	388 ml (2 units)	8,968
RRP	147	118	201 ml (1 unit)	17,936
Hospital W				
Cystectomy	37	36*	244 ml (1 unit)	2,775
Open Nephrectomy	24	42*	433 ml (2 units)	1,800
RRP	98	278*	709 ml (3 units)	7350

P63

To cell salvage or not to cell salvage; is cost the question?

*R.A. HURLE, J. WILSON, C.A. BATES and N.J. FENN**

Urology Departments of the Royal Gwent and Morriston Hospitals, Newport and Swansea, UK*

Introduction and Aims: The aim of this study was to assess if cell salvage and blood transfusion are equally cost effective in open urological surgery.

Method: Transfusion records for cystectomy, Radical Retropubic Prostatectomy (RRP) and open nephrectomy from two hospitals (E and W) between 1/1/2004 to 1/1/2007 were reviewed. Units transfused at Hospital E and intra operative cell salvage transfusion theatre records from Hospital W were compared. One cell salvage machine cost £14,000 with disposables £75 per operation. Each unit of blood costs £152.

Results: Transfusion data is shown below. Transfusions costs within the study period for these open operations were £45,752 for hospital E and £25,925 (£14,000 + £11,925) for hospital W. If hospital E had used cell salvage then the cost would have been £31,025 (£14,000 + £17,025) giving a saving of £14,727 during the study period.

Conclusions: These open operations have a significant risk of blood loss. Cell salvage is more cost effective than transfusing units of blood in these procedures even accounting for capital outlay for equipment. The savings are now greater with transfusion services reimbursing cell saver disposable equipment costs.

Wednesday 25 June, 14.00–16.00
Upper Tract Stones and Imaging
Chairman: Sam McClinton

P64

ESWL for ureteric stones: do decompression tubes matter?

S.G. MIDDELA, S.J. SRIRANGAM, O. OBADEYI, S. ADAMS and P.N. RAO
University Hospital of South Manchester, Department of Total Stone Management and Minimally Invasive Urological Surgery, Wythenshawe, Manchester, UK

Introduction: A substantial number of patients will undergo ESWL following decompression (either an indwelling nephrostomy tube or ureteral stent). We compared our stone free rates following ESWL in patients receiving treatment with and without a decompression tube *in situ*.
Patients and methods: Our prospective ESWL database was analysed. Three hundred and thirty-three consecutive patients with ureteric stones treated between 2002 to 2007 were divided into 3 groups. Group I (n = 74) consisted of patients with an indwelling ureteric stents; Group II (n = 54) patients had an indwelling nephrostomy and Group III (n = 205) had no tubes. Successful treatment was defined as absence of treated residual calculi on plain X-ray or non contrast CT scan.
Results: Overall stone free rate was 58% (194/333). Success rates were significantly higher in the absence of an indwelling decompression tube (Group III-64%) compared to those with indwelling tubes (49%). The nature of the decompression device did not appear to be relevant to the final outcome (Group I-51%: Group II-46.3%). Ureteric stone position also did not affect the outcome within all the groups.
Conclusion: Our data suggests that while a decompression device appears to lower the efficacy of ESWL treatment, there appears to be no difference in the final outcome between those with a stent or a nephrostomy tube.

TABLE: for P64

	Group I Ureteric stents (n = 74)	Group II Nephrostomy (n = 54)	Group III No tubes (n = 205)	Overall (n = 333)
Overall stone free rate (%)	38 (51.3%)	25 (46.3%)	131 (64%)	194 (58%)
- Upper ureter	28 (54%)	17 (53%)	57 (65%)	102 (60%)
- Mid Ureter	6 (46%)	2 (22%)	26 (65%)	34 (54%)
- Lower Ureter	4 (40%)	6 (46%)	48 (62%)	58 (58%)

P65

Is there a difference in prevalence of Randall's plaque in stone formers versus non-stone formers

S. CHOPRA, E.K. MAYER, R.D. SMITH and A. PATEL
St Marys Hospital, London, UK

Introduction: This study's objective was to accurately 'map' the number and location of Randall's plaques for a population of patients undergoing flexible ureterorenoscopy ,to test the hypothesis that the prevalence and location of Randall's plaques would differ between stone formers (SF) and non-stone formers (NSF).
Method: Seventy patients undergoing unilateral flexible ureterorenoscopic over 2 years were included. Fifty-three had current or history of stones (SF) and 17 no history of stone disease (NSF). All papillae examined and images were videoed.The calyces were divided into three regions to facilitate locational description.
Results: There was no statistical difference in the total number of papillae containing Randall's plaque between two groups, P = 0.68 (Chi square test).
Conclusion: This study has shown that there was no significant difference in the prevalence of Randall's plaques between the kidneys of stone forming and non-stone forming patients. This observation supports the theory that there are other forces driving stone formation (whether the stone originates on a plaque or not).

TABLE: for P65

	Total number of papillae	% affected in upper calyceal group	% affected in Middle calyceal group	% affected in Lower calyceal group
Stone formers (SF)	526	97/159 (61%)	106/140 (75.7%)	170/227 (74.8%)
Non stone formers (NSF)	169	32/51 (62.7%)	28/39 (71.7%)	57/79 (72.1%)

P66

Incidental stones and metabolic abnormalities in potential kidney donors: an increasingly common challenge

J.B.K. SMITH, J. GLASS and J. OLSBURGH
Department of Renal Surgery, Guy's Hospital, London, UK

Introduction: An increasing renal failure population requires maximisation of the living-donor pool. UK Transplant guidelines exclude donors with a current stone but we consider them extended criteria donors and are keen to facilitate safe use of these kidneys.
Patients/Methods: Retrospective analysis of 377 consecutive potential donors who had CT angiogram including a non-contrast phase.
Results: Nineteen (5%) had asymptomatic stones (size 1–8.5 mm) including 3 bilateral and 2 multiple unilateral. Thirteen had no previous stone history. Fifteen had a metabolic screen; 7 had hypercalciuria of whom 3 had no previous stone history. Three people donated with <3 mm stone and no metabolic abnormality. None underwent pre-donation stone treatment. Donor and recipient follow up (3 to 36 months); no stone-related complications or detrimental effect to graft outcome.
Conclusions: Incidental stones were common. Hypercalciuria was common even in those with no stone history. Donors and recipients should be fully counselled of potential risks. Donation with a small (<3 mm) stone *in situ* or a correctable metabolic abnormality may be appropriate.

Larger patient cohort and longer term follow up are needed for firm conclusions. The frequency of incidental stones and metabolic abnormalities emphasises the importance of multidisciplinary management.

P67

A study assessing the use of 4D ultrasound in percutaneous renal intervention with the aid of an ultrasound phantom and fluoroscopic control

B.S. JOHN, U. PATEL, K.M. ANSON, D. ROWLAND and D. NASSIRI
St George's Hospital Medical School, London, UK

Introduction: Ultrasound phantoms help demonstrate the accuracy of new ultrasound technology and also act as teaching tools. Percutaneous renal intervention, unless in the frankly dilated system, requires significant fluoroscopy time. We wanted to investigate the use of real time 3-dimensional (4D) ultrasound in percutaneous renal intervention with the help of an ultrasound phantom.
Material and methods: An ultrasound phantom with targets simulating minimally dilated renal calyces was constructed. Interventional fellows were asked to puncture the targets with 2D and 4D with no fluoroscopic help. The accuracy of the punctures was then assessed by fluoroscopy.
Results: There was no significant difference between 2D and 4D in terms of time to puncture the target ($P = 0.72$) or in the quality of puncture ($P = 0.65$). The global rating scores were significantly different from each other ($P = 0.03$) with a higher median difficulty rating for 4D (one fellow's higher than the other).
Conclusion: The results show that this is new technology with its limitations and that the interventional fellows were at the bottom of a steep learning curve. But 4D proved to be at least as good as 2D and we believe the ability of 4D to provide simultaneous information from different planes holds promise in intervention.

P68

Tubeless percutaneous nephrolithotomy in staghorn stones

S. FALAHATKAR and H. NEIROOMAND
Razi Hospital, Rasht, Iran

To perform a study to assess the outcome and safety of nephrostomy tube-free percutaneous nephrolithotomies (PCNLs) in patients with staghorn stones. Between March 2006 to March 2007, 75 patients underwent 82 PCNLs at our Hospital. Of these 82 PCNLs, 42 were performed with the nephrostomy tube-free modification (group 1) and 40 underwent PCNL with insertion of the nephrostomy tube after the operation (group 2). The mean age was 46.07 ± 13.22. Preoperative urine culture in 5 units (6.1%) were positive. None of our patients had organ trauma or considerable complication. The average operative time was shorter for group 1 than for group 2 (93.76 versus 109.98 with $P = 0.03$). The mean analgesic dose for pain relief postoperatively for group 1 and group 2 were 79.17 ± 62.2 and 93.75 ± 40.7 mg pethedine respectively without statistically significant difference. The mean postoperative hospital stay was 1.7 ± 0.6 day in group 1 and 4 ± 1.6 day in group 2 ($P < 0.0001$). The overall stone free rate was 87.8% (72 units).
We performed tubeless and standard PCNL in staghorn stones and concluded that complication, operation time and the length of hospitalization in tubeless PCNL is less than standard group. Tubeless PCNL was safe and effective even in patients with staghorn stones.

P69

Anterior percutaneous nephrolithotomy: implementation in a UK tertiary referral centre

R.A. COULTHARD and P.A. JONES
Morriston Hospital, Swansea, UK

European Urologists outside the UK have reported large series of patients with complex renal stones successfully treated using a percutaneous tract placed behind the posterior axillary line with the patient positioned in a semi-lateral position. [1]We describe our initial results using this approach and the novel addition of synchronous retrograde flexible ureterorenoscopy with antegrade percutaneous nephrolithotomy for complex renal stone clearance. Twenty-one patients with complex renal stones have undergone this procedure over a period of 6 months. Seventeen are stone-free as a result of their surgery. Two required salvage lithotripsy, one had failed access, and one required open conversion. Mean operative time was 105 min, no adjacent visceral injury occurred, and one patient required transfusion. All punctures were undertaken by the Urologist. This technique affords optimal access and clearance of complex renal stone disease. In comparison to the traditional posterior approach, it is quicker, anaesthetically safer and provides excellent subspecialist training in upper tract endoscopy. This has become the procedure of choice in our unit for treatment of complex renal stone disease.
Reference:
1 Ibarluzea, G, Scoffone, C., et al. *BJU* 2007,100 (1): 233–236..

P70

Risk factors and outcomes of percutaneous nephrolithotomy (PCNL) in spinal cord injured patients

A.M. BIRNIE, S. BIERS, B.W. TURNEY, P. GUY, R. BODLEY and J. REYNARD
The Churchill Hospital, Oxford, UK

Introduction: To quantify the risk factors for stone disease requiring percutaneous nephrolithotomy (PCNL) in spinal cord injured (SCI) patients.
Materials and Methods: A retrospective study of all PCNL performed on SCI patients (1987–2007). Patient demographics, bladder management, mode of presentation of stone disease and operative data were analysed (operation time, stone clearance, inpatient stay, complications).
Results: Fifty-one patients underwent 70 PCNLs. 79% of stones were discovered during routine surveillance; 18% presented with recurrent UTIs. 65% of patients were managed by indwelling catheter drainage (suprapubic or urethral) at time of stone presentation. Of those patients requiring redo PCNL 9 of 12 (75%) were managed by an indwelling catheter, compared with 20 of 37 patients (51%) who did not require redo PCNL. Complete stone clearance was achieved in just 40%. Mortality was 4% within 1 month of the procedure – all due to sepsis. A nephrocutaneous fistula formed in 4% requiring subsequent nephrectomy in all these cases.
Conclusions: This is the largest reported series of PCNL in SCI patients. They represent a unique, high risk population. Severe infective complications occur in 4%. Stone access where body posture is deformed, can be very difficult or impossible.

P71

Contemporary percutaneous nephrolithotomy: intracorporeal techniques to improve stone clearance

R. HEER, P. HASLAM and S.T. HASAN
Department of Urology, Freeman Hospital, Newcastle upon Tyne, UK

Introduction: Management of renal calculi by percutaneous nephrolithotomy (PCNL) is now commonplace in most modern urological departments. However, the treatment of complex renal stones (large volume, dispersed stones, unfavorable calyceal anatomy) remains challenging for surgeons using PCNL. We describe a number of accessory techniques to PCNL that help achieve maximal stone clearance in complex stone burdens and report our experience.
Methods and patients: We report our experience with using contemporary PCNL techniques in complex partial and complete staghorns involving multiple calyces from 2004–2007.
Results: Thirty-five complex stone cases (15 female and 20 males) were identified (including 4 paediatric patients). All patients were treated with a solitary puncture and complete stone clearance was achieved in 33/35 with no auxiliary interventions. No major complications were noted. Case-based illustrations demonstrate the use of intracorporeal catheters, flexible cystoscopy, basketing, lasering and percutaneous needle manipulations that allow these results.
Conclusions: We demonstrate that in the vast majority of cases, treatment of complex renal stone disease can be achieved with the use of a single renal puncture thus reducing potential morbidity for patient from multiple punctures and/or repeat PCNL for stone clearance. A team approach with an interventional radiologists is emphasized.

P72

Whitaker test – 25 year assessment of functional utility in PUJ disorder

N. GEORGE and E. LUPTON
South Manchester University, Hospital Trust, Manchester, UK

Introduction: We review our experience of perfusion pressure/flow studies in 63 cases of pelvi ureteric junction (PUJ) dysfunction using data collected prospectively, mean follow-up 4–244, mean 56 months. Whitaker tests were indicated if clinical, radiological and renographic evidence did not provide a conclusive and complete diagnostic answer to the clinical problem. Standard technique was followed throughout with variable inflow 10–20 ml/min and empty/full bladder stressor. >22, 15–22 and <15 cm H_2O,cm water pressure rise defined an obstructed, equivocal or unobstructed result.
Results: Forty patients were obstructed, 27 at 10 and 13 at 11–20 ml/min. Twenty-nine (72.5%) remained symptom free after operative treatment. Two experienced no change and 4 required repeat intervention. The majority of 21 unobstructed patients either improved clinically or remained symptom free. One pyeloplasty, one endopylotomy and 3 nephrectomies were eventually required (24%). In 2 equivocal cases no clinical change developed.
Conclusions: The Whitaker data has been clinically helpful in deciding treatment and correctly predicting outcome in approximately ¾ of submitted cases. It was of no value in 15% patients. When correctly performed following closely defined indications it remains a valuable tool in the diagnosis and treatment of upper tract dysfunction.

P73

Conservative management of PUJ obstruction

D.M. GULUR, J.G. YOUNG, D.J. PAINTER, A.G. TIMONEY and F.X. KEELEY
Bristol Urological Institute, Southmead Hospital, Bristol, UK

Introduction: Conservative management of pelviureteric junction obstruction (PUJO) is well accepted in paediatric urology. Similar literature is scarce in adult population.
Patients and methods: We present a retrospective series of 22 patients (16 women, 6 men) from our database, with asymptomatic or minimally symptomatic PUJO, managed conservatively. Patients' age (median: 61 years), preference and co-morbidities were considered. Diagnosis of PUJO was based on IVU and MAG 3 Renograms. Eighteen patients had right PUJO, 3 with left and 1 bilateral PUJO with unilateral conservative management. Follow-up included annual renogram and clinical consultation. Laparoscopic pyeloplasty was considered for patients with >10% loss of relative renal function (RRF) and/or <40% RRF.
Results: Overall, the mean RRF of the affected kidney at diagnosis was 49.89% which marginally decreased to 48.31% after median follow-up of 33 months (Range: 2–78 months). The RRF of 19 patients remained stable and 3 decreased significantly (median: 11% RRF) requiring pyeloplasty. None became symptomatic throughout follow-up.
Conclusion: In asymptomatic adults, conservative management of PUJO appears to be safe. We recommend these patients be regularly followed up renographically and invited to return promptly if they become symptomatic. Longer follow-up is needed in a larger group to confirm these findings.

P74

Holmium laser endopyelotomy for pelviureteric junction (PUJ) stenosis following pyeloplasty

P. ACHER, J. ABBARAJU, R. NAIR, I. DICKINSON, A. VOHRA and S. SRIPRASAD
Darent Valley Hospital and Kent and Basildon University Hospital, Dartford and Basildon, UK

Introduction: Pyeloplasty is a standard and highly successful treatment for pelviureteric junction (PUJ) obstruction. However, stenosis is a late complication causing symptom recurrence. The purpose of this study was to evaluate the use of holmium laser stenosis incision – "laser endopyelotomy" – to manage this.
Patients and Methods: Fifteen patients were referred for loin pain recurrence following pyeloplasty. Subsequent to PUJ stenosis confirmation with IVU and dynamic isotope renogram investigations, the patients underwent ureteroscopic laser endopyelotomy. Ureteric stents (7Ch) were placed for six weeks post procedure when ureteroscopy was repeated and stents removed. All patients had repeat IVU and renograms at three months post-procedure.
Results: Patients presented at a median of 3.2 years (range 9 months to 8 years) following pyeloplasty (nine open dismembered, three Culp, and three laparoscopic). Eleven patients had stents *in situ* prior to endopyelotomy. Three patients (all non-stented) required a second incision. All patients were discharged from hospital within 23 hours with no complications. Symptomatic improvement was documented in all of the patients and improved drainage was recorded in the three month nuclear scans.
Conclusion: Laser endopyelotomy is an appropriate minimally invasive procedure for post – pyeloplasty stenosis. Results are better in patients with ureteric stents.

P75

Initial experience with the Resonance™ metallic stent for antegrade ureteric stenting

J. LENTON, T. WAH, H.C. IRVING and J. CARTLEDGE
Leeds Teaching Hospitals, NHS Trust, Leeds, UK

Introduction: The 'Resonance™' metallic double-pigtail ureteric stent (COOK, Ireland) is designed to provide long term urinary drainage in patients with malignant ureteric strictures. It is constructed from coiled wire spirals to minimise both tissue in-growth and external compression by tumour.
Patients and Methods: Twenty-three 'Resonance™' stents were inserted via antegrade approaches into 20 patients with malignant ureteric obstruction.
Results: Three patients had stents changed after 12 months and a further 3 at 6 months. All were draining adequately with minimal encrustation.
One patient with history of stone encrustation had bilateral stents changed at 8 months due to encrustation.
One patient remains alive with functioning stent at 3 months.
Nine patients died with functioning stents in place.
Four stents failed from the outset due to bulky pelvic malignancy resulting in high intra-vesical pressure, as with conventional plastic stents.
Conclusion: Our experience with 'Resonance™' metallic ureteric stent indicates that they may provide adequate long term urinary drainage (up to 12 months) in patients with malignant ureteric obstruction. They should be avoided in patients with bulky pelvic disease or history of stone encrustation. Regular stent changes can thus be avoided, offering significant benefit for patients with limited life expectancy.

P76

The Memokath™ 051 thermo-expandable metallic stent for ureteric obstruction: long-term experience

S. AGRAWAL, C.T. BROWN, E. BELLAMY and R.P. KULKARNI
Ashford and St. Peter's Hospital, Department of Urology, Chertsey, UK

Objectives: To review the use of the Memokath™ 051 Ureter stent in ureteric obstruction.
Methods: Data were collected prospectively on patients who underwent Memokath™ 051 Ureter stent insertion between November 1996 and November 2007. Stents were inserted at multiple centres by a single surgeon. Patients followed a standard protocol which included antibiotics, an IVU at six weeks and serial imaging thereafter. Indications for stenting included failed conventional techniques for stent insertion and relief of obstruction and the palliation of malignant obstruction.
Results: Seventy-four stents were inserted into 55 patients, mean age 60 (11–90). Twenty-eight patients had malignant obstruction (urological (5), colorectal (12), gynaecological (6), other (5)). Twenty-seven patients had benign strictures (radiation (8), endometriosis (2), retroperitoneal fibrosis (2), traumatic (5), uretero-ileal (4), other (6)). Median length of hospital stay of 1.43 days (0–7). Post insertion imaging revealed normal or improved functional drainage in all patients. Immediate complications included urinary extravasation (1), poor thermo-expansion and equipment failure (2). Late complications included migration (12), and fungal infections (3). Median duration of stent insertion was 16 months (4–98 months). 15/28 patients with malignancy have now died.
Conclusions: The thermo-expandable metallic Memokath™ 051 Ureter stent offers effective and durable relief from long-term ureteric obstruction.

P77

Bone segmentation using a CT based statistical shape model for image guidance in robot assisted prostatectomy

S.A. THOMPSON, G.P. PENNEY, D.J. HAWKES and P. DASGUPTA
University College London/Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom, UK

Introduction: We are developing an image guidance system for robot assisted radical prostatectomy. Our system will overlay patient information (position of the prostate and surrounding bone) derived from preoperative MRI scans onto the surgeon's intraoperative view. Further information, i.e. the location of tumors or blood vessels, could be overlaid if available.
We present a system overview for the guidance system together with the results of a semi-automatic algorithm for segmenting the pelvic bone from MRI.
Methods: Our algorithm uses bone shape information learned from 21 CT scans of adult male pelves to segment the pelvic bone from a preoperative MRI scan. The segmented bone can be aligned to the patient in theatre using an optically tracked ultrasound probe. Tracking of the patient and the robot together with calibration of the endoscopes enables the segmented bone to be overlaid on the surgeon's display.
Results: We have automatically segmented bone from pelvic MRI with a mean surface error of 1.74 mm. Previous work on CT to ultrasound registration has produced algorithms which can match preoperative images to the patient to an accuracy of 1.6 mm.
Conclusions: We have presented a useful segmentation algorithm that forms the first component of a surgical guidance system.

P78

Feasibility of magnetic resonance cystography in the surveillance of augmentation and substitution cystoplasty

D.E. ANDRICH, A.P.S. KIRKHAM, C. ALLEN and A.R. MUNDY
Institute of Urology, London, UK

Introduction: Augmentation cystoplasty patients are at risk of developing malignancy in the cystoplasty. For this reason surveillance is carried out, usually using a flexible cystoscope. However, a subgroup of patients are at risk of cystoscopic trauma with devastating consequences because of the discrepancy between the flexible cystoscope diameter and the reconstructed urinary tract. At risk patients include those with reconstructed bladder outlets, continent diversion channels or artificial sphincters.
Methods: Four patients with 'marker' bladder lesions (2 mm hyperplastic polyp, cystitis cystica bullosa, nephrogenic ademoma and a scar at the vesico-intestinal anastomosis from previous perforation) seen on flexible cystoscopy were recruited for MR cystography after appropriate consent. T1W and T2W axial and coronal scans were obtained through the bladder using a 1.5 Tesla Avanto [Siemens] MR scanner. The cystoplasty was catheterised by the patient and filled with 300 ml of normal saline prior to the study.
Results: All marker lesions were seen on MR cystogram with good resolution. Additional pathology - unexpected upper tract dilatation due to distal ureteric stricture - was found in one patient.
Conclusion: MR cystography is a suitable non-invasive alternative to surveillance flexible cystoscopy and is less potentially harmful in a subgroup of patients.

Thursday 26 June, 11.00–12.30
Basic Science
Chairman: Kilian Mellon

P79

Characterisation of putative prostate epithelial stem cell derived colonies in monolayer culture

C.L. FOLEY, I. BISSON, J.R.W. MASTERS and A. AHMED
Prostate Cancer Research Laboratory, University College London Hospital, London, UK

Introduction: Rare prostate epithelial stem cells may hold the key to the aetiology of prostate disease, yet are overlooked in studies on the whole tissue. Culture of prostate epithelial cells yields two colony types, postulated to represent the progeny of stem cells (type II colonies) and their committed, proliferating offspring, 'transit-amplifying' cells (type I). These colonies were therefore further characterized.
Methods: Colony proliferation, differentiation, self-renewal and cDNA microarray gene expression was compared.
Result: No difference existed in proliferation or differentiation into 3-dimensional acinus-like structures. When passaged, type II colonies never re-created themselves, but resembled type I colonies. Type I colonies expressed genes involved in extracellular matrix interactions, cell migration, inflammation and proliferation, while type II colonies upregulated genes responsible for keratinisation and impermeability of stratified epithelia.
Conclusion: Contrary to previous thought, type II colony cells are not only more differentiated than type I, but develop squamous metaplasia in culture, while type I colonies remain proliferative. Neither cell population demonstrated stem cell properties but their behaviour suggested differently aged transit-amplifying cells. The exact cells of origin of the two colony types remains unclear as they do not retain their original phenotype in monolayer culture, limiting its usefulness in stem cell studies.

P80

Superficial muscarinic receptors (M2 and M3) in patients with detrusor overactivity (DO) and the effect of Botulinum toxin type A (BoNT/A)

S.N. DATTA, A. ROOSEN, R. POPAT, P. DASGUPTA, C.J. FOWLER and A. APOSTOLIDIS
National Hospital for Neurology and Neurosurgery, UCL/UCLH, London, UK

Introduction: It is proposed that in overactive bladders inceased release of Acetylcholine (ACh) acts on suburothelial and detrusor muscarinic receptors resulting in DO. BoNT/A blocks the release of Ach and affects human suburothelial sensory pathways. We investigated the effect of intradetrusor BoNT/A on suburothelial M2 and M3 receptors in DO patients compared with controls (M3 only).
Methods: Flexible cystoscopy bladder biopsies were obtained from 24 patients with DO before and after successful BoNT/A treatment, and from six controls. Specimens were immunostained with antibodies to muscarinic receptors subtypes 2,3. Immunoreactivity (IR) was quantified with image analysis.
Results: Following BoNT/A injections significant increases were seen in M2-IR compared to baseline ($p = 0.021$ and 0.038 at 4 and 16 weeks). A decrease was observed in M3-IR in baseline DO specimens ($p = 0.019$) compared to controls. Following BoNT/A treatment there was an increase in urothelial M3-IR ($p = 0.03$ at 16 weeks).
Conclusions: Decreased levels of suburothelial muscarinic receptors in DO patients agrees with previous findings of reduced detrusor muscarinic receptor levels in DO that showed functional hyperexcitability. Post-BoNT/A increase in suburothelial muscarinic receptor levels could be compensatory in a low-frequency functioning bladder with reduced release of ACh, supporting a neuroplastic effect of BoNT/A on bladder afferent pathways.

P81

Establishment of an *in vitro* model of mechanical stretch-induced renal tubular cell apoptosis

M.R. QUINLAN, R.W.G. WATSON, N.G. DOCHERTY and J.M. FITZPATRICK
School of Medicine and Medical Sciences, Conway Institute of Biomedical and Biomolecular Research, University College Dublin, Belfield and Division of Surgery, Mater Misericordiae University Hospital, Eccles St, Dublin, Republic of Ireland

Introduction: Ureteric obstruction (UO) is an important clinical entity. Malfunction and inflammatory/fibrotic deterioration of kidneys often occurs, and progresses despite relief of the obstruction. The characteristic changes in pressure and urinary pooling that develop following UO cause mechanical stretching of tubular epithelium. Stretch-induced tubular cell stress signals for the development of inflammation/fibrosis following UO. Our aim was to establish a clinically relevant model of tubular cell apoptosis in response to *in vitro* simulation of the retrograde pressure transfer and pro-apoptotic inflammatory milieu of UO.
Materials and methods: LLCPK-1 cells were subjected to cyclical stretch. Apoptotic rates were measured. Separately, we tested the responsiveness of these cells to the inflammatory mediators TNFα $\pm$ Fas ligand. Finally, we combined these experiments by stretching the cells then treating them with TNFα $\pm$ Fas ligand before measuring apoptosis.
Results: Stretching resulted in only a small increase in apoptosis versus non-stretched cells. However, adding pro-apoptotic mediators following stretching significantly enhanced the apoptotic response.
Conclusions: *In vitro* mechanical stretch does not cause apoptosis *per se*, but rather primes LLCPK-1 cells for apoptosis mediated by inflammatory cytokines. Thus we have developed an *in vitro* model of tubular cell apoptosis relevant to what occurs *in vivo* in UO.

P82

Differential expression of the HD5 antimicrobial peptide in the human urinary tract

A.S.M. ALI, C.L. TOWNES, J. HALL and R.S. PICKARD

Newcastle University and Newcastle Upon Tyne Hospitals NHS Foundation Trust, Newcastle Upon Tyne, UK

Introduction: There has recently been increased interest in the role of epithelial antimicrobial peptides (AMPs) as protective agents against microbial attack. We initiated a study investigating the expression and functional activity of these peptides in the urinary tract to determine their role in preventing or counteracting bacterial infection.

Materials and methods: RNA was extracted from fresh samples of kidney, ureter and bladder from patients undergoing urological surgery. Screening of known AMPs showed only β-defensin 1(BD1) and α-human-defensin 5(HD5) had consistent constitutive expression and these were selected for further study. Relevant gene expression was analysed by RT-PCR with ongoing work examining peptide synthesis using Western blotting and functional effect by time-kill antimicrobial assays.

Results: BD1 RNA was expressed in all samples throughout the urinary tract (Table). In contrast HD5 was differentially expressed with a higher proportion of positive samples in the upper compared to lower urinary tract.

TABLE: for P82

Tissue	HD5	BD1
Kidney	100% (4/4)	100% (4/4)
Upper Ureter	100% (5/5)	100% (5/5)
Lower Ureter	44.4% (4/9)	100% (9/9)
Bladder	42.9% (3/7)	100% (7/7)

Conclusions: These preliminary data suggest differences in AMP gene expression between the upper and lower urinary tract. This pattern suggests either a relative deficiency in innate immunity amongst some subjects or differences in defence mechanisms between the upper and lower urinary tracts.

P83

ERK5 is overexpressed in prostate cancer and represents a potential target for drug development

A.K. RAMSAY, M. SEYWRIGHT, E. KELLER and H.Y. LEUNG

The Beatson Institute for Cancer Research, Glasgow, UK, Glasgow Citywide Urology, Glasgow, UK

Introduction: MEK5/ERK5 is implicated as an oncogenic pathway in human prostate cancer (PC). We extended our original expression analysis using an independent tissue microarray (TMA) of primary and metastatic prostate cancer and performed proof of principle experiments to propose that ERK5 represents an important target for therapy in PC.

Materials and methods: A TMA (50 cases of radical prostatectomy and 10 metastatic PC specimens) was examined for ERK5 expression. Using RNAi (siRNA duplex oligonucleotides) directed against ERK5, the functional significance of ERK5 in prostate carcinogenesis was studied using proliferation, motility and invasion assays.

Results: Analysis of prostate tumour specimens confirmed high levels of cytoplasmic ERK5 expression. ERK5 expression is persistent in metastatic disease with high levels of expression in both the cytoplasm and nucleus (73%) of secondary deposits. Proliferation, migration and invasion were all significantly reduced in the ERK5 siRNA transfected cells ($p < 0.005$) in both PC3 and PC3-ERK5 cells.

Conclusion: Taken together, these data support the notion that the ERK5 pathway is a valid target for drug development in prostate cancer.

P84

The role of ZEB1 in bladder cancer

H.A.R. QAZI, S. GOYAL, J.K. MELLON, E. TULCHINSKY, M. KRIAJEVSKA and T.R.L. GRIFFITHS

Urology Group, University of Leicester, Leicester, UK

Introduction: We have previously demonstrated that transcriptional repressors of E-cadherin are functionally active in bladder cancer cell lines. The objectives of this study were to analyze the expression of repressor proteins in bladder cancer cell lines and to study the effect of modulating ZEB1 levels on cell motility and cell cycle.

Materials and methods: Protein expression of E-cadherin and its repressors was assessed using Western blot analysis. ZEB1 was modulated using RNAi and effect on cell migration studied by transwell assay. Cell cycle analysis carried out by Fluorescence-activated cell sorting.

Results: Bladder cancer cell lines were either epithelial, E-cadherin-positive or mesenchymal, E-cadherin-negative. While mesenchymal cell lines had shown high levels of SIP1, Snail and ZEB1 RNA, only ZEB1 protein was detected. ZEB1 knock-down resulted in decreased cell migration. The effects on cell cycle were variable, but decreased ZEB1 was generally associated with a prolonged G1 phase.

Conclusions: We demonstrate for the first time that while SIP1, Snail and ZEB1 are transcribed in bladder cancer cell lines, only ZEB1 is translated into a protein, acting as a regulator of cell motility. Also, ZEB1 appears to have a role in cell cycle regulation, and is a potential treatment target in bladder cancer.

P85

Up–regulation of Flotillin 2 is associated with urothelial cell carcinoma progression

K. SAEB-PARSY, A. VEERAKUMARASIVAM, H. SCOTT, I.G. MILLS, D.E. NEAL and J.D. KELLY

CRUK Cambridge Research Institute, Addenbrooke's Hospital, Cambridge, UK

Background: Flotillin2 (FL2) is a lipid raft associated protein involved in signal transduction, cell spreading and endocytosis. We investigated the role of FL2 in invasion in urothelial cell carcinoma (UCC).

Methods: Fresh frozen tissue and bladder cell lines were profiled using Expression and CGH Arrays. Potential targets were validated by rtPCR, protein analysis and manipulated by over-expression and siRNA to assess effects on invasion.

Result: FLT2 was associated with copy number gain in 15% of urothelial cell carcinomas. FLT2 was highly expressed in invasive EJ28 compared to the less aggressive RT112 cells. Knockdown of FL2 in the EJ28 cells lead to a statistically significant reduction in invasive phenotype, while over-expression of FLT2 lead to enhanced invasion in RT112 cells. The intensity of immunohistochemistry staining was increased by 37% in High clinical risk compared to Low clinical risk tumours. CIS tumours showed the highest intensity of staining with a 76% increase compared to normal ($p < 0.0001$).

Conclusion: We used a Multi-component mining strategy to identify FLT2 as a potential target in UCC. FL2 is associated with copy number gain and highly expressed in invasive UCC. The FLT2 phenotype assessed by functional targeting is consistent with a pro-invasive role in cancer signalling.

P86

Targeting Farnesoid X receptor in bladder cancer cells

S.A. ABEDIN, J. THORNE, S. BATTAGLIA, A.P. DOHERTY, D.M. WALLACE and M.J. CAMPBELL

Departments of Endocrinology and Urology, University of Birmingham, Birmingham, AL, USA

Introduction: Farnesoid-X-receptor (FXR) is a transcription-factor. Ligand binding leads to gene activation. FXR binds co-repressors (eg.*NCo*R1) and co-activators; relative binding regulates gene activation/repression. This study investigates expression/targeting of FXR in bladder cancer cells.
Methods: Four bladder cancer cell-lines were investigated; RT4(well-differentiated), RT112(moderately-differentiated), HT1376 and EJ28(poorly-differentiated). These techniques were used:
Protein-expression-Western blotting.
Basal gene-expression-Quantitative real-time PCR (Q-RT-PCR).
Target gene-expression-Q-RT-PCR microfluidic-arrays.
Cell proliferation-Bioluminescent cellular ATP-assay.
Cell-cycle arrest-Flow cytometry.
Stable transfection of NCoR1 over-expressing plasmid-Fugene6 reagent and G418 antibiotic resistance.
Results: Western-blot confirmed FXR expression.
We obtained a range of ED50 values for LCA(FXR ligand) treatment: RT-4 = 1.3 μM, RT-112 = 31 μM, HT1376 = 89 μM,EJ-28 > 100 μM. Relative expression of FXR to co-repressor/*NCo*R1 may underlie this. Q-RT-PCR revealed *NCo*R1 expression was 2.5 fold higher ($p < 0.5$) in EJ28. *NCo*R1 to FXR expression ratio broadly correlates with ED50 (RT4 = 1, RT112 = 93, HT1376 = 61, EJ28 = 3455). Stable over-expression of *NCo*R1 in RT-4 led to loss of sensitivity, (10 μM LCA treatment: 20% growth inhibition in *NCo*R1 overexpressing clone, 50% in the mock-transfected, $p < 0.5$). Target gene-expression with LCA showed 13 genes regulated by both clones (*NCo*R1-overexpressing and mock-transfected). 27 genes regulated by mock-transfected, 17 by *NCo*R1 over-expressing clone. LCA treatment caused G1/S arrest in EJ28.
Conclusions: We demonstrated FXR expression in bladder cancer cells. *NCo*R1 levels correlate with cell sensitivity to LCA; over-expression leads to reduced sensitivity. LCA treatment led to G1/S cell-cycle-arrest in EJ28 cells.

P87

CD133 is a marker for early proliferative cells but not cancer stem–cells in renal cell carcinoma

J.E. OATES, B.R. GREY, R. SWANN, C. HART, M.D. BROWN and N.W. CLARKE

Paterson Institute for Cancer Research, Manchester, UK

Introduction: Cancer stem-cells (CSC) are believed to play a crucial role in carcinogenesis. Their isolation could lead to novel prognostics, diagnostics and treatment. CD133 has been proposed as a CSC marker in numerous cancers. We have used the Hoechst-33342 dye-efflux technique to isolate CSC-enriched side-populations (SP) from RCC and have sought to further enrich these through CD133 selection.
Methods: Tissue from 66 patients undergoing nephrectomy for RCC was dissociated then incubated with Hoechst-33342 and CD133 antibody. Hoescht-33342 profiles were interrogated by flow-cytometry. CD133+ SP cells were isolated along with CD133- controls before functional phenotyping.
Results: CD133+ cells were predominantly located in the SP but were absent from its most primitive, distal aspect. CD133+ cells had greater proliferative capacity though no other functional difference was seen. Immunocytochemistry showed equivalent expression of stem markers, though CD133+ cells displayed greater expression of proliferation markers. Distal-SP CD133- cells displayed greater CSC-like behaviour and could acquire CD133 expression when cultured.
Conclusions: These results show CD133+ RCC cells have increased proliferative capacity but no other CSC-like properties. We propose that CD133 is not a marker for RCC stem-cells but is acquired during early transient amplification. CSCs exist in the more primitive distal-SP CD133- population.

P88

Hypoxia and angiogenesis in primary clear cell renal carcinoma and its effect on patient prognosis

P.J.S. CHARLESWORTH, G. TURNER, J. CREW, D. CRANSTON, A. PROTHEROE and A. HARRIS

Weatherall Institue of Molecular Medicine, John Radcliffe Hospital, Oxford, UK

Introduction: Hypoxia Inducible Factors, HIF-1 and HIF-2 are over-expressed in many clear cell RCCs due to hypoxia or VHL mutations. HIF-1 and HIF-2 expression in clinical samples and effect on patient prognosis has yet to be fully elucidated.
Methods: We analysed 170 consecutive clear cell renal tumours (1983I–1999) via tissue microarray. Protein expression of HIF-1, HIF-2 and their primary target genes were compared to tumour angiogenesis, T-stage, Fuhrman grade, maximum tumour diameter and patient survival.
Results (Univariate): HIF-1 and HIF-2 have a positive correlation ($p = 0.033$), HIF-2 positively correlates with VEGF, and individually HIF-1 or HIF-2 have no prognostic value. Angiogenesis quantified by VVI with CD31 staining has prognostic significance, with high levels of angiogenesis conferring improved survival ($p = 0.0003$). CD31+ VVI was found to have a strong negative correlation with Fuhrman grade ($p = 0.0005$) and maximal tumour diameter ($p = 0.0210$).
Results (Multivariate): High angiogenesis ($p = 0.0020$), low Fuhrman Grade ($p = 0.0317$) and small tumour size ($p = 0.0421$) were shown to be prognostic markers of increased overall survival.
Conclusion: The dominant HIF isoform or the expression pattern of hypoxia-induced proteins within CC-RCC has no prognostic significance, but CD31+ angiogenesis does. This may be important when considering the actions and targeting of novel anti-angiogenic therapies.