BJUI SUPPLEMENTS

BAUS Annual Meeting, 21–24 June 2010, Manchester Central

Poster Sessions

Tuesday 22 June 2010

Poster Session 1
11:00–12:30 Charter A
PROSTATE CANCER DIAGNOSIS
Chairmen: Mr Masood Khan & Professor Raju Thomas
Posters P1–P10

Poster Session 2
11:00–12:30 Charter 2
LUTS/BASIC SCIENCE PHYSIOLOGY
Chairmen: Professor James N'Dow & Mr Leyshon Griffiths
Poster P11–P20

Poster Session 3
14:00–16:00 Charter A
MANAGEMENT/GOVERNANCE
Chairmen: Mr Krishna Sethia & Mr David Jones
Posters P21–P35

Poster Session 4
14:00–16:00 Charter 2
BLADDER DYSFUNCTION/FEMALE UROLOGY/NEUROUROLOGY
Chairmen: Miss Tamsin Greenwell & Mr Roland Morley
Posters P36–P49

Wednesday 23 June 2010

Poster Session 5
11:00–12:30 Charter A
GENERAL UROLOGY
Chairmen: Mr Nick George & Miss Rebecca Hamm
Posters Posters P50–P59

Poster Session 6
14:00–15:30 Charter 2
ANDROLOGY/RECONSTRUCTION
Chairmen: Professor Rob Pickard & Professor Drogo K. Montague
Posters P60–P69

JOURNAL COMPILATION © 2010 BJU INTERNATIONAL | 106 SUPPLEMENT 1, 14–15

Poster Session 7
14:00–16:00 Charter A
RENAL CANCER
Chairmen: Mr Neil Fenn & Professor Mihir Desai
Posters P70–P84

Thursday 24 June 2010
Poster Session 8
11:00–12:30 Charter A
LAPAROSCOPY/SURGICAL TECHNIQUES
Chairmen: Mr Chris Anderson & Mr Paul Butterworth
Posters P85–P94

Poster Session 9
11:00–12:30 Charter 2
BASIC SCIENCE – ONCOLOGY
Chairmen: Professor John Kelly & Mr James Catto
Posters P95–P104

BJUI SUPPLEMENTS

Tuesday 22 June 2010
Poster Session 1
11:00–12:30 Charter A
PROSTATE CANCER DIAGNOSIS
Chairmen: Mr Masood Khan & Professor Raju Thomas Posters P1–P10

P 1

PSA 'Self-Testing' Among BAUS Consultant Urologists

NF Davis, BB McGuire, HD Flood
Mid-Western Regional Hospital, Limerick, Ireland

Introduction: Despite its widespread use, reservations over the effectiveness of Prostate Specific Antigen (PSA) as a screening tool still persist among urologists. We aim to demonstrate these reservations by assessing whether consultant urologists are screening themselves for prostate cancer by checking their own PSA levels.
Method: An anonymous online survey was emailed to 390 male consultant urologists with the following 3 questions:

Have you ever had your PSA checked?
Do you check your PSA annually?
How old are you?

Results: We received 90 (23%) replies, of which 82 were suitable for analysis. The mean age of respondents was 53.51 years (range 35–74, median 53, mode 52). The majority of respondents did not had their PSA checked (57%, n = 47). The prevalence of PSA self-testing was mostly confined to those over 50 (Table 1) with only 24% (6/25) of consultant urologists <50 years of age having their PSA level previously checked. In contrast, 42.2% (17/36) and 52.6% (10/19) of respondents between 51–60 years of age and 61–65 years of age respectively, have had their levels checked.

Table 1 for P1: Prevalence of testing among respondents according to age.

Age	<50	51–60	61–65	>65
Number	6/25	17/36	10/19	2/2
Percentage	24%	42.2%	52.6%	100%

Conclusion: This survey highlights the reservations among urologists regarding PSA as a screening tool for prostate cancer This is emphasised by the fact that only 42.7% (35/82) of male urologists surveyed (mean age, 53 years) have had their PSA tested.

P 2

Incidence of Prostate Cancer in Sri Lanka using the Cancer Registry Data and Analysis of trends of Prostate Cancer in South Asian Men

W. K. B. Ranasinghe, T Sibanda, Y. Ben-Shlomo, M.V.C De Silva, R. Persad
John Hunter Hospital, Newcastle, NSW, Australia

Introduction: South Asian countries have a low incidence of prostate cancer (CaP). The Sri Lankan cancer registry reports a low incidence of prostate cancer but the true incidence maybe higher. We aimed to verify the accuracy of Sri Lankan CaP rates and compared this data to incidence rates from India and the migrant populations to the UK.
Methods: The Sri Lanka cancer registry data was used to calculate the incidence of CaP from 2001–2005 and compared with the South Asian population rates in the PROCESS Study (Metcalfe et al. BJUI 2008: 102:10: 1407–1412) and Mumbai, India. (Sunny et al.) Asian Pacific J Cancer 2004; 5(4):401–5). Incidental rates of CaP in Trans-Urethral Resection specimens (TURP) were also used.
Results: There were 1378 new cases of CaP diagnosed at a mean age of 69.2 years. The incidence of prostate cancer was 5.7 per 100,000 in 2005; double that of the previous 5 years. This was significantly lower than the rates from the PROCESS study (RR 0.25 $p < 0.001$) but similar to Mumbai (3.6 per 100,000 person years). The districts with higher population densities had higher adjusted rates. (5.8%–12.4% per 100,000 person years) The TURP data had 16.8–18.75% incidental diagnoses of CaP, higher than other published studies. In contrast, M-I Ratio was 0.08 in 1997, lower than the low risk countries.
Conclusion: The cancer registry data show a low incidence of CaP in Sri Lanka but the actual incidence is likely higher than the reported rates. Further studies are needed to examine any protective genetic and environmental components.

P 3

The 62-day target and prostate cancer

J Bhardwa, GO Hellawell
The North West London Hospitals NHS Trust, London, United Kingdom

Introduction: The Department of Health (DofH) set a two month target from referral to treatment for all cancers, the "62 day target". Published studies have demonstrated that a delay of up to one year to radical treatment has no adverse effect upon patient outcomes.
Materials and Methods: All newly diagnosed prostate cancer patients from January to December, 2009 were identified from review of multi-disciplinary team meeting records. A timeline generated by the electronic patient record noted adherence to the 62-day target and reasons for divergence were recorded.
Results: 190 prostate cancer diagnoses were made during the 11-month period. 85 patients breached with mean time from referral to treatment of 94 days. A sub-analysis of 40 patients undergoing laparoscopic radical prostatectomy revealed a mean time from referral to treatment of 127 days. Most breaches resulted from a deliberate delay to MRI to avoid biopsy artefact (65 cases) and 10 cases arose from capacity issues.

Discussion: Previous DofH guidelines stated that 'a patient is given treatment options … they may ask for time to consider options … this is considered good practice'. The 'clock stop' period whilst awaiting imaging previously provided 'time to consider their options' but is no longer permitted. In our practice we adhere to a timeline that permits adequate time for the patient to consider their options, albeit during a deliberate pause to obtain clear imaging. The discrepancy between current DofH guidelines and published outcomes creates bureaucratic breaches at odds with clinical need.

P 4

Combined PCA3 and pre-biopsy multi-parametric MRI in men with a raised PSA

L Dickinson, HU Ahmed, A Freeman, C Allen, M Emberton
Clinical Effectiveness Unit, RCSEng, London, United Kingdom

Introduction: Both the PCA3 molecular urine test and multi-parametric MRI (mpMRI) have been shown to increase the yield of positive histology from TRUS guided biopsies. No studies have yet evaluated the diagnostic value of using both in combination. To assess whether a formal prospective study was warranted we conducted this initial review of men exposed to both tests.
Patients and Methods: During 2008–2009, 47 consecutive patients were exposed to a PCA3 test and pre-biopsy mpMRI (1.5 Tesla pelvic phased array, T1-weighted, T2-weighted, diffusion-weighted, dynamic contrast enhanced), for investigation of suspected prostate cancer on the basis of a raised PSA. 'Clinically significant' disease was defined as lesions $>/=$ 7mm and/or Gleason grade $>/= 3 + 4$.
Results: 6 patients were excluded due to incomplete records.
Abnormal PCA3, abnormal mpMRI – 7 (17%); all 7 underwent prostate biopsy; 6/7 men had clinically significant prostate cancer.
Abnormal PCA3, normal mpMRI – 6 (15%); 1 patient had biopsies revealing clinically significant disease. 5/6 patients have a stable PSA on surveillance.
Normal PCA3, normal mpMRI – 25 (61%); 3 men had biopsies with benign pathology. 24/25 have a stable PSA on surveillance.
Normal PCA3, abnormal mpMRI – 3 (7%); 2/3 underwent biopsies with clinically significant disease in 1/2.
Conclusion: Combined PCA3 and multi-parametric MRI may provide an effective means of triage to identify those men with a raised PSA who could avoid transrectal biopsies. This retrospective analysis suggests a concordance (86%) between positive PCA3 and mpMRI. Our results suggest that further evaluation of these non-invasive tests is warranted.

P 5

Multi-Parametric Magnetic Resonance Imaging of the Prostate in the Detection and Localisation of Prostate Cancer: a European Consensus Panel Report

L Dickinson, on behalf of the PREDICT Consensus Panel
Clinical Effectiveness Unit, RCSEng, London, United Kingdom

Introduction: Multi-parametric (mp) MRI may have a diagnostic role in detecting clinically significant prostate cancer (PCa) in men with a raised serum PSA. Variation in technical conduct and reporting methodology has led to inconsistency in its performance characteristics.
Methods: A European Consensus meeting of 16 experts (10 uro-radiologists, 5 urologists, 1 oncologist) was held in London in December 2009 with an independent chair. This followed the UCLA-RAND appropriateness method. 500 questions were completed by panel members prior to the meeting, discussed on the day and re-scored to derive consensus on a standardised method for prostate MRI techniques, scoring systems for interpretation and a reporting template.
Results: Areas of agreement for tumour detection and localisation include:

- mpMRI should incorporate T2-weighted, Contrast Enhanced, and Diffusion-Weighted (DW) sequences as a minimum requirement
- A 5-point scale should communicate 'probability of malignancy' for both intra- and extra-prostatic features, using at least 16 Regions of Interest
- MRI features of malignancy were identified and incorporated into scoring scales
- DW-MRI can identify 'clinically significant' disease (defined as lesions of $\geq$0.5 cc and/or Gleason grade $\geq 4 + 3$)
- A reporting protocol should include a diagrammatic representation of the prostate

Conclusion: MRI may have an important role in the diagnosis and characterisation of PCa. Although these consensus outcomes will require formal validation, they could be incorporated into guidelines that will optimise and standardise the conduct, delivery and reporting of mp-MRI. This is required prior to more widespread use of this technology across the healthcare system.

P 6

Template Transperineal Prostate Mapping Biopsies in Determining Optimal Standard Care and Suitability for Focal Therapy

PB Singh, HU Ahmed, E Dalton, P Gurung, A Freeman, M Emberton
University College Hospital London, United Kingdom

Introduction: Template transperineal prostate mapping (TPM) biopsies may have a role in accurate risk stratification and for determining suitability for focal therapy in men with low to intermediate risk prostate cancer. We report our experience with TPM biopsies in such cohort of men with low or intermediate risk prostate cancer on transrectal-ultrasound guided (TRUS) biopsies.
Methods: 132 consecutive cases underwent TPM in an ambulatory care setting. TPM was conducted to a 5mm sampling frame referenced to a grid with apical and basal needle deployments to sample the Z-axis.
Results: Mean age was 62 years and mean PSA 7.4 ng/ml. The mean number of biopsy cores taken at TRUS and TPM were 10 and 42, respectively. Side-effects from TPM included: 6.8% urinary retention, 1.3% haematuria requiring admission, 1/132 cellulitis, but no sepsis. Table 1 summarises the change in standard management recommendation following TPM due to change in disease burden or grade. Of the 86 patients who were suitable for active surveillance (AS) on TRUS, 43 (50%) were recommended for radical treatment after TPM. Of the entire cohort, 89% would be suitable for focal therapy

Table 1 for P6.

Recommended Standard Management on TRUS Biopsy		Recommended Standard Management on TPM		Focal Therapy strategy based on TPM		
Radical Therapy	Active Surveillance	Radical Therapy	Active Surveillance	Hemiablation *(unilateral any burden, Gleason </= 4 + 3)*	Focal ablation of all foci *(unilateral or bilateral, </= 60% gland ablation, Gleason </= 4 + 3)*	Index lesion ablation *[dominant lesion(s) ablated with max 3 mm Gleason 3 + 3 in untreated areas]*
46	86	89	43	80	14	23

using recognised trial criteria.ongoing UK NCRI focal trials (Table 1).
Conclusion: TPM gives accurate risk stratification with low morbidity for men with low volume prostate cancer on TRUS. Additionally, the majority of such men are suitable for focal therapy.

P 7

Prostate HistoScanning examination in patients with past negative biopsy sessions: a pilot study

FZ Záura, PK Klézl, JB Barta, PA Autier
Faculty Hospital Palacký University Olomouc, Czech Republic

Background: Prostate HistoScanning is an ultrasound based tissue characterization technology that uses as input native (RF) ultrasound data recorded during the transrectal ultrasound session (TRUS).
Objective: We explored the potential of HistoScanning in the management of patients with high serum PSA level and previous negative biopsies.
Patients and Methods: 50 men, 12 with one, 27 with two and 11 with three previous negative biopsy sessions had a TRUS with Prostate HistoScanning analysis prior to further biopsy. The HistoScanning analysis could prompt directing 1 or 2 needles outside the routine sampling scheme.
Results: 18 men had at least one positive core and 32 had negative core at re-biopsy. The median total HistoScanning volume (THV) was 0.71 cc (IQR: 0.34–9.00) when the re-biopsy was positive and 0.10 cc (IQR: 0.00–0.25) when the re-biopsy was negative ($p < 0.0001$). The table relates the results of the re-biopsy session and THV to the number of previous negative biopsy sessions. For 3 men, still negative at third and fourth re-biopsy sessions (highlighted), suspicious areas with a THV 0.50 cc were visualised in the apex and/or the midline. 9/12 men (75%) with one previous negative biopsy session and 18/38 men (47%) with $\geq$2 negative biopsy sessions had a THV $\geq$0.20 cc. Of these, 2/9 (22%) in the former group and 12/17 (71%) in the latter group had their THV located in the apex or midline.
Conclusion: HistoScanning may prove useful for risk stratification of men with negative biopsy session and has the potential to locate tumours in zones difficult to biopsy.

P 8

Tertiary pattern reporting in prostate cancer: Impact on risk stratification of the 2005 International Society of Urological Pathology (ISUP) consensus on Gleason grading

S Radhakrishnan, A Yadav, F Musa, P Malone, A Jones
Royal Berkshire Hospital, Reading, United Kingdom

Introduction: According to the 2005 consensus conference of the ISUP, the Gleason scoring system should be modified to derive the final Gleason score (GS) for needle biopsies by adding the primary and the highest Gleason grade, even if this was a tertiary pattern occupying $<$5%. We assessed the impact of this modified scoring system in the UK population where population screening is not practiced.
Patients and Methods: Retrospective case review of all prostate cancers diagnosed by TRUS biopsies between January 2005-April 2009. All patients had at least 10 core biopsies. All pathology slides positive for cancer were reviewed as part of a multidisciplinary team meeting.
Results: 45 cases (6.6%) with a tertiary pattern were identified out of 677 positive cases. Only 4.4 %(2/45) patients had GS upgraded from 6 to 7, importantly representing only 0.81% (2/247) of patients with GS 6. For other upgraded patients, 3 (6.6%) were upgraded from 3 + 4 to $\geq$8, 19(42.2%) from 4 + 3 to $\geq$8 and 5(11.1%) from 8 to 9.

16 (35.5%) patients had a tertiary pattern with GS less than the original score. The distribution of patients according to the GS categories $\geq$6, 7 and $\geq$8 were 36.5%, 43% and 20.5% respectively under the old system versus 36%, 40.2% and 23.8% respectively according to the new 2005 ISUP system.
Conclusions: Previous studies have shown significant increases from GS 6 to 7 raising concerns that this 2005 ISUP consensus would change patient management. Our study did not confirm this and clearly more work needs to be undertaken.

P 9

Clinical efficiency of the detection of circulating prostate cells in blood as a prostate screening test in men with a serum PSA greater than 4.0 ng/ml: comparison with prostate biopsy

N P Murray, L Badinez, N Orellana, R Dueñas, E Reyes
Facultad de Medicina, Universidad Mayor, Santiago de Chile, Chile

Introduction: Prostate biopsy is the gold standard and only test valid to diagnosis prostate cancer. The European Urology Association criteria for biopsy are; increased serum PSA, abnormal rectal examination, increased PSA velocity. The detection of

circulating prostate cells could be a useful complementary screening tool to detect prostate cancer. We evaluate the detection of circulating prostate cells (CPCs) in comparison with the results of serum PSA and prostate biopsy.

Methods and Patients: A multicentre prospective study, mononuclear cells from 8ml blood were separated by differential centrifugation, prostate cells identified using anti-PSA and immunocytochemistry, positive samples underwent subclassification with anti-P504S. Details of prostate biopsy results, serum PSA and age were registered.

Results: 113 men participated, average age of 64.4 $\pm$ 7.8 years. 31 men were CPC positive, of whom 24/31 (85.7%) had a positive biopsy for prostate cancer. 85 patients were negative for CPCs of whom 78/82 (91.8%) had a negative biopsy. There was a significant association between prostate biopsy results and the detection of CPCs ($p < 0.0000001$ Chi-squared 2 tailed), specificity of 91.8%, sensitivity of 85.7%. The frequency of false positives 7/31 (22.6%) was significantly less than for PSA 85/113 (75.2%) ($p < 0.0000001$ Chi squared 2 tailed).

Conclusions: The use of CPC detection in men with a serum PSA = 4.0 ng/ml could avoid unnecessary prostate biopsies and its complications. It is more specific and sensitive than the serum PSA and needs to be studied with a greater number of men to confirm the results.

P 10

Urinary Volatile organic compounds – Potential novel biomarkers in prostate cancer detection

EU Johnson, CSJ Probert, NM Ratcliffe, S Smith, R Persad, I Ahmed
Bristol Royal Infirmary, United Kingdom

Introduction: The lack of a definitive screening test is one of the reasons why the idea of screening for prostate cancer is highly contentious. The odour of urine is produced by volatile organic compounds (VOCs) which can be detected by gas chromatography and mass spectrometry. Our small study analysed the volatile organic compounds in urine to determine whether these compounds changed with the development of prostate cancer thereby providing the basis for the potential development of an ideal screening tool for the disease in future.

Patients and Methods: Early morning urine and serum PSA samples were obtained from 13 men with prostate cancer (median age 75.2yrs) and 24 age matched cancer free controls (median age 62.9yrs). The head space above pH adjusted urine samples from these men was extracted for 20minutes using a carboxen/polydimethylsiloxane solid phase micro-extraction fibre followed by desorption and VOC identification by gas chromatography/mass spectrometry.

Results: Volatile organic compounds emitted into the head space under alkaline conditions were found to be discriminating. The identified compounds were analysed using forward stepwise discriminant analysis: three VOCs when used together, gave 89% correct classification of samples: sensitivity = 77%, specificity = 96%.

Conclusion: Volatile organic compounds in urinary head space change with the development of prostate cancer. Urinary VOCs are exciting potential new biomakers for prostate cancer.

BJUI SUPPLEMENTS

Tuesday 22 June 2010
Poster Session 2
11:00–12:30 Charter 2
LUTS/BASIC SCIENCE PHYSIOLOGY
Chairmen: Professor James N'Dow & Mr Leyshon Griffiths Poster P11–P20

P 11

The use of urodynamics in the assessment of lower urinary tract symptoms in men with androgen deprivation treated prostate cancer

VJ Gnanapragasam, H Serag, A Leonard
Addenbrooke's Hospital, Cambridge, United Kingdom

Objective: Channel Transurethral prostatectomy (cTURP) is an important treatment for lower urinary tract symptoms (LUTS) in men with prostate cancer managed by primary androgen deprivation therapy (PADT). Functional outcomes however can often be unsatisfactory. Here the value of urodynamics was investigated in these men.
Methods: Men with PADT treated prostate cancer and troublesome LUTS were investigated by urodynamics as part of their assessment. Findings were correlated with clinicopathological parameters. The outcomes of men with urodynamic proven bladder outflow obstruction (BOO) who proceeded to surgery (n = 19) were compared with previously published series of cTURP.
Results: 41 men were included in this study (mean age 80y). The urodynamic diagnosis was bladder outflow obstruction (BOO) in 12 (29%), detrusor over-activity (DOA) in 12 (29%) with 7 (17%) having both diagnosis. 4 (10%) men had normal studies and 6 (15%) men had acontractile detrussors. There was an association between presentation in retention and Gleason 8-10 disease ($p = 0.01$) but no other association between clinico-pathological parameters and urodynamic findings. In men with BOO who proceeded to surgery 18/19 (94%) voided successfully with a significant improvement in flow rates ($p = 0.003$). In comparison to previous published series, urodynamics selected men had a lower incidence of treatment failure in terms of recurrent symptoms or re-catheterisation within 1 year of surgery ($p = 0.04$).
Conclusions: A significant number of men with PADT treated prostate cancer will have DOA or an acontractile detrusor as a cause for troublesome LUTS. Urodynamics may help select men with BOO who will benefit most from cTURP.

P 12

Role of Non Invasive Urodynamics using penile cuff testing (CT3000) in diagnosing BOO

S Banerjee, C Unwin, V Srinivasan, H Toussi
Glan Clwyd Hospital, Rhyl, United Kingdom

Introduction: Urodynamic study, although recommended before bladder outlet surgery, is reserved for a select few patients for a variety of reasons. The penile cuff method of non-invasive urodynamics (CUDS) offers a quick way of diagnosing BOO compared to flow rate study alone. We compared CUDS and conventional video urodynamic study (VUDS) to determine the effectiveness of the penile cuff testing method.
Materials and Methods: A total of 50 male patients who underwent VUDS also had CUDS using the CT3000 machine. Paraplegics, catheterised and intermittent self catheterisation (ISC) dependent patients were excluded from the study. It was a blinded study as the persons doing the CUDS and VUDS were unaware of each others results.
Results: The mean age was 63.9 years (37-81 years); mean quality of life (QOL) 3.4 (1-4) and mean IPSS 19 (0-35). Eleven patients had previous outlet surgery (7 TURP, 3BNI, 1 optical urethrotomy). The outcomes of the two tests were as follows:

Table for P12

	Obstructed	Non Obstructed	Inconclusive
CUDS (Penile Cuff Test)	52% (n = 26)	12% (n = 6)	36% (n = 18)
VUDS	54% (n = 27)	20% (n = 10)	14% (n = 7)

12 % (n = 6) had DOA. Sensitivity and specificity for CUDS are 96.4% and 71.4% respectively.
Conclusion: Despite its limitations such as inability to diagnose DOA and low specificity CUDS can be effectively used as a screening tool for patients suspected with BOO as compared to flow rate alone.

P 13

The Effect of Urodynamic Catheters on Urinary Flow Rate Measurement

B Horsburgh, C Harding, A Leonard,
T J Dorkin, A C Thorpe
Freeman Hospital, Newcastle-upon-Tyne, United Kingdom

Introduction: Maximum urinary flow rate recorded during pressure-flow studies ($Q_{max.p}$) is on average lower than that measured during free uroflowmetry (Q_{max}). This effect has been noted in many studies but it is not clear which men are affected and to what degree flow measurements are altered. This study attempts to quantify these differences and to explore the effect of urodynamic diagnosis on uroflowmetry parameters.
Method: Pressure-flow studies (PFS) from the last 50 men diagnosed with urodynamic BOO at our institution were examined and comparison was made with a second group of 50 men given a normal urodynamic

diagnosis. A third group of 50 men with no urodynamic abnormality other than reduced flow, ($Q_{max} < 15 mls^{-1}$) were also included.
Results: 2 men in the BOO group had missing data therefore 148 traces were reviewed. Paired Student's t-test revealed maximum flow measured during urodynamics across all 148 men was on average 38% lower than that recorded during free uroflowmetry ($p < 0.05$).
ANOVA revealed that the group with normal PFS and normal flow had a significantly higher difference between Qmax.p and Q_{max} ($p = 0.03$). This normal group had a mean free flow of $23 mls^{-1}$ compared with a mean urodynamic flow of $11 mls^{-1}$. Despite the reduction in flow voided volumes were significantly higher during urodynamic studies ($p = 0.02$).
Conclusions: These results indicate that significant error could be encountered when examining flow rate traces from urodynamic studies without evaluation of simultaneous detrusor pressure measurements, specifically in men with normal urodynamics.

P 14

Diagnoses and Outcomes from a Diagnostic Urologist's LUTS Clinic

RS Hamm
Royal Liverpool and Broadgreen University Hospital NHS Trust, United Kingdom

Introduction: A review of the diagnoses of patients seen by a single Consultant Diagnostic Urologist in a dedicated one stop lower urinary tract symptom clinic is presented.
Method: Data was collected prospectively on consecutive patients attending LUTS clinic over a period from 26.02.07 to 21.11.09. The referrals were via Choose and Book or letter and all were vetted by the consultant and felt to be routine and non-urgent.
Results: 783 patients were seen, 509 male patients mean age 61 ± 17 years and 274 female patients mean age 50 ± 20 years. Following full investigation the diagnoses are shown in table 1.
Conclusion: Nearly 80% of patients were managed by the Consultant Diagnostic Urologist who undertakes outpatient investigation and day case surgery only. More patients required surgery for urethral stricture (30) than for BPH (21). 17(2.2%) of these non urgent patients had a urological malignancy diagnosed.

P 15

Retention Clinics: Should we all be doing them?

J R Bhatt, T Akbar, P R Malone, D P Fawcett, P V S Kumar
Royal Berkshire NHS Foundation Trust, Reading, United Kingdom

Introduction: Urinary Retention (UR) is a common cause of emergency urology admissions. Nearly 70% of UK urologists admit patients with UR into hospital. This study looks at managing UR in the community with an urgent appointment in the retention clinic.
Patients and Methods: A proforma was designed in conjunction with the general practitioners with a view to managing these patients in the community. Data was collected prospectively on all patients attending the Retention Clinic between August 2007 and August 2009. Patient characteristics, source and reason for referral, duration of catheter and outcomes were evaluated. The consultant-led Retention Clinic takes place on weeks 1, 3 and 5 of the month, and there is a separate nurse-led weekly trial without catheter (TWOC) clinic.
Results: A total of 118 men (mean age 76 years) attended the retention clinic. Fifty-five percent were referred from primary care/casualty after initial catheterisation while 25% and 20% came from TWOC clinic and other wards respectively. Nearly 50% had acute UR, 33% had failed TWOC and 11% had chronic retention. Median range of catheter duration was 2–4 weeks. Majority of prostates felt benign, but 12% were suspicious. TWOC was done in 75% of AURs, while TURP was arranged for most chronic retentions/failed TWOCs.
Conclusion: Retention Clinic has obvious advantages: hospital beds are saved; patients are seen quickly; economically superior as the cost of 2 clinics is £308 whilst one emergency admission costs £1577 and there is a treatment plan in place. So should we all be doing them?

Table 1 for P14. Table to show frequency of diagnoses for 783 patients attending LUTS clinic

	Male Patients (N = 509)		Female Patients (N = 274)	
Diagnosis	N	%	N	%
Benign prostatic hyperplasia (BPH)/Obstruction	243	47.7	2	0.7
Urinary tract infection (UTI)	67	13.1	227	82.8
Overactive bladder	54	10.6	9	3.3
Stress incontinence	–	–	4	1.5
Mixed incontinence	–	–	11	4.0
Urethral stricture	51	10.0	2	0.7
Monosymptomatic nocturnal polyuria	20	3.9	4	1.5
Bladder Cancer	12	2.4	2	0.7
Prostate Cancer	13	2.6	–	–
Other Cancer	2	0.4	–	–
Prostatitis	12	2.4	–	–
Other	35	6.9	13	4.7

106 patients (20.8%) were referred to a consultant urological surgeon for a surgical procedure. These were for treatment of urethral stricture (30), BPH (21), UTI (24), all cancers (16), and other (15).

P 16

Transurethral resection of the prostate for benign prostatic obstruction: A comparison of the Olympus bipolar and monopolar resectoscopes from the operation surgeon's perspective

DM Gulur, MHC Goh, AA Okeke, HW Gilbert, RB Kinder, AG Timoney
Bristol Urological Institute, United Kingdom

Introduction: We compared the subjective performance of the Olympus bipolar and monopolar resectoscopes during transurethral resection of prostate (TURP) using the Olympus SurgMaster TURis (transurethral resection in saline) System.
Patients and Methods: Between June 2005 and October 2008, 210 patients were recruited in this prospective multicentre trial. 110 and 100 patients underwent bipolar and monopolar TURP respectively. Both groups were comparable in terms of age (72 vs 73 years, $p = 0.3$) and TRUS volumes (68.9 vs 69.8 cc, $p = 0.8$). The resectoscopes were compared on 15 parameters. The parameters used were ease of assembly, ease of resectoscope insertion, weight, balance of resectoscope and cables, rotatability, cutting,

charring of tissue, coagulation, haemostasis, bleeding, flow characteristics, clarity of vision, loop resection volume, and number of times the loop had to be cleaned and changed during TURP. Each parameter was scored by the operating surgeon on a scale of 1-10 (higher scores indicated better performance).
Results: Resection times were similar in both groups (mean 37 min). The monopolar equipment had significantly higher scores for flow characteristics and clarity of vision respectively (mean 7.7 vs 7.0, $p = 0.01$, and 8.0 vs 7.5, $p = 0.007$). The monopolar equipment also fared better with loop resection volume (7.5 vs 7.0, $p = 0.04$), coagulation ($p = 0.02$) and haemostasis ($p = 0.04$). The remaining parameters were comparable.
Conclusion: Subjective superior clarity of vision with the monopolar resectoscope may be due to better flow characteristics. The perceived higher monopolar loop resection volume is most likely explained by an actual larger diameter monopolar loop.

P 17

Analysis of the Learning Curve of Holmium Laser Enucleation of the Prostate

S Ahmed, F Newman, N Day, M Cynk
Maidstone Hospital, United Kingdom

Introduction: Holmium Laser Enucleation of the Prostate (HoLEP) has been shown to have comparable medium-term outcome to TURP with the advantage of less perioperative morbidity, particularly in larger prostates. However, HoLEP has not been widely adopted by urologists perhaps due to the perceived long learning curve. Our aim was to assess the HoLEP learning curve from our first 200 cases.
Patients and Methods: Between December 2003 and July 2009, 200 consecutive patients underwent HOLEP by a single surgeon who had received mentorship in six cases. Outcomes were collected prospectively, and analysed in 20-patient cohorts including: resection weight, operative time (enucleation and morcellation), length of hospital stay and pre and post haemoglobin levels. Maximum urinary flow rates (Qmax) and post void residual volumes (PVR) were measured at baseline and 3 months post-operatively.
Results: The operative time remained stable throughout the cohorts with a mean of 59 minutes (range 10-180 minutes). Operative efficiency (resection weight per minute of operative time) was stable at a mean of 0.25g/min for the first 120 cases; this slowly improved thereafter reaching a mean of 0.4g/min for the last cohort. The learning curves of Qmax and PVR improvements at 3 months were flat. There were no significant differences in hospital stay and haemoglobin drop amongst the cohorts, and no patients received blood transfusion.
Conclusion: The HoLEP learning curve is not as long as widely perceived, with improvements in outcome parameters being consistent throughout the learning curve. Effective mentoring is essential to ensure optimal early outcome.

P 18

Comparative Quantitative Proteomic Profiling of Urine from Stone-Forming and Non-Stone Forming Patients to Identify Candidate Regulators of Urolithiasis

S Howles, C Wright, B Kessler, FC Hamdy, BW Turney
The Churchill Hospital, Oxford, United Kingdom

Background: Stone disease is a major clinical burden and its pathophysiology is poorly understood. Proteins have been implicated in nephrolithiasis. We used shotgun proteomic techniques to quantitatively compare the urine of stone forming patients (SFs) with non-stone formers (NSFs). Our aim was to demonstrate the utility of this approach and identify proteins of interest for further investigation.
Method: Two pooled urine samples were created from 22 SFs and 22 NSFs. The pools were concentrated and fractionated (Agilent). Label-free analysis was performed using QTOF mass spectrometry (LC-MS/MS) (Waters) and Ingenuity Pathway Analysis software.
Results: 714 proteins were identified and quantitative data obtained on 254 proteins. As previously reported, the SF pool demonstrated higher levels of Haemoglobin and lower levels of Uromodulin, Cathepsin, Inter-alpha inhibitor and Osteopontin.

Quantifiable variation identified three main biological themes: cation binding, calcium regulation and vitamin A metabolism. Binding proteins for copper (Ceruloplasmin), iron (Haptoglobin and Haptoglobin related protein), and calcium (S100A9) were all seen at higher levels in the SF pool. Calcium regulatory proteins; Angiotensin II, Calbindin, Calreticulin, and Osteopontin were also observed to have significantly different levels. Thirdly, two proteins involved in vitamin A metabolism (Transthyretin and Retinol binding protein) were significantly lower in the SF pool.
Conclusion: This is the first reported use of this proteomics platform for analysing urine. This work opens new avenues of interest for investigating the biology of stone disease and establishes this technique as a method of detecting differences in the urinary protein profile for other urological diseases.

P 19

Cannabinoid Receptor CB1 in overactive and painful bladder disorders and their correlation with symptoms

GM Mukerji, Y Yiangou, S K Agarwal, P Anand
Charing Cross Hospital, London, United Kingdom

Introduction: Cannabinoid receptor agonists have been shown to modulate urinary bladder contractility and reduce pain after bladder inflammation; their clinical efficacy on lower urinary tract symptoms was demonstrated in the Cannabinoids in Multiple Sclerosis (CAMS) study. We studied the expression of Cannabinoid receptor CB1 in human urinary bladder hypersensitivity and overactivity disorders, and correlated changes with symptoms.
Patients and Methods: Bladder tissue specimens were obtained from patients with painful bladder syndrome (PBS, $n = 13$), idiopathic detrusor overactivity (IDO, $n = 14$) and from controls with asymptomatic microscopic haematuria ($n = 16$). Severity of symptoms was assessed using the PUF Questionnaire. Pain score was also recorded on a Visual analogue scale (VAS). Specimens were immunostained using specific antibodies to CB1, and to neurofilaments as a structural maker. Detrusor and sub-urothelial nerve fiber density was quantified with a visual grading scale. The immunohistochemistry results were correlated with 'Pain, Frequency and Urgency' scores.
Results: CB1-immunoreative nerve fibres were significantly increased in the sub-urothelium of PBS ($P = 0.0123$) and IDO ($P = 0.0013$) specimens, and in the detrusor layer in IDO ($P = 0.0003$), compared to

controls. CB1-immunoreactive suburothelial nerve fibre density correlated significantly with pain scores (VAS) in PBS ($r = 0.6878$, $P = 0.0347$), and urgency scores in IDO ($r = 0.6623$, $P = 0.0027$). Neurofilaments-immunoreactive sub-urothelial nerve fibres were significantly increased in PBS ($P = 0.019$) and IDO ($P = 0.05$).
Conclusion: The results of this study suggest that increased nerve fibres which express CB1 may be related to bladder pain in PBS and urgency in IDO. Our findings support clinical trials of CB1 agonists in bladder disorders.

P 20
Differential Expression of Adenosine Receptors in the Stable and Overactive Human Bladder
MH Hussain, CHF Fry
Whipps Cross Hospital, London, United Kingdom

Introduction: Adenosine is an agonist of the P1-receptor, of which there are four subtypes (A1, A2A, A2B, A3). It has been shown to suppress detrusor contraction in animal tissue. This study examines the differential effect of adenosine on detrusor contraction in normal and overactive human bladders. We hypothesise that differences in contractile function are associated with changes in P1-receptor subtype gene expression and protein abundance.
Methods: Muscle strips from stable, idiopathic (IDO) and neurogenic (NDO) overactive bladders were superfused with Tyrode's solution and field stimulated. The effects of adenosine on the force of contraction in nerve-mediated-contractions (nmc) and Carbacol (1 μM) stimulated muscle were compared. P1-receptor subtype mRNA (RT-PCR) and protein expression (Western Blotting) was semi-quantified.
Results: Adenosine reduced nmc in stable (% reduction in contraction = 58.0 ± 14.8%) and NDO (40.2 ± 11.6%), but not IDO samples (86.9 ± 16.2%). Carbachol stimulated contraction gave similar results. Compared to the controls, mRNA and protein expression for A1 receptors was reduced in IDO, A2A receptor reduced in both IDO and NDO, but no difference was seen in A2B and A3 receptor expression between groups.
Discussion: Adenosine showed a negative inotropic effect in normal and NDO samples. This corresponded with a reduction in A1 and A2A receptor mRNA and protein expression. We postulate that overactive behaviour may represent a lack of a normal suppression of detrusor function by adenosine. Adenosine may also exert an additional effect in NDO bladders because of the disconnection between contractile function and mRNA/protein quantity.

Adenosine had a negative inotropic effect on detrusor from normal and NDO but not IDO patients. The lack of effect on the IDO is consistent with reduced mRNA expression of A1 and A2A receptors, and reduced A2A protein. We hypothesise that in this group overactive behaviour may partly be due to lack of a normal suppression of detrusor function by adenosine. For NDO we also hypothesise that adenosine exerts an additional effect because of the disconnection between contractile function and mRNA/protein quantity.

BJUI SUPPLEMENTS

Tuesday 22 June 2010
Poster Session 3
14:00–16:00 Charter A
MANAGEMENT/GOVERNANCE
Chairmen: Mr Krishna Sethia & Mr David Jones Posters P21–P35

P 21

Is there a need for an undergraduate urology curriculum?

R Scott, A M Sinclair, I Pearce
Manchester Royal Infirmary, United Kingdom

Introduction: The advent of a detailed postgraduate urological curriculum in 2001 offered a firm structure upon which to base ones learning and experience. It eliminated vagueness and enabled trainees to focus more readily for the FRCS (Urol) whilst at the same time opening the door to competency based assessment. Many specialties including Obstetrics and Gynaecology have introduced a undergraduate curriculum in an attempt to set a minimum standard for medical students.
Methods: All Medical Students attending a one day urological revision day before finals were asked to complete a questionnaire assessing their opinion regarding an undergraduate urological curriculum. Their perceived competency to manage common and important urological conditions was also assessed.
Results: 276 students attended the revision day, 201 completed the questionnaire. 88% thought a curriculum would be useful with 10% being unsure. 81% claimed to be able to catheterise a patient whilst only 56% and 58% were confident to diagnose and manage testicular torsion and ureteric colic respectively. Whilst 86% and 82% were confident to manage BPE and prostatic carcinoma respectively, only 68% and 21% were confident to manage scrotal swellings and phimosis respectively. When asked what should be included in such a curriculum, the overwhelming majority (>90%) were in favour of all the key components of the postgraduate curriculum being present with the exception of penile cancer, (76%).
Discussion: This survey highlights the need for a focussed undergraduate urological curriculum to ensure that all UK medical graduates have a secure understanding of common or emergency urological issues

P 22

5 year follow up of Urology Undergraduate Education: A decline in exposure, satisfaction with teaching techniques, and consideration of urology as a career

R Scott, I Pearce, SR Payne, KJ O'Flynn, AM Sinclair
Stepping Hill Hospital, Stockport NHS Foundation Trust, Manchester, United Kingdom

Introduction: Conventional lecture based teaching is in danger of being replaced by problem based learning (PBL). Undergraduate exposure to urology is continually diminishing resulting in a marked deterioration in urological knowledge and skills.
Methods: A conventional lecture based urological study day for final year medical students has been organised annually for the last 5 years. Feedback was collected in the form of a standard questionnaire. Students were asked to score each lecture and their overall exposure to urology out of a maximum score of 10. They were also asked to score, whether they had ever considered urology as a career, and also their opinion of PBL compared to conventional lectures.
Results: 1001 students have attended, 901 providing feedback. The mean score for all lectures was 8.73 (7.91–8.97). Only 1 student thought that PBL was the best form of medical education, 77.9% preferred a combination of PBL and conventional lectures and 22% preferred lectures only. Over 5 years urological exposure has decreased from 3.97 to 1.78, and those considering urology as a career have decreased from 26% to 7.4%.
Conclusion: There remains a role for more conventional teaching in conjunction with PBL. Career pathways are being decided earlier, therefore undergraduate exposure to urology is essential to ensure competency and also to ensure that all students at least consider urology as a career.

P 23

The impact of European Working Time Directive (EWTD) and shift patterns on urological patient handover

AM Manjunath, H Raja, SJ Srirangam
Royal Blackburn Hospital, United Kingdom

Introduction: The EWTD has resulted in more frequent but shorter resident working shifts. This leads to reduced continuity of care and the need for more handovers between colleagues. Out-of-hours urology admissions are managed by hospital-at-night teams and subsequently handed over. We assessed the frequency and quality of handover of urology patients admitted out-of-hours within a busy DGH.
Materials and Methods: Handover data was collected prospectively over a consecutive period of sixty days. All junior doctors had received verbal and written instructions regarding handover requirements (person-to-person handover to urology middle-grade at 0800 hrs following night shift). Minimum patient handover data included patient name; hospital number; DOB; patient location; working diagnosis and investigations. Data collection included related critical incidents. Patients admitted during working hours (0800–1800) and those already reviewed by a middle grade/senior urologist were excluded.

Results: In total, 73 patients were admitted out-of-hours under urological care. Not all patients were reviewed by an SHO-level doctor. Overall face-to-face handovers were worryingly infrequent (table). In the 20 cases where handover occurred, all included the required minimum patient data. Fortunately, no critical incidents resulting in serious harm to patient were recorded but there were several "near misses."

Table for P23

Number of patients	Percentage reviewed by SHO-level doctor	Percentage handed over (verbal/written)
73	69.8% (51/73)	27.4% (20/73)

Conclusion: EWTD, the 48-hour week and shift patterns are inescapable, but appear to contribute to inadequate patient handover and poor continuity of care. Urology departments within all hospital trusts must pro-actively implement robust procedures to minimise potential adverse effects.

P 24

Consultant Urologist in a NHS Treatment Centre: a viable career option for UK trainees or an unacceptable risk?

A Adeniyi
Emerson Green NHS Treatment Centre, Bristol, United Kingdom

Introduction: The Department of Health website describes the Treatment Centre Programme aim as the provision of extra clinical capacity needed to deliver swift access to treatment for NHS patients; spearhead diversity and choice; and stimulate innovative models of service delivery while driving up productivity. It however represents a relatively unknown career choice for UK trainees.
Materials and Methods: Information was sought from the department of health including its website, discussion with NHS Treatment Centre (NHSTC) management, NHS executive, BAUS officials, NHS modernisation agency, the BMA, NHS pension scheme and other sources. This information was collated comparing the traditional NHS hospital & NHSTC consultant urologist roles.
Results: A number of differences are apparent including (at least initially) better pay for fewer hours. However there is a less degree of 'job security' and new ways of working with the absence of the traditional 'medical team'. Care is consultant led, delivered & maintained. A smaller organization usually means quicker decisions & implementation of change, but there are the other issues of the risk of becoming deskilled or de-motivated by a smaller range of simpler procedures being performed.
Conclusion: BAUS has always been keen to be at the forefront of changes that potentially affect the urological workforce rather than simply react to changes thrust upon it. There are definite pros and cons to the emergence of this career option. This choice requires careful consideration and is certainly a viable career choice though not for everyone.

P 25

Urological litigation in the NHS: An analysis of 14 years of successful claims

NI Osman, GN Collins
Stepping Hill Hospital, Stockport, United Kingdom

Introduction: Knowledge of the main areas of litigation is essential for maintaining good clinical practice as well as optimising risk management procedures in any specialty. This study presents the first analysis of the collected data on urological litigation within the National Health Service.
Materials and Methods: Details of all claims closed with indemnity payment pertaining to the specialty of urology as practiced by urologists, general surgeons and paediatric surgeons was obtained from the NHS Litigation Authority (NHSLA) for the years since its creation in 1995 to 2009.
Results: A total of 493 cases were closed with indemnity payment with a total of £20,508,686.18 paid. The average payment per claim was £41, 599.77 and the average number of claims per year was 35. 232 of claims were related to non-operative events, 168 were related to post-operative events and 92 were related to intra-operative events. The most common reason for non-operative related claims was failure to diagnose/treat cancer (69), perforation/organ injury (38) was the highest intra-operative related claim and the forgotten ureteric stent (23) was the most frequent post-operative related claim. The 5 most commonly implicated procedures were ureteroscopy/ureteric stenting (45) TURP (30), nephrectomy (26), urethral catheterisation (15) and orchidectomy (9).
Conclusion: This study once again emphasizes the importance of thorough clinical assessment, informed consent, good communication with patients in addition to accurate record keeping and follow up. Recognising the areas of highest risk and improving practice should limit future claims.

P 26

Urology outpatient care in the 21st century: The move towards a more personalised, streamlined service

LC Clarke, J Taylor, K Hurst, KJ O'Flynn, DC Shackley
Salford Royal Hospital, Manchester, United Kingdom

Introduction: Recent NHS pressures are leading to trusts re-thinking their out-patient strategy. In response, we have radically redesigned our urological outpatient services.
The 4 cornerstones of this strategy are:
i) Standardised-consultant triage of all referrals within 24 hrs;
ii) Simplification/standardisation of patient pathways for all common urological referrals;
iii) Extra clinics to deal with capacity issues;
iv) Clinic options available for any day of the week including am/pm.
We have added 2 further elements and the impact of these are assessed in this study:
v) Direct patient contact (telephone) to arrange/rearrange mutually convenient appointment times for consultation/imaging;
vi) 'One-stop' appointments with imaging/assessment in a single visit wherever possible;
Methods: Prospectively collected data (May-September 2009) was reviewed, including patient satisfaction. Comparisons have been made for those referrals handled through the standard system [including i-iv], and those appointments made via a personalised system [i-vi].
Results: There were 1396 new referrals: 149 (new 'personalised' service) & 1247 patients ('standard' service). Non-attendance rates for each group were 4.7% and 8.7% respectively. The new system scored very highly on patient satisfaction. Of all new referrals requiring imaging, 95% had their investigations prior to or on the same day as their clinic appointment. The mean waiting time from GP-referral to consultation including imaging was 19 days.

Conclusions: There is increased emphasis on patient-focused outpatient services. Our innovative model for providing outpatient care gives increased choice to patients, has reduced non-attendance rates and allows us to manage our waiting lists more efficiently.

P 27

Understanding variations in the productivity of 'front-line' clinicians

TS O'Brien, K Chatterton, B Coker, E Jenkins, M Pardos-Martinez
Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom

Introduction: Operational planning requires accurate demand/capacity calculations. The clinicians' productivity is an important element in these calculations. NHS Urologists are generally considered to be equally productive. We have tested this assumption and examined reasons for the variations identified.
Methods: 3200 new referrals to a urology centre over a 9 month period were studied. Patients were seen in three similarly configured one-stop clinics per week. Each urologist (8 consultants, 7 registrars) was timetabled to one new patient clinic per week. Metrics included: Total number of new patient consultations per urologist; number of clinics attended; patients seen per clinic; and frequency of follow-up consultations requested. Changing performance over time was measured by studying three consecutive quarterly periods.
Results: Total new consultations per urologist varied from 121 - 258 (median 165). Number of clinics per urologist varied from 25 - 44 (median 31). Discharge after single visit (i.e. one stop) varied from 23% - 38% (median 29%) amongst the registrars, whereas consultants ranged from 16% - 48% (median 31.5%). The two highest volume consultant urologists had the highest discharge rates. One-stop practice is time consuming; the mean number of patients seen per clinic by urologists is 6. Variations in follow-up rates were most marked in recurrent UTI's in women, BPH and frequency/urgency syndromes.
Conclusion: Even within successful teams there is significant scope for improving the individual clinicians' productivity and performance. Non-judgemental analysis, explanation, and teaching are well received.

P 28

The sustainability of rapid access one-stop practice in urological outpatients

TS O'Brien, B Coker, K Chatterton, M Pardos-Martinez, E Jenkins
Guys and St Thomas' NHS Foundation Trust, London, United Kingdom

Introduction: The elimination of delays and one-stop diagnosis for outpatients are valuable goals. Whether improvements are sustainable is not known. Risks include 'Swamping' by a flood of new referrals and 'Improvement fatigue'.
Methods: In 2007 the OPD waiting list was eliminated and a new service introduced in January 2008. Median referrals per week was 83 (range 53–130) and capacity was planned to deal with 90% of the maximum i.e. 120 per week. Contingency plans introduced during 2008 included increase in doctors per clinic from 5 to 6; job-plan flexibility (0.5PA); clinic template increased from 40 to 45; choose & book appointments limited to 33% of total to guarantee a local service. A key operational perspective was to maintain capacity close to the planned maximum (i.e. 45).
Results: In 2008, 4728 new patients were seen, >90% within 14 days of receipt of the referral. Patients referred on Dec 31st 2008 were offered an appointment 9 days later. More than 2700 ultrasounds and 1400 cystoscopies were performed and 75% of patients were diagnosed one-stop. In the 1st quarter, 1231 patients were referred compared to 1313 in the 2nd quarter and 1401 in the third quarter. In the 1st quarter 39% were discharged compared to 30% in the 2nd quarter and 36% in the 3rd quarter.
Conclusion: Advanced access one-stop diagnostics is feasible and sustainable. Demand/capacity analysis, contingency planning, and flexibility are prerequisites for this type of care.

P 29

A snapshot of documentation of urethral catheterization in a District General Hospital, what can we change?

AH Hawary, AS Slater, JLP Probert, DD Dickerson
Weston General Hospital, Weston-super-Mare, United Kingdom

Introduction: Urethral catheterization is a common and a very important procedure that is performed in every UK hospital. Documentation of this procedure is of utmost importance as it has a detrimental effect on patient management plans.
Patients and Methods: We evaluated the data documented in the case notes of all inpatients with urethral catheters in our hospital on a single day, a total of 57 notes of patients with urethral catheters were reviewed out of 311 inpatients in all hospital wards. Data on patient's demographics, catheter type and size together with the indication of catheterization and amount of residual drained were collected.
Results: The study showed a very poor level of data documentation with 20% of patients with urethral catheters having no record of it in their notes with time and date of catheterization documented in only 53%. Data such as indication and consent to procedure were documented in 40% and 12% respectively while the amount of residual urine was only documented in 10% of case notes.
Conclusion: We suggest developing BAUS proforma in line with BAUS consent forms which should be standardised in all hospitals to ensure the uniformity and the quality of the data documented when patients are catheterized. This together with regular teaching and training of medical and nursing staff together with regular auditing of this process should offer the solution to this problem.

P 30

Paediatric preputial histology: proposing an audit standard for circumcision

R Rajasundaram, A Cliff
Wirral University Teaching Hospital NHS Foundation Trust, United Kingdom

Introduction: Pathological phimosis is the only absolute indication for paediatric circumcision. Conservative treatment is recommended for boys with physiological phimosis, where symptoms are generally self-limiting. The proportion of histologically normal foreskins should indicate whether foreskin preservation is being adequately pursued.
Patients and Methods: All cases were performed by a single urological surgeon in a large DGH. Unless the foreskin is visibly pathological, the author proceeds to circumcision only in symptomatic patients who fail conservative treatment. Histopathology reports of the past 50 consecutive paediatric circumcisions in patients under 14 yrs were reviewed.
Results: The mean age of the 50 boys was 9.5yrs (range 3–13). Balanitis xerotica

obliterans (38%) and chronic inflammation (40%) were the commonest findings. Other reported findings were lichen planus (4%), lichenoid reaction (6%) and fibrosis (4%). Normal histology was reported in 8% of cases.
Conclusion: It has been suggested that too many boys in the UK undergo circumcision, as the 3.1% chance of paediatric circumcision far exceeds the reported rate of pathological phimosis (Cathcart et al. BJS 2006; 93: 885-90). However, our results show that only 8% of foreskins are histologically normal, comparing favourably with the sole other report of paediatric preputial histology in the general surgical literature, where 12.8% of boys had normal foreskins (Yardley et al. Ann RCS Eng 2007; 89 (1): 62–65). We suggest that a normal foreskin rate of 10% should serve as a standard to demonstrate that adequate foreskin preserving strategies are being followed.

P 31

The TURP Consent Conundrum! (A Multicentre Study of Patient Understanding and the documentation of Trans-Urethral Resection of the Prostate (TURP) Risks and Complications)

WM Mahmalji, A Alnaimi, S Burke, Y Kaur, M Simms, R Wilson
York District Hospital, United Kingdom

Introduction: Symptoms of prostatic enlargement are common and may affect quality of life (Rosenberg et al. 2009 Dec 22). TURP is widely accepted as the 'gold standard' in the surgical management of BPH (American Urological Association J Urol, 170: 530, 2003). BAUS recommends specific risks/complications should be made clear to patients prior to TURP, introducing procedure-specific consent forms (BPSCF). This study aimed to analyse any correlation between patient understandings of post-TURP risks in a BPSCF centre with a non-BPSCF centre, and to audit the standard of TURP risk/complication documentation at the non-BPSCF centre.
Patients and Methods: Patients answered a day-1 post-operative face-to-face questionnaire; using numerical scales assessing the extent patients understood the post-operative risks. All patients scored 10/10 in a mini-mental test prior to involvement. In addition the non-BPSCF patients had their pre-operative consent forms audited and compared with BAUS guidelines. Risks/Complications were analysed as *clearly stated, implied or not stated*.
Results: (See Table 1) The Mann-Whitney U Test was used for statistical analysis.
Conclusions: The study shows greater patient understanding of the risks/complications post-TURP when consented

Table 1 for P31. The Results of the Study. Non-BPSCF Centre n = 40, BPSCF Centre n = 38

Post TURP Questionnaire Scores Between Centres		Non-BPSCF Centre TURP Consent form Audit			Grade of Consenting Clinician	
BAUS Recommended TURP Risks/Complications	Difference In Patient Understanding Between Centres (Statistically significant results $p<0.05$ in red)	Clearly Stated	Implied	Not Stated	Non-BPSCF	BPSCF Centre
COMMON					SHO = 67.5% (27)	100% (38) Registrar and consultant
Temporary mild burning on passing urine, urinary frequency and haematuria.	0.097	7.5% (3)	40.0% (16)	52.5% (21)	Registrar = 30% (12)	
Retrograde ejaculation in 75% of patients.	0.631	22.5% (9)	60.0% (24)	17.5% (7)	Consultant = 2.5% (1)	
Failure of symptom resolution.	**<0.001**	20.0% (8)	2.5% (1)	77.5% (31)		
OCCASIONAL						
Permanent inability to achieve an erection adequate for sexual activity.	0.578	55.0% (22)	35.0% (14)	10.0% (4)		
UTI requiring antibiotic therapy.	0.063	25.0% (10)	75.0% (30)	0% (0)		
Bleeding requiring return to theatre and/or blood transfusion.	0.083	17.5% (7)	82.5% (33)	0% (0)		
10% of patients require redo surgery.	**<0.001**	12.5% (5)	17.5% (7)	70.0% (28)		
May need self catheterisation to empty bladder fully if bladder weak.	0.738	2.5% (1)	2.5% (1)	95.0% (38)		
Failure to pass urine post-operatively after removal of the catheter, requiring a new catheter.	**<0.001**	7.5% (3)	7.5% (3)	85.0% (34)		
Rare						
Finding unsuspected cancer in the removed tissue that may need further treatment.	**<0.001**	5.0% (2)	0% (0)	95.0% (38)		
Urethral stricture formation requiring subsequent treatment.	**0.001**	15.0% (6)	15.0% (6)	70.0% (28)		
Incontinence, temporary or permanent.	**0.044**	47.5% (19)	50.0% (20)	2.5% (1)		
TUR syndrome.	0.777	60.0% (24)	0% (0)	40.0% (16)		
Very Rare						
Perforation of the bladder requiring catheterisation or open repair.	**0.030**	12.5% (5)	2.5% (1)	85.0% (34)		

with BPSCF. Statistically significant differences in patients' understandings of 7/14 BAUS recommended post-TURP risks/complications was shown, six of which were not documented in >70% of the non-BPSCF consent forms. Possible factors influencing the results include socio-economic, patient (e.g. education levels) and clinician consenting technique. The study also highlights huge variations in the documentation of risks/complications of TURP in a non-BPSCF centre, which appeared inadequate, raising possible medicolegal issues. In conclusion BPSCF is a useful aid when consenting for TURP, especially when there is variation in consenting clinician grades.

P 32

Advice and guidance for primary care: opportunity or threat?

VSW Koo, S Grimsley, A Elves
Royal Shrewsbury Hospital, United Kingdom

Introduction: An electronic Consultant-delivered advice and guidance service for primary-care (A&G) was established for a single practice-based commissioning group (PCG) within a local PCT from 1st September 2008 to 31st August 2009. The impetus for this service was a desire of the PCT to facilitate communication between primary and secondary-care, reduce secondary-care referrals, and identify where care could be provided within the local community. The findings are presented.
Method: All data was collected prospectively from September 2008 to end of August 2009. Data recorded included patient age, source practice, the type of problem, and advice outcome. Numbers of patients referred were compared over a 4 year period the PCG.
Results:
Table for P32

	Year			
	1	2	3	4 (intervention year)
Secondary care Referals	240	249	309	233

184 advice requests were made during the 12 month study period. There was a significant reduction in the number of secondary-care referrals in the intervention PCG with A&G. Overall referrals however were unchanged, as 54 patients were seen within a PCT community clinic. The type of problem referred was male LUTS (37%), peno-scrotal (13%), UTI (9%), loin pain/calculi (12%), 2 week referrals (6%), paediatric urology (3%), female LUTS (2%) and other (18%). Outcomes were advice only (31%), primary-care investigation (30%), community clinic (18%) and secondary-care referral (21%).
Conclusion: The absolute number of referrals was not affected by A&G provision. The number of advice requests suggests a desire within primary-care for secondary-care opinion where referral might not normally be sought, potentially improving urological care within the community.

P 33

Meeting the challenge of delivering the switch to a team based approach to the delivery of bladder cancer care in a network centre

TS O'Brien, S Amery, G Zisengwe, S Khan, P Dasgupta, K Thomas
Guys and St Thomas' NHS Foundation Trust, London, United Kingdom

Introduction: Historically clinical care was delivered by named individuals, but nowadays complex care is increasingly delivered by teams. This shift carries the risk that care could become depersonalised and fragmented. Optimizing the performance of the whole team is vital. During 2008/2009 our multidisciplinary bladder cancer service switched to team based care necessitating fresh organisational approaches
Methods: A multidisciplinary briefing session was instigated at the start of clinic 30 patients discussed in 40 minutes. No paper notes/proformas used 2 members alternately summarise case from information posted on electronic patient record Radiologist demonstrates imaging on PACS Case discussed. Teaching points highlighted. Team position clarified. Case assigned to a clinician. No clinic appointments now offered in first 40 minutes of clinic.
Results: The clinic has happened weekly. Consistency of decision making improved. Use of follow-up imaging more rational. Time consuming 'in-clinic' interruptions have been reduced. Experienced clinicians direct every case: excellent for 'difficult' people or problems. Team members learn from 30 cases not just 'their' cases. New team members rapidly assimilated. Students learn from the full spectrum of bladder cancer problems. Scrutiny of letters improves the quality of letters. Persistent defects in organisational processes easily identified. Research/audit studies initiated. The clinic now often finishes early (3.5 hours not 4 hours)
Conclusion: A 40 minute briefing meeting at the start of a multidisciplinary clinic saves time and improves care.

P 34

Bladder cancers managed within 62-days of referral appear to be less invasive and have reduced early recurrence rates – a prospective clinical study

H Lee, CH Anderson, A Zachou, P Bollina, G Smith, P Mariappan
Western General Hospital, Edinburgh, United Kingdom

Introduction: We compare the demographics and recurrence rates between bladder cancer patients managed following and prior to the introduction of the 62-day referral to treatment target (RTT).
Patients and Methods: The 62-day RTT for bladder cancer was introduced into our service in 2007. Prospectively maintained cohorts used for analysis were: 2007/8 (intention to treat within 62-days) and 2005/6 (pre-62-day RTT). Referral date, date of cystoscopy and TURBT, tumour characteristics (size, number, appearance), completeness of resection, clinical stage, pathological grade/stage, findings at re-TURBT and check cystoscopy were recorded prospectively. Stratification was into standard risk categories for recurrence.
Results: A total of 793 new bladder cancers were analysed. There was a significant shift in the proportion of muscle invasive disease between the two cohorts from 28.9% in the 2005/6 cohort (intention to treat within 62-day RTT) and 21.0% in the 2007/8 cohort (OR = 1.5, 95%CI = 1.1-2.1, p = 0.01) with a corresponding, significant, reduction in high-risk non-muscle invasive bladder cancers (NIMBC) in the latter cohort. The early recurrence rates for the high-risk NMIBC were 43.6% and 35.0% in the 2005/6 and 2007/8 cohorts, respectively. It was further observed that within the 2007/8 cohort, where high and intermediate risk NMIBCs had been apparently completely resected, the early recurrence rate rose in both risk categories from 30 to 50% when treatment was not achieved within 62 days from referral.

Conclusions: Bladder cancers managed within the 62-day RTT appear to be less advanced with an apparently reduced early recurrence rate in higher risk NMIBCs. These findings merit further evaluation.

P 35

Risk-adjusted funnel plot analysis of radical cystectomy outcomes across English NHS Trusts

EK Mayer, A Bottle, A Darzi, T Athanasiou, JA Vale
St Mary's Hospital, London, United Kingdom

Introduction: Ranking in surgical performance has limitations, risks and implications which can be overcome by using funnel plots. They offer the opportunity to statistically define control limits around measurable outcomes. We aimed to identify whether risk-adjusted funnel plots are a useful adjunct to aggregated cross-sectional volume-outcome relationship analysis.
Patients and Methods: Risk-adjusted funnel plots were generated for mortality and re-intervention rates following radical cystectomy performed in NHS Trusts between 2000/1 and 2006/7, using Hospital Episode Statistics. Trusts were divided into volume tertiles based on their average annual cystectomy rate (Low $>2<10$; Medium $\geq 10 <16$; High ≥ 16). A funnel plot was produced for each of four incremental statistical models; model one (no adjustment), model two (adjusted for patient case-mix variables), model three (case-mix and "clustering" of patients within surgeons and surgeons within hospitals) and model four (additional adjustment for institutional structural and process of care variables).
Results: In the final complex model (model four), no Trusts demonstrated a truly divergent high rate of mortality or re-intervention. Comparison of the funnel plots for each of the outcomes assessed demonstrated the importance of adjusting for confounding factors, such as the surgeon, at the individual Trust level, before a Trust should be labelled as having poor performance.
Conclusions: Funnel plots have a useful role to play in investigating the volume-outcome relationship at the Trust level. They act as a way of validating data by displaying disaggregated outcomes at provider level and account for unmeasured confounders, so reducing the opportunity for spurious labelling of outliers.

BJUI SUPPLEMENTS

Tuesday 22 June 2010
Poster Session 4
14:00–16:00 Charter 2
BLADDER DYSFUNCTION/FEMALE UROLOGY/ NEUROUROLOGY
Chairmen: Miss Tamsin Greenwell & Mr Roland Morley
Posters P36–P49

P 36

10 year projected actuarial costs of clam ilealcystoplasty and intravesical botulinum toxin injection

BW Lamb, P Patki, S Wood, J Shah, J Green
Whipps Cross University Hospital, London, United Kingdom

Objective: Clam ilealcystoplasty is the gold standard treatment for patients with detrusor over-activity (DO), though intravesical botulinum toxin is seen as an effective alternative. The aim of this study was to estimate and compare the 10 year financial cost of surgical treatments between patient groups and brands of botulinum toxin.
Material and Methods: The procedure cost was taken from the National Health Service Tariffs for treatments 2007-2008 for idiopathic detrusor over-activity (IDO) and neurogenic detrusor over-activity (NDO) with and without co-morbidity. Index cases were calculated for clam ilealcystoplasty and intravesical botulinum toxin with comparison between Botox and Dysport. Follow up regimens were from Abram's et al 2007.
Results: 10 year cost for IDO was £9854 & £8754 without co-morbidity, £10644 & £9544 with co-morbidity; for NDO £16492 & £15812 without co-morbidity and £19224 & £18544 with co-morbidity, with Botox and Dysport respectively. Addition of ISC increased the costs in IDO to £25984- £26773 with Botox; to £24884- £25673 with Dysport and for NDO with ISC to £32622- £35354 with Botox and £31942- £34674 using Dysport. 10 year cost for clam in patients with IDO was £26115 and 10 year cost for clam in patients with NDO in a specialist centre is £27606.
Conclusion: Botulinum toxin offers an alternative to clam for many patients with DO with the cost of either procedure varying depending on the group of patients and the botulinum toxin used. This supports assertions that in DO both treatments can be cost effective and patient selection is key.

P 37

Is pre-operative tuition in CISC cost effective prior to intradetrusor injection of botulinum toxin for OAB?

R Johnson, I Pearce
Manchester Royal Infirmary, United Kingdom

Introduction: Intradetrusor injection of botulinum toxin A is a well established treatment for OAB and is endorsed by NICE. One of the consequences of such therapy is the potential to develop urinary retention requiring clean intermittent self catheterisation (CISC) occurring in 10 - 20% and up to 100%of patients with idiopathic and neurogenic OAB respectively.
Patients and Methods: The notes of patients undergoing their first treatment with botulinum toxin A were reviewed to determine the incidence of post-op CISC over a three year period. Calculations were made based upon renumeration to the Trust for teaching CISC and costs involved to determine whether pre-operative tuition for all patients was cost effective.
Results: 84 patients notes were reveiwed, 96% received 200u of Botox whilst the 4% recieved 300u. Post-operative CISC was required in only 10 (12%) patients. The PCT renumerates secondary care at a rate of £80 for CISC tuition which the Trust provides for £8.32 based upon the hourly rate of a band 7 Specialist Nurse. If all patients were taught CISC pre-operatively, secondary care would make a profit of £71.68 per patient whilst this would be £8.60 per person treated if only those requiring CISC were instructed.
Conclusion: Given the low incidence of post op CISC, the concept of universal tuition appears to be excessive. Whilst secondary care stand to profit from this policy, the negative impact upon primary care does not justify its adoption. Only patients requiring CISC post operatively should receive tuition.

P 38

Validated Outcome Measures for the Treatment of DO with Intravesical Injections of Botulinum Toxin A

R Mukherjee, I Pearce
Manchester Royal Infirmary, United Kingdom

Introduction: Intravesical injection of Botulinum Toxin A has been approved by NICE (October 2006) as second line treatment of Detrusor Overactivity (DO). Since its introduction by Schurch in 2000, such therapy is now well established. We aimed to assess the outcome from such treatment using validated symptom scoring.
Methods: Over a 4 year period, data was collected on patients receiving intradetrusor injections of boltulinum toxin A for DO. Residual volume pre and post op was recorded as were symptoms utilising the validated International Consultation

Incontinence questionnaires (ICIQ) for OAB and urgency incontinence (UI) Follow up was for at least 3 months.
Results: Data was collected on 71 patients (56 female, mean age 55 years). 62% were performed under LA with a mean pain score of 3/10. All patients had a diagnosis of DO, either alone or with stress incontinence as proven on standard cystometry. The mean pre and post op residual volumes were 57mls and 173 mls respectively The mean pre and post operative ICIQ-OAB scores were 44 and 31 respectively whilst for the ICIQ-UI, these values were 16 and 11 respectively. This represents an improvement in symptom scoring of at least 30%.
Discussion: Our data shows that significant short term benefit is achieved with the use of Botulinum Toxin A for the treatment of DO as assessed by validated symptom scoring. Such objective assessment of subjective symptoms provides further information upon which clinicians can base patient counselling and aids the process of informed consent.

P 39

Long term follow up of patients with neurogenic Bladder treated with Botulinum Toxin-type A (Dysport) injections at a single institution

A Abdul-Rahman, R Hamid, PJR Shah
Royal National Orthopaedic Hospital, London, United Kingdom

Objective: Botulinum toxin–A (BOTOX) has shown promising results in refractory neurogenic detrusor overactivity (NDO). Majority of reports are with BOTOX [Allergan]. We assessed the long term outcome of BTX-A (Dysport, Ipsen,) in treatment of drug-resistant NDO in spinal cord injury patients (SCIP).
Patients and Methods: We reviewed our first cohort of 37 SCIP undergoing intradetrusor BTX-A (Dysport, 1000 units) injections for drug resistant NDO. Clinical and Urodynamic results were used to evaluate outcome.
Results: The mean follow-up was 7 years (range 3-8 years) with an average of 4 Dysport injections per patient (range 1-6 patients). Twenty patients (54%) continued to have Dysport injections every 12 to 18 months with VCMG proven benefit. The cystometric capacity increased from a mean of 259 to 520 ml (p 0.0001), and the maximal detrusor pressure decreased from a mean of 54 to 25 cmH2O (p 0.01). The incontinence and NDO were abolished in 85% and 80% of patients. Most (75%) were able to stop anticholinergics and 5/20 reduced their dosage. Two patients (5.5%) who remained refractory to 2 successive intradetrusor Dysport injections underwent augmentation Ileocystoplasty. In spite of demonstrable benefit from Dysport, 8/37 patients reverted back to oral medications. The reasons were personal preference in 5 cervical SCIP and recurrent infections with suprapubic pain in 3. The remaining seven patients were lost to follow up.
Conclusions: Intradetrusor BTX-A (DYSPORT) injections provide sustained efficacy in refractory NDO in SCIP. It provides a minimally invasive treatment alternative with good compliance over a long term period.

P 40

The benefits of repeated intradetrusor injections of botulinum toxin for treatment of incontinence in multiple sclerosis (MS)

XG Game, S Khan, J Panicker, C Dalton, R Hamid, CJ Fowler
UCL Institute of Neurology, The National Hospital for Neurology, London, United Kingdom

Objectives: The aim of this study was to evaluate the impact of repeated intradetrusor injections of botulinum toxin A (BoNT/A) on the quality of life in patients with MS.
Material and Methods: Between 2003 and 2009, 87 MS patients (4 men, 83 women, mean age 48.7) with neurogenic detrusor overactivity (NDO) were treated by intradetrusor injections of 300 U Botox®. All patients had at least two procedures. Changes in quality of life (QoL) were assessed using the validated short forms of Urogenital Distress Inventory (UDI-6) and of the Incontinence Impact Questionnaire (IIQ-7) and EQ-5D before and 4 weeks after Botox®. Return of overactive bladder symptoms & urodynamically proven detrusor overactivity were the indications for re-treatment.
Results: The mean follow-up of this group was 28.6 $\pm$ 18.2 months. So far the treatment has been repeated up to 5 times (mean: 2.9 $\pm$ 1.1) with a mean interval between injections of 15.6 $\pm$ 7.7 months. Improvements in QoL as shown by UDI-6, IIQ-7 and EQ-5D following each injection have been consistent, showing the same degree of improvement on each occasion. The mean interval between procedures remained similar.
Conclusion: The success and continual efficacy of this treatment for neurogenic incontinence in patients with a progressive disease has a major impact in preserving their quality of life.

P 41

Management of failed Mid Urethral Tape with another Mid Urethral Tape

M C Davies, J Dasgupta, D G Tincello, C J Mayne
Leicester General Hospital, United Kingdom

Introduction: Management of urinary stress incontinence with synthetic mid urethral tapes has become the mainstay of treatment in patients who have failed conservative measures. Failure of this procedure may occur due to persistent incontinence, tape erosion and voiding dysfunction.
Patients and Methods: A retrospective audit of all patients undergoing re-do tape procedures in a single unit over a 5 year period was performed. Patients' notes were reviewed for reason of tape failure and outcomes of repeat surgery.
Results: A total of 23 patients underwent a repeat procedure. Mean length of follow-up was 16.5 months. Median age was 56 years (range 36-71 years). The majority 14/23 (60%) were for persistent incontinence, seven were for tape erosion and only two were repeated after tape division for voiding dysfunction. 18/23 (78%) patients considered themselves cured after re-do surgery. Of the five failures; two underwent colposuspension, and three were managed with conservative measures. 12/23 had symptoms of urgency and urge incontinence after secondary surgery. The majority were on oral anticholinergics and one required botulinum toxin injection. Other complications of secondary surgery included 1 bladder perforation and 5 tape erosions; 4 of these were in patients who had failed primary surgery due to erosion.
Conclusions: Repeat midurethral tape surgery is successful in the majority of cases and should be considered in women who have failed primary surgery. However patients should be cautioned regarding the

increased rate of urgency and urge incontinence, tape erosion, and persistence of residual symptoms.

P 42

A retrospective cohort analysis of the autologous rectus fascia sling Vs the TOT for the treatment of stress urinary incontinence (SUI)

A Mangera, S Rymaruk, RD Inman, CR Chapple
Sheffield Teaching Hospitals, University of Sheffield, United Kingdom

Introduction: SIU causes significant morbidity in the female population. Many procedures utilising various materials have been detailed to correct this problem. Meta-analysis by Novara et al. Eur Urol 2007; 52(3):663-78 included no head to head comparative studies of the two procedures. We provide short term data of the autologous sling Vs the TOT.
Method: We retrospectively analysed two cohorts of 110 patient records; 66 TOT Vs 44 autologous rectus fascia sling procedures. The patients were matched pre-operatively for age (mean- 56), frequency of incontinence (95% > daily episodes) and pad usage (5.9 and 5.5 pads respectively). All patients underwent prior urodynamics proving SUI.
Results: Haemoglobin measurements were sought and found to be measured in 64% of patients in the sling group compared to 1% in the TOT group. Cure rates (no leak) or improvement (in SUI symptoms) rates are quoted until discharge (average of 1 year follow up) Table 1. Objective pad tests were performed in patients without cure. Intra-operative complications involved one bladder perforation and one intra-abdominal collection, both in the autologous group. Urgency incontinence and retention settled with pharmacological therapy and ISC respectively.
Conclusions: Autologous sling procedures are more likely to be reserved for patients having undergone previous surgical procedures. The procedure is more complicated and has greater intra-operative morbidity and results in longer hospital stay. When adjusted for complexity of cases cure rates are similar for both procedures in the short term. We hope to follow these cohorts long term.

Table 1 for P42.

	Autologous sling	TOT
Previous Surgery for SUI	36%	12%
Average hospital Stay days	6.7	1.4
(+ /— SEM)	(+ /— 0.7)	(+ /— 0.1)
Subjective cure of SUI	69%	78.5%
Objective pad test in uncured patients	85%	78%
(% pad test positive)	(11/13)	(7/9)
Subjective cure or improvement in symptoms	91%	94%
Post-op urgency incontinence	16%	8%
Post-op ISC rate (Temporary)	11%	4.5%

P 43

The outcome of the One- versus Two-Incision Technique for Bulbar Artificial Urinary Sphincter Implantation

V C Mishra, C Foley, J L Ockrim, T J Greenwell, P J R Shah
University College Hospital, London, United Kingdom

Introduction: Implantation of a bulbar artificial urinary sphincter (AUS) through a single incision is used by a single surgeon as a quicker, less morbid alternative to the classical two-incision technique performed by other surgeons in our unit. We compare the outcomes of both techniques.
Patients and Methods: A retrospective case note review of 91 consecutive men having a bulbar AUS inserted between 1997 and 2008 with a minimum of 12 months follow-up. The number of incisions was compared with the complication and revision rate.
Results: One hundred and four procedures were performed on 91 patients with mean age 60.8 years (range 16–86). The median follow up was 44 months (range 12–153). The indication for the operation was urodynamic stress urinary incontinence (USUI) caused by congenital anomaly (1), rectal resection (3), congenital or acquired neuropathy (17), pelvic fracture (1), radical prostatectomy (33), transurethral resection of prostate (25), radiotherapy and HIFU for prostate cancer (9) and genitourinary tuberculosis (2).

Table for P43

Outcome	One Incision AUS n = 58 No of procedures = 66	Two Incisions AUS n = 33 No of procedures = 38
Revision for mechanical failure	1	3
Infection/Erosion within 12 months	3 (5%)	2 (6%)
Revision of displaced components	7 (12%)	3 (9%)
Overall success after revision	**49 of 58 patients (84.5%)**	**27 of 33 patients (82%)**

Conclusion: The success of one (84.5%) and two incision (82%) techniques at curing USUI is similarly very good. There is slightly higher (12%) risk of revision relating to displaced components following the one incision technique than the two-incision technique (9%). However the infection/erosion rate is lower with a single incision than with 2 incisions (5% v 6%). Thus the single incision operation can be used as an alternative to the two-incision technique with potentially less morbidity and the minimal disadvantage of an increased revision rate for displaced components.

P 44

Use of TRT adjustable sling in stress urinary incontinence

R Chaturvedi, B Blake-James, G Boustead
Lister Hospital Stevenage, United Kingdom

Introduction: Tension-free Vaginal Tape (TVT) is currently considered to be the gold standard in the operative management of stress urinary incontinence (SUI). Approximately 15% of patients fail with a TVT procedure and repeat surgery offers a lower success rate. We present our experience with an adjustable sling in treating this difficult patient group.
Methods: Retrospective case note review of single surgeon over a five year period. The following criteria were documented, Body Mass Index (BMI), age, pelvic surgery and

type, Urodynamic status, post-operative course, and de-novo urgency/incontinence.
Results: 23 female patients had TRT sling between 2004-2009. Three patients were excluded due to absent follow-up documentation. Of the 20 remaining patients the mean age was 62.8(48-80), with mean BMI 30, 12 had prior pelvic surgery (including 10 TVT, 50%), of which eight had greater than one procedure. All patients had pre-operative urodynamics showing SUI with 1 patient having mixed SUI + UI. Post-operatively there were no bladder perforations or failure to void. Average in-patient stay was three days, including device adjustment. 19/20 patients had improvement or resolution of SUI (67% completely dry), with de-novo urgency in 43%, and 38% had urge incontinence. One system was removed following infection and 38% were re-adjusted.
Conclusions: The TRT device is a safe and effective option in treating patients with SUI not cured by non adjustable slings.

P 45

Polydimethylsiloxane (PDS,MacroplastiqueTM) in the treatment of vesico-ureteric reflux in patients with spinal cord injury: Long-term follow-up

A Abdul-Rahman, R Hamid, PJR Shah
Royal National Orthopaedic Hospital, London, United Kingdom

Introduction: Vesico-ureteric reflux (VUR) is one of the potential complications in patients with spinal cord injury (SCI). Endoscopic management of VUR has gained popularity because of its minimally invasive nature. We evaluated the long-term efficiency of polydimethylsiloxane (PDS Macroplastique^{TM}) sub-ureteric injection (STING) in the endoscopic management of VUR in SCI patients.
Materials and Methods: Sixty seven patients with SCI underwent a STING procedure with PDS for treatment of VUR with different grades I-IV between 1995 and 2005. 15/67 (22.5%) patients had bilateral VUR and 52/67 (77.5%) had unilateral reflux with a total of 82 renal units. The reflux was grade I in 33 (40.2%), grade II in 28 (34.2%), grade III in 20 (24.4%) and grade IV in 1 (1.2%) ureteral unit. The mean age was 50.1 years (range 32-79 years). The mean time from injury to development of VUR was 3.5 years (range 0.4-9 years). 80% were males. Video-cystometrogram (VCMG) was performed preoperatively, 3 month post operation and then on an annual basis. Repeat injections were performed to achieve success for persistent reflux.
Results: Complete cure was achieved in 50/82 (61%) of ureteral units. 24/33(73%) patients with grade I; 18/28(65%) patients with grade II and 8/20(40%) patients with grade III were treated successfully. The single patient with grade IV reflux failed. The success was sustained over the follow up period.
Conclusion: Endoscopic treatment of VUR with PDS is effective for low grade reflux and the results can be sustained over long term.

P 46

Bariatric surgery: An added benefit for obese females with urinary incontinence?

W. K. B. Ranasinghe, T Wright, T Doyle, J Attia, P McElduff, R Persad
John Hunter Hospital, Newcastle, NSW, Australia

Introduction: Obesity has a well documented association with urinary incontinence (UI) in females. The evidence for changes in UI post bariatric surgery is limited. We investigated the changes in UI after weight loss following Laparoscopic gastric banding surgery (LGB) in females by using validated questionnaires. We also studied the relationship between UI and the time elapsed since surgery.
Patients and Methods: 653 females who underwent LGB over the last 10 years at a single centre in Australia were contacted by post and asked to complete ICIQ-SF and IPSS questionnaires. The data collected was analysed.
Results: The mean respondent age and the time since surgery were 47.8 years and 31.8 months, respectively. The pre intervention mean BMI was 43.5 and the average weight loss of following surgery was 22.7kg ($p = <0.0001$) post surgery.

65.44% of females had a degree of UI pre LGB. There was an overall improvement in urinary function ($p = 0.001$) and Quality of Life ($p = 0.001$) post surgery. Furthermore, for every kilogram of weight lost, ICIQ scores improved on average by .05 units. ($p = 0.0362$). Stress incontinence improved post surgery ($p = 0.0164$) but urge incontinence worsened, when adjusted for weight loss ($p = 0.0357$). There was no relationship demonstrated between UI and time post LGB.
Conclusion: Our study demonstrated an improvement in urinary function and QOL measures following LGB. Stress urinary incontinence was shown to significantly improve while overactive bladder symptoms (which are multifactorial) were worsened. The exact relationship of these symptoms needs to be established in a prospective study.

P 47

Radiation Risk Assessment for Video-Urodynamic Studies

S Venugopal, A Lavasani Rad, R J Montague, NJR George
Countess of Chester NHS Foundation Trust, United Kingdom

Introduction: Surprisingly, radiation risk assessment for video-urodynamics hasn't previously been quantified; additionally there's no national reference level available for this procedure. As a common diagnostic tool in uro-gynaecology it would be important to be able to reassure patients about risks of pelvic radiation and particularly exposure of the cervix, uterus and ovaries.
Materials and Methods: 879 patients undergoing video-urodynamics at UHSM from January 05 – March 08 had their radiation dose calculated prospectively at the end of each procedure by means of a Dose Area Product (DAP). Calculations assumed an 'average' adult patient. During the study different x-ray machines and uro-gynaecological personnel were utilised with constant assistance of specifically trained radiographers.
Results: The average DAP was 40 cGycm^2 with a majority of patients receiving 20 – 40 (range 1.9 – 670 cGycm2). Exposure levels above 60 cGycm^2 might be considered excessive and were associated with complex cases, older x-ray machines and inexperienced staff. The ovary equivalent dose for the procedure is 0.1 mSv, maximum 0.9 mSv. The test equated to 10 chest x-rays for the majority whilst the highest dose received equated to 140 CXR. At worst cancer risk for the procedure was calculated at $1.5 \times 10\text{-}4$.
Conclusion: For the majority, video-urodynamic investigations are a safe procedure. However the investigation is operator and instrument dependent. In certain circumstances received dose may be quite high. Generally, the cancer risk from the

procedure is 'very low' (approximately 1:10,000) and these figures should be helpful in counselling female patients who are considering this investigation.

P 48

Suprapubic Catheterisation in Patients with Neurogenic Bladders: A Challenging Procedure

V C Mishra, C J Fowler, R Hamid
National Hospital for Neurology and Neurosurgery, London, United Kingdom

Introduction: Suprapubic catheterisation (SPC) is considered a simple and safe procedure. However, this can be a challenge in patients with neurogenic bladders. We present our experience in this select group.
Patients and Methods: A retrospective review identified 16 patients who underwent insertion of a SPC between June and December 2009. Data was collected on demographics, neurological diagnoses, urological problems, intra-operative events and outcomes.
Results: There were 7 men and 9 women with a mean age of 51 years (range 22–72). The primary neurological diagnoses were multiple sclerosis in 10 and post neurosurgical procedures in 6 patients. The urological problems were incomplete bladder emptying in 6, refractory neurogenic detrusor overactivity in 1 and a combination in 9 patients.

The SPC insertions were performed under general anaesthesia with cystoscopic control. Intra-operative problems were encountered in 3 (19%) patients. All were related to small contracted bladders that were difficult to fill and palpate. An intra-operative ultrasound was used to locate the bladder in these cases and even then one procedure had to be abandoned.

One patient has had problems with catheter blockage but the remaining are happy with the outcome so far with resolution of the urological problems.
Conclusion: The insertion of SPC in neurological patients can be a challenging undertaking fraught with a significant risk of intra-operative complications. We feel that to minimise the risk of adverse events this should be carried out as a planned procedure in the theatre environment under general anaesthesia with facilities available for intra-operative ultrasound.

P 49

An audit comparing the usefulness of a urinary incontinence questionnaire versus the clinician's diagnosis using urodynamic findings as a reference standard

AO Omar, O Karim, H Motiwala, M E Laniado
Wexham Park NHS Hospital Trust, United Kingdom

Introduction: Structured questionnaires have been introduced to help triage patients into diagnostic or therapeutic areas. Urinary incontinence is common and the 3IQ has been proposed to be useful for that purpose in primary care (Brown et al. Ann Intern Med 2006;144: 715-723). This has been tested by numerous ways, but none of which include urodynamics. We have been using the 3IQ as a questionnaire patients complete during evaluation of urinary incontinence. The aim of this audit was to determine whether the 3IQ contributed usefully to our evaluation and whether the 3IQ fared better than the attending urologist.
Patients and Methods: Data on patients (n = 200) with urinary incontinence were evaluated using the 3IQ and the clinicians diagnosis prior to the 3IQ. Stress urinary incontinence (SUI) and detrusor overactivity (DO) were determined by the urodynamics test.
Results: The 3IQ was more sensitive for the diagnosis of SUI (87%) compared to the clinician (42%) and had a lower –LR (0.23) indicating that it ruled out SUI more effectively than the clinician (-LR 0.62).However, the clinician's diagnosis of SUI was more reliable (specificity 91%, + LR 4.7) compared to the 3IQ (specificity 55%, + LR 2.0). The determination of detrusor overactivity was similar.
Conclusion: The 3IQ more reliably excludes stress incontinence than the clinician. However, the clinician's determination that stress incontinence is present more reliably rules in the diagnosis of stress incontinence than the 3IQ. This has implications for use in primary care or elsewhere where the 3IQ is used to triage patients.

BJUI SUPPLEMENTS

Wednesday 23 June 2010
Poster Session 5
11:00–12:30 Charter A
GENERAL UROLOGY
Chairmen: Mr Nick George & Miss Rebecca Hamm
Posters P50–P59

P 50

Outcomes in Leydig cell tumours treated within the North East of England Cancer Network, and implications for management

MJ Jackson, R Heer, A El-Sherif, DJ Thomas
Freeman Hospital, Newcastle, United Kingdom

Introduction: Leydig cell tumours (LCTs) are the most common interstitial neoplasm of the testes. Metastatic progression is quoted at 10%, fuelling uncertainty as to the safety of testis sparing surgery and length of follow up. The natural history remains uncertain and further clinical outcome data is still required.
Method: From June 1998 - March 2009, 29 patients underwent surgery for Leydig cell tumour of the testis. We conducted a retrospective review of the histological features and the clinical outcomes.
Results: In this cohort there was no evidence of metastases or abnormal tumour markers (AFP, βHCG and LDH) at presentation. 4 patients, with sub-5 millimetre lesions, underwent testis sparing surgery and 25 were treated with radical orchidectomy. We reviewed the histopathological characteristics that have been shown to be associated with a risk of malignant progression including, diameter greater than 50 mm (0%), nuclear atypia (14%), >3 mitoses per 10 high-powered fields (3%), infiltrative borders (10%), necrosis (3%) and vascular invasion (0%). No patient developed local or distant recurrent disease over a median follow-up 39 months, including 7 and 4 patients disease-free at 5 years and 10 years respectively.
Conclusions: The true rate of metastatic progression is likely to be significantly less than 10%. In the absence of histopathological features indicating higher risk, our data suggest that this tumour could safely be regarded as benign, however we await longer term information (>10 years). Testis sparing surgery would appear to be a good option for small Leydig cell tumours and its indications are discussed.

P 51

Penile Cancer: Trends in Australia with decreasing circumcision rates and a comparison with England

W. K. B. Ranasinghe, T Doyle, T. I. J. Ranasinghe, R Persad
John Hunter Hospital, Newcastle, NSW, Australia

Introduction: Circumcision is thought to be preventative in penile carcinoma and before 1970 was routinely performed in Australia following which there has been a decline. As a result we aimed to investigate the trend of penile cancer in Australia and compared this to the data from England, where circumcision rates are low.
Methods and Materials: Australian Institute of Health and Welfare National Mortality Database was used to examine penile cancer incidence and mortality. This was compared to the England and Wales cancer registry data.
Results: The age standardised incidence of penile cancer in Australia was 0.3 per 100,000 person-years (95% CI 0.2-0.4) and remained stable from 1982 to 2005. The mortality rate from 1995 – 2005 on average was 0.2 per 100,000 (0.1-0.2). In comparison, the incidence in England was 4 times higher at 1.2 per 100,000 person-years (1.0-1.3) between 1995 and 2003. The mortality rate was 1.5 times higher at 0.3 (0.23-0.35). The mortality/incidence ratios were 0.437 (Australia) and 0.251 (England/Wales). In both countries, the majority of penile cancers were diagnosed in the 70-74 age group, but the highest age specific incidence rate was in the 80-84 age group.
Conclusion: Australia has a lower incidence and mortality from penile cancer than England/Wales, which may be due to a higher proportion of circumcised men. However, despite declining rates of circumcision, the incidence of penile cancer has remained stable over the last 24 years in Australia. Changes are unlikely to be observed in this time period though and longer follow-up is required

P 52

Urinary catheter balloons should only be filled with water: testing the myth

LM Wong, JG Huang, J Ooi, N Lawrentschuk, STF Chan, D Travis
Addenbrooke's Hospital, Cambridge, United Kingdom

Introduction: To test the hypothesis that urinary catheter balloons filled with sterile water, saline or glycine have equivalent deflation failure rates.
Materials and Methods: This is an *in vitro* equivalence study designed to test that saline or glycine is neither substantially worse nor substantially better than water in terms of balloon deflation failure rates. We hypothesise that balloon deflation failure rates using saline or glycine is not worse than water by 10%. To calculate the required sample size for equivalence testing, we set

the Type I error rate, α, at 0.05 and Type II error rate, β, at 0.10. Six hundred catheters were randomised by computer generated random numbers to receive 10ml of water, saline or glycine and then immersed in a heated artificial urine solution for six weeks. The catheter balloons were then deflated, noting any deflation failures and recording the deflation volumes.

Results: No deflation failure was observed in all 600 catheters. Median deflation volume for water, saline and glycine was 9.0ml, 9.2ml and 9.1 ml respectively ($p < 0.0001$ Kruskal-Wallis test). Post-hoc pairwise comparisons showed that the deflation volume difference between water and saline was significant ($p < 0.0001$) as was that between water and glycine ($p = 0.0003$). The practical implication of this difference is not apparent from this study.

Conclusions: The use of saline or glycine in catheter balloons has an equivalent deflation failure rate to using water, which in this study was zero.

P 53

Epididymo-orchitis in Primary Care – A further problem to be tackled by Urologists?

V Modgil, T Abdelrahman, P Sturch, A Hayes, J Phillips, PH Rajjayabun
Worcestershire Acute Hospitals NHS Trust, United Kingdom

Introduction: Chlamydia trachomatis and Neisseria gonorrhoeae are the commonest pathogens responsible for development of acute epididymo-orchitis in males <35 years of age. Published guidelines from the British Association of Sexual Health and HIV (BASHH) offer clear and specific recommendations for subsequent management. Our group recently reported disappointing levels of adherence to these guidelines by Urologists in secondary care. We aimed to assess management of acute epididymo-orchitis in primary care.

Patients and Methods: We retrospectively examined the management and outcomes for all young males that presented with acute epididymo-orchitis to 3 geographically separate primary care providers in Southern and Central England. In total, 57 men aged <35yrs with a final diagnosis of acute epididymo-orchitis were identified (median age = 26 years, range 15–34 years).

Results: Compliance with BASHH guidelines was extremely poor in all centres, reflected by low rates of confirmed diagnosis for sexually transmitted infection (n = 2, 3.5%). Studies to confirm Chlamydia infection were requested in only 2 patients. We identified widespread use of sub-optimal antibiotic regimes (n = 44, 77.2%). Issues regarding partner notification were frequently not addressed, along with onward referral to Genito-Urinary Medicine (n = 3, 5.2%) or Urology (n = 15, 26%).

Conclusion: Our study confirms that the management of acute epididymo-orchitis in the community often fails to comply with BASHH guidelines. This data suggests significant programmes of education and training are required to improve standards of care for this important group of patients. Future collaborations between Urological Surgeons, Sexual Health teams and GP's should be considered.

P 54

Predictors of psychological impairment in patients undergoing investigation for urological cancers

S Smith, B Turner, J Pati, N Sevdalis, J Green
University College London, United Kingdom

Introduction: Urological cancer investigations often entail an invasive procedure such as a TRUS or flexible cystoscopy in order to confirm or deny the presence of cancer. Although the psychological impact of a cancer diagnosis is well documented, little is known about the pre-diagnostic stages. Current clinical evidence shows gender, age and education as predictors of anxiety in cancer patients. Psychological evidence, however, shows that patients differ in how they manage and cope with emotions – which has been termed "emotional intelligence (E I)". The aim of the present study was to test the impact of E I on psychological impairment in patients undergoing investigation for urological cancers.

Materials & Methods: Patients referred via the two-week pathway for prostate or bladder cancer diagnosis were approached prior to their appointment. 71 patients (58 males, 13 females) attending for either flexible cystoscopy (n = 38) or TRUS (n = 33) completed a battery of validated measures including E I, anxiety, appointment-related distress, results-related distress, and demographic information. Scores were submitted to correlational analyses.

Results: 31% of participants reached clinical anxiety levels. Multiple linear regressions revealed that higher E I was associated with lower anxiety ($\beta = -0.43$), lower appointment distress ($\beta = -0.47$) and lower results distress ($\beta = -0.40$) – all $ps < 0.001$).

Conclusion: Higher E I was associated with reduced anxiety and distress in patients attending urological investigations. The use of demographic variables to identify groups at risk of psychological impairment may not be optimal. Brief on-site counselling prior or after consultation with a surgeon may benefit a third of current patients without significant additional cost.

P 55

Merits of Investigation of Haematospermia

JP Seeley, G Smith, N Yeung
Western General Hospital, Edinburgh, United Kingdom

Introduction: The merit of investigating haematospermia as a lone symptom has been debated for decades[1]. Whilst some investigators suggest minimal investigation and reassurance[3], others advocate a protocol for invasive and non-invasive investigation[2],[4]. We reviewed the value of investigation of haematospermia in a substantial prospective series in relation to treatable outcomes.

Method: Over 30 months, 300 men were referred to a single centre with haematospermia as a primary presenting symptom. These referrals were prospectively recorded along with the investigations and outcomes for analysis in two age groups, over and under 40 due to the difference in expected pathology, particularly prostate cancer.

Results: Infection was the most common diagnosis, in 10/73(13.7%) under 40, and 20/227(8.8%) over 40. 13(5.7%) prostate cancers were detected, all by PSA/digital rectal examination in the over 40's.

Conclusion: Whilst negative investigations can be reassuring, the results highlight a poor pickup of new pathology from routine investigation out with PSA and digital rectal examination. Additional investigations should be based on the merits of other clinical findings.

Table 1 for P55. Investigations and additional presenting symptoms with resultant new pathology:

INVESTIGATION or ADDITIONAL PRESENTING SYMPTOM	Number of Subjects (%)	New Pathology (%)
Under 40's(73)		
Cystoscopy	44 (61%)	0
Renal ultrasound	39 (53%)	0
Over 40's(227)		
Cystoscopy	162 (71.3%)	1 penile urethral TCC (0.4%)
Renal ultrasound	193 (85%)	0
Intravenous urethrogram	16 (16%)	0
Under 40's(73)		
LUTS	1 (1.3%)	0
Haematuria	12 (16.4%)	1 infection (1.3%)
Testicular/penile pain	8 (10.9%)	4 infections (5.5%), 1 semiformal (1.3%)
Over 40's(227)		
LUTS	38 (16.7%)	8 prostate cancer (3.5%), 1 infection (0.4%)
Haematuria	24 (10.6%)	3 infections (1.3%)
Testicular/penile pain	18 (7.9%)	7 infections (3.1%)

References:
1) Tolley DA, Castro JE. Hemospermia. Urology. 1975; 6(3): 331–332
2) Han M, Brannigan R, Antenor K, Catlona W. Assocation of Hemospermia with Prostate Cancer. J. Urol. 2004; 172(6): 2189–2192
3) Ahmad I, Krishna N. Hemospermia. J Urol. 2007; 177(5): 1613–1618
4) Kumar P, Kapoor S, Nargund V. Haematospermia – A Systemic Review. Ann R Coll Surg Engl 2006; 88: 339–342

P 56

Pathological findings following primary chemotherapy in patients undergoing simultaneous orchidectomy and retroperitoneal lymph node dissection (RPLND) for advanced germ cell tumours (GCT)

RE Miller, T Dudderidge, GJ Rustin, TJ Christmas
Mount Vernon Cancer Centre, Middlesex, United Kingdom, The Royal Marsden Hospital, London, United Kingdom

Background: It is suggested that a blood testis barrier results in the testis being a sanctuary site following chemotherapy. We compared the pathological findings in patients undergoing simultaneous orchidectomy and RPLND following primary chemotherapy for advanced GCT.
Methods: Patients who underwent simultaneous RPLND and orchidectomy following chemotherapy were identified from our database. Pathology and patient characteristics were reviewed.

Table 1 for P56: Pathological findings

Orchidectomy	RPLND	N
Seminoma N = 6	Seminoma	1
	necrosis	5
MTU N = 3	TD	1
	necrosis	2
Mixed GCT N = 4	Seminoma	1
	TD	1
	necrosis	2
TD N = 15	TD	11
	necrosis	4
Fibrosis/necrosis N = 15	MTU	1
	mixed GCT	1
	necrosis	13

MTU:malignant teratoma undifferentiated.

Results: 43 patients were identified. Following chemotherapy there was histological evidence of cancer in 28/43 (65%) orchidectomy specimens (Table 1). 13/43 (30%) orchidectomy specimens contained residual invasive tumour; 6 seminona, 3 NSGCT and 4 mixed GCT. Of these 13, the RPLND contained invasive tumour in 2, teratoma differentiated (TD) in 2 and necrotic tissue in the remainder (9/13). TD was found in 15/43 (35%) orchidectomy specimens, 11 of the corresponding RPLND contained TD and 4 necrotic tissue.

In the remaining 15/43 (35%) patients the orchidectomy specimens contained fibrous scar tissue ± necrosis. Of these patients, 13 had necrotic tissue at RPLND, only 2 had residual histological abnormalities, 1 TD and 1 mixed GCT.
Conclusions: There is significant disparity between orchidectomy and RPLND findings with viable tumour appearing frequently despite tumour free RPLND. These findings support completion orchidectomy as a necessary part of advanced GCT treatment.

P 57

MRSA Screening: Sense or Defense?

S Omorphos, P Kumar, H Forrest, D Gnanarajah, ST Williams
Royal Derby Hospital, United Kingdom

Introduction: MRSA is an important clinical problem and there is guidance from the DoH recommending screening. This is mandatory for elective surgery since March 2009 and for emergency admissions by 2011. This however may end up being an extensive exercise with little in the way of positive results. We have therefore studied MRSA incidence at screening in elective urology patients at our institution.
Materials and Methods: We retrospectively analysed MRSA screening of all urology patients undergoing an elective procedure over four months. MRSA positive patients were identified and clinical information gathered to see if any variables could be correlated with positivity.
Results: Three hundred and sixty-seven patients were screened. Only four were positive. The incidence of MRSA in our group was therefore 1.1%. These patients were all elderly (over 65) and had had at least two previous in-patient admissions. Three of them were men with indwelling catheters with multiple admissions for catheter problems.
Conclusion: With such a low detection rate (1.1%) we would question the validity of universal screening in this population. It is therefore a significant burden on resources for such little yield. Each swab costs £5.17 to process and the results are time consuming for medical staff to analyse and action. It should be possible to predict those at higher risk. The risk factors we identified were age over 65, previous hospital admissions especially those related to indwelling catheter problems. We conclude that directed screening would be more cost efficient with better utilisation of resources.

P 58

Role of Tissue and Semen PCR in the diagnosis of male genital tract tuberculosis

KC Chawla, A Chawla, I Bairy
Kasturba Medical College, Manipal, India

Introduction: The diagnosis of tuberculosis of male genital tract is usually based on

strong clinical suspicion in correlation with positive microbiological, pathological or radiological findings. Histopathological diagnosis of tuberculosis from tissue samples is usually made by the identification of AFB, granulomatous inflammation with caseous necrosis. Tissue specimens retrieved for the histopathological diagnosis of GUTB are rarely sent for culture studies and PCR. This study was conducted to determine the efficacy of PCR for detecting MTb DNA in tissue specimens and semen submitted for the diagnosis of tuberculosis of male genital tract.
Methods: 30 samples (Prostate 13, Epidydimis 16, Penis 1) were proceeded both for tissue PCR and HPE. 10 samples of semen were proceeded for PCR for detecting MTb DNA.
Results: With HPE as gold standard, PCR has shown high sensitivity and specificity with high positive predictive. Semen PCR may be positive in male genital tract tuberculosis.
Conclusions: Tissue PCR is a rapid, sensitive and specific test that can be used for early diagnosis of male genital tuberculosis. Tissue PCR can play an important role where histopathology is reported as granulomatous inflammation. Semen PCR is an important test even in the absence of haematospermia.

P 59
CTIVU: Kill or Cure?
NJS Henderson, S Ramsay, D Small, P McArdle, N Akhtar, G Oades
Southern General Hospital, Glasgow, United Kingdom

Introduction: A considerable amount of information has been published, in recent years, associated with the investigation of visible haematuria and the diagnosis of associated urological malignancies. We have carried out CTIVU assessment on all patients attending our Haematuria service between August 2005 and January 2010 and aimed to evaluate whether CT was routinely required in all cases.
Patients and Methods: We have used retrospective data stored on our hospital's Haematuria database. All 1496 patients investigated were between 40 and 80 years old and had presented with visible haematuria on one or more occasions between August 2005 and January 2010.
Results: Diagnosis of malignancy was made in 203 (13.5%) of 1496 patients investigated for visible haematuria. These malignancies were diagnosed as: 150 (73.9%) bladder tumours, 17 (8.4%) renal carcinomas, 5 (2.5%) ureteric tumours and 31 (15.3%) prostatic carcinomas.
Conclusions: CTIVU in our outpatient 'one-stop' haematuria clinic prevented 150 patients from requiring flexible cystoscopy and facilitated direct access to inpatient TURBT. However, three of the five ureteric tumours diagnosed on CTIVU, would have been picked up on ultrasound, as hydronephrosis of the renal collecting system was present on the affected side. Recent studies estimate that the risk of developing a new malignancy from exposure to a CTIVU could be less than 1:800. We would estimate that potentially two new malignancies might arise in this patient cohort in the future as a consequence of the radiation dose at CTIVU. Conversely we have only diagnosed two ureteric tumours that would not have been picked up on ultrasound.

BJUI SUPPLEMENTS

Wednesday 23 June 2010
Poster Session 6
14:00–15:30 Charter 2
ANDROLOGY/RECONSTRUCTION
Chairmen: Professor Rob Pickard & Professor Drogo K. Montague
Posters P60–P69

P 60

Is there a learning curve for bulbar urethroplasty?

TJ Greenwell, CL Foley, V Mishra, JL Ockrim, PJR Shah
Institute of Urology and UCLH, London, United Kingdom

Introduction: Learning curves have been well described for a number of urological procedures but never for bulbar urethroplasty. We describe the learning curve in a single surgeon series.

Patients and Methods: A retrospective case note review of 91 consecutive men median age 32 years having bulbar urethroplasty performed by a single surgeon. Data was collected on type of urethroplasty, restricture rate (as defined by routine ± symptomatic urethrogram) and duration of follow up. The restricture rates were compared by quartiles and statistical analysis was by χ^2 between the first and fourth quartiles.

Results: Of the 91 men, 42 had dorsal onlay buccal mucosal graft (Dorsal BMG), 20 BMG augmented bulbobulbar anastomotic (Augmented BBA) and 29 bulbobulbar anastomotic (BBA) urethroplasty. Median follow up was 39 months for the first quartile, 42 months for the second, 25 months for the third and 19 months for the fourth. The restricture rate is demonstrated in the table:

There were no restrictures noted after 24 months. *χ^2 P = 0.17

Conclusions: There is a learning curve for bulbar urethroplasty with a reduced restricture rate each quartile.

Table for P60

Quartile	1st (N)	Stricture (%)	2nd (N)	Stricture (%)	3rd (N)	Stricture (%)	4th (N)	Stricture (%)
Dorsal BMG	15	3	10	1	8	0	9	0
Augmented BBA	4	0	4	1	5	0	7	0
BBA	4	1	9	0	10	2	6	1
Total	23	4 (17)*	23	2 (9)	23	2 (9)	22	1 (5)*

P 61

The medium term outcome of Mitrofanoff in Adults

CL Foley, CJ Taylor, VC Mishra, JL Ockrim, D Wood, TJ Greenwell, CRJ Woodhouse, PJR Shah
University College London Hospital, United Kingdom

Introduction: Outcomes in adult Mitrofanoff patients are largely unknown. Revision rates of 50% in children and 85% in adults are reported. We evaluated our tertiary centre experience.

Patients and Methods: We performed a retrospective case note analysis of adults undergoing Mitrofanoff formation over a 22-year period. Outcomes were continence, revision and conversion to ileal conduit. Revisions were classified to minor - channel dilatation, bulking agent injection or skin-level revision and major - open revision. Success was defined as a patient using a continent, catheterisable stoma.

Results: 118 patients, median age 42 (range 19–60) had Mitrofanoffs formed a median of 6 years previously. Outcomes are shown in Table 1. 67% were classified as successful, 22% tolerated minor incontinence or used a permanent Mitrofanoff catheter, 11% were converted to a conduit.

Table 1 for P61: Indications and Outcomes

Indication	No.	Leak	Stenosis	Minor revision	Major revision	Success	Conduit
Congenital	25 (21%)	20%	36%	32%	20%	92%	0%
Cancer	12 (10%)	33%	17%	17%	33%	75%	0%
Painful bladder syndrome	12 (10%)	33%	25%	17%	50%	67%	25%
Neuropathic	45 (38%)	58%	51%	51%	44%	57%	13%
Complex Incontinence	24 (20%)	65%	78%	61%	65%	54%	17%
TOTAL	118	46%	47%	42%	43%	67%	11%

Conclusions: Mitrofanoff formation was successful in 67% of adult patients though with a 42% minor and 43% major revision rate. Complications and revisions were more common in adults with painful bladder syndrome, neuropathic aetiology or complex incontinence with 16% of these patients converted to conduit for physical or psychological reasons.

P 62

Strictures Following Surgical Treatment of Benign Prostatic Hyperplasia and their Management

DE Andrich, AR Mundy
Institute of Urology, UCLH, London, United Kingdom

Introduction: Post-operative strictures following TURP remain a significant complication. We review our recent experience.
Material and Methods: From our prospective database we have identified 41 patients treated in the last 5 years with post-surgical strictures (excluding isolated bladder neck contractions and meatal fossa strictures) who had failed endoscopic management. 23/41 had strictures of the bulbar and penile urethra but not including the sphincter (Group 1); 12/41 had sphincter strictures with varying degrees of distal extension (Group 2); and 6/41 had prostatic urethral strictures (Group 3).

16/41 (40%) presented with obliterative strictures. 19/23 patients in Group 1 were treated by patch graft urethroplasty. 4/12 patient in Group 2 by urethroplasty and subsequent implantation of artificial urinary sphincter (AUS) and 5/6 patients in Group 3 by salvage prostatectomy and subsequent AUS implantation. The remainder in all 3 groups were treated conservatively.
Results: Post TURP strictures are often long and aggressive and many present with complete obliteration. If the sphincter is not involved, urethroplasty is usually straightforward and successful. If the sphincter is involved, dilatation should be pursued as long as possible although surgery is possible and usually successful but commonly requires an AUS later. Prostatic urethral strictures are often devastating and require radical surgery.
Conclusion: Overall, reconstruction was feasible in 26/41(63%) and successful in 23/41(56%). Reconstruction must be tailored to the extent and location of the stricture, the degree of involvement of the sphincter and the general health of the patient.

P 63

Long Term Results of New Technique of Meatoplasty for Meatal Stenosis

J R Bhatt, P R Malone
Royal Berkshire NHS Foundation Trust, Reading, United Kingdom

Introduction: Meatal stenosis can occur in a third of patients with Lichen Sclerosus (LS), despite circumcision. A new technique to relieve stenosis of a pinhole external meatus in males with LS was first described 5 years ago by the senior author and has since been tried in other centres with similarly good results. This study assesses functional and cosmetic outcomes with a 10 year follow-up.
Patients and Methods: The operation involves dorsal and ventral meatotomies, with an inverted V-shaped dorsal incision to relieve puckering in patients where there is no LS involvement of the navicular fossa. The technique creates a well-placed neo-meatus which is not hypospadiac due to the dorsal incision. Patients were followed up by a telephone-administered questionnaire that asked about functional and cosmetic results.
Results: A total of 41 males aged between 8-87 years (mean age 43 years) underwent the procedure between 3 months and 10 years ago. Responses were obtained from 30 of 41 patients (73%). Ninety-three per cent didn't spray at all, or only occasionally. In those that sprayed urine, none found it severe or constant, and weren't bothered by it. All except one patient with progressive LS were either very pleased or pleased with the cosmetic outcome.
Conclusions: Long-term data suggest that this new technique is satisfactory in relieving meatal stenosis due to LS, providing it does not involve the navicular fossa. Both functional and cosmetic outcomes are excellent in the short and long term and it should now be considered as first-line treatment.

P 64

Penile prosthesis insertion following complex urethroplasty

G Garaffa, D Andrich, S Minhas, AR Mundy, NA Christopher, DJ Ralph
St Peter's Andrology, London, United Kingdom

Introduction: The long-term-results of penile prosthesis insertion following complex urethroplasty are presented.
Methods: Between 1985–2009 a penile prosthesis has been inserted in 23 patients who had had a previous complex urethroplasty. A bulbo-prostatic anastamotic urethroplasty was performed in 20 patients following pelvic fracture and included corporal separation and re routing procedures. The remainder had 2 stage buccal grafting for severe BXO (n = 1), penoscrotal hypospadias (n = 1) and penile trauma (n = 1). Although severe fibrosis was present in 15 patients, dilatation of the corpora was always carried out uneventfully and a penile prosthesis was inserted in all cases (malleable n = 15; inflatable n = 8).
Results: Downsized cylinders were required in 3 patients (13%) due to the fibrotic corpora.

After a median follow-up of 34 months (1–120), all patients are able to have sexual intercourse. No patient had a urethral complication although 1 patient developed an infection managed by a successful salvage washout of the device (4.4%), and 2 patients needed an exchange of their prosthesis due to insufficient rigidity of the device.

Overall revision was required in 4 patients (17.6%) including 1 elective exchange of malleable to an inflatable device.
Conclusions: Previous complex urethral surgery is not a contraindication to the insertion of a penile prosthesis. However patients must be warned that complication and revision rates may be high due to associated fibrosis that has occurred from a combination of the original injury and the urethral surgery.

P 65

Complications of 'Social' Lithotomy

DE Andrich, AR Mundy
University College London Hospitals NHS Foundation, London, United Kingdom

Introduction: To report the incidence of complications from low 'social' lithotomy to compare with the reported incidence of complications from extended lithotomy.
Material and Methods: Between beginning of October 2004 until end September 2009, 552 patients, mean age 48 years (8–91), were positioned in low 'social' lithotomy for their perineal surgery including urethroplasty (n = 378), bulbar artificial urinary sphincter (n = 136) and other perineal procedures (n = 38). The lower legs were placed into lower leg boot-support (Yellowfins™, Anaids) and intermittent pneumatic compression stockings were applied with hip abduction of around 150 degrees between the two thighs.

The incidence of complications was recorded prospectively. The time in lithotomy

was recorded capturing the time from knife to skin to extubation.
Results: The median time in lithotomy was 2:05 hours (0:20–7:38). Only 2/552 (0.4%) developed complications (lateral peroneal nerve neuropraxia in both patients), which settled completely in 1 patient after 6 month. The foot drop of the other patient did not resolve completely after 3 years of follow-up. Both patients were tall (2.05 m and 1.85 m), had a BMI >30 and their procedure lasted between 3–5 hours.
Conclusions: Low 'social' lithotomy gives good surgical exposure of the perineum and has a very low incidence of complications. Patients with high BMI and prolonged procedure are still at risk of peroneal neuropraxia as their heavy lower legs are compressed laterally against the boot.

The complication rate of 0.4% is significantly less than the reported complication rate of 15.8% for extended lithotomy (Angelmeyer & Jordan 1994).

P 66

Independent risk factors and evaluation of current EAU guidelines for occult metastasis in penile carcinoma: a two-institutional analysis of 342 cN0 patients staged with dynamic sentinel node biopsy

WP Lam, N Graafland, M P W Gallee, C Corbishley, N A Watkin, S Horenblas
St George's Hospital, London, United Kingdom

Introduction: Lymph node involvement is the most important prognostic factor in penile carcinoma. Management of impalpable regional nodes (cN0) remains controversial. EAU guidelines advise lymphadenectomies in high risk cN0 patients. At our institutions, dynamic sentinel node biopsy (DSNB) is used to stage cN0 patients with $\geq$cT1G2 tumors. This study aims to identify predictive factors for occult metastasis and determine whether current EAU guidelines can stratify patients at risk.
Method: 342 cN0 patients with invasive penile carcinoma who had DSNB at two European referral centers were included. Completion inguinal lymphadenectomy was only done at side of positive DSNB. Patient were stratified into subgroups based on EAU guidelines: low(pT1G1), intermediate (pT1G2 without lymphovascular invasion (LVI)), and high risk patients ($\geq$pT2, or G3, or LVI). Positive DSNB and groin recurrences after negative DSNB were analyzed. Median follow-up was 32 months.
Results: 68 of 342 patients (20%) had occult metastasis. 6 patients had groin recurrence during follow-up. Corpus spongiosum invasion, corpus cavernosum invasion, histological grade and LVI were significant predictors for occult metastasis on univariate analysis. On multivariate analysis, grade and LVI remained predictive factors. Incidences of occult metastasis for the low, intermediate and high risk groups were 9 %(3/35), 13 %(8/62) and 23 %(57/244), respectively.
Conclusions: Grade and LVI are independent predictors for occult metastasis. Based on EAU guidelines, 11% (11/97) of patients considered low and intermediate risk harbored occult metastases, while 77% (187/244) of patients would have undergone an unnecessary lymphadenectomy. DSNB missed 2% (6/280) of patients with metastases. DSNB, however, is currently the most suitable staging procedure.

P 67

The effects of ketamine abuse on lower urinary tract function, a clinical experience with outcomes

C.J. Taylor, D.N. Wood, C.R.J. Woodhouse
University College London Hospitals, London, United Kingdom

Introduction: Lower urinary tract damage due to secondary to ketamine abuse has recently been described and is a growing concern in the adolescent and adult population.
Patients and Methods: Patients were assessed and recorded prospectively following first presentation. Patients were assessed at first presentation and data collected prosepectively. All had a cystoscopy, bladder biopsy, renal function and ultrasound scan. Following assessment all were offered treatment - ranging from observation to cystectomy with reconstruction. Outcomes for both surgical and conservative all management strategies are discussed.
Results: Seven patients have been treated within our units, data is presented on 2 additional patients. 6 male, 3 female – mean age 24.8 years (19–43). Two had catheters, one was convene dependent. Mean cystoscopic capacity was 54 ± 15 ml ($n = 6$), biopsies showed denuded epithelium or ulceration with haemorrhagic cystitis. 66% had normal renal function, upper tract ultrasounds showed 33% had bilateral hydronephrosis on ultrasonography., Of this group, one had obstruction on renography, one had no obstruction and that settled with prednisolone therapy the third has persistently defaulted from follow up. 1 underwent urodynamics – demonstrating detrusor overactivity. After comprehensive counselling 4 underwent cystectomy and neobladder – with mitrofanoff. All were continent with normal sexual function (mean follow-up 11 months), one had adhesive small bowel obstruction requiring laparotomy. Other patients have opted for a conservative management strategy with symptomatic improvement.
Conclusion: This is an emerging phenomenon, data suggests carefully counselled patients have good early outcomes. There are a variety of management strategies, furthermore, outcomes may depend significantly on a patient's individual motivation. All patients with painful, irritative lower urinary tract symptoms should be asked about recreational drug usage.

P 68

Imaging After Renal Trauma

MF Bultitude, P Davis, J Koukounaras, PL Royce, N Corcoran
Alfred Hospital, Melbourne, Australia

Introduction: Radiographic reassessment of renal trauma is recommended within 36-72 hours in order to identify progression and complications of initial injury. The value of further delayed imaging has not been evaluated.
Methods and Patients: Patients presenting with renal trauma over an eight year period were identified from a prospective database. Each patient's imaging was reviewed and graded(AAST). Patients managed initially with nephrectomy/embolisation were excluded. Follow up imaging was categorised as routine (Group 1) or indicated (Group 2) and then assessed for progression, resolution or stabilisation of initial injury. We report the complication and intervention rates in reimaged patients based on clinical indication.
Results: Of 377 patients with renal trauma, 159 had delayed imaging after 48 hours. 76% were male; mean age 36. All but 4 injuries were from blunt trauma. These were predominantly from road traffic accidents. Of the 159 patients with delayed imaging, 21 required early intervention(16 nephrectomy; 5 embolisation) and are excluded from

further analysis. Thus 138 patients with follow-up imaging were managed conservatively. The number of injuries by grade (1 to 5) was 26, 24, 44, 33 and 11 respectively. 108 were identified as Group 1 with 30 in Group 2. The rate of progression in the Group 1 was 0.93 %(1 patient) compared with 6 patients (20%) in group 2($p = 0.0004$).
Conclusion: The pick-up for routine imaging is very low and can be avoided in the majority of patients. If initial re-imaging is satisfactory and the patient remains well further delayed imaging is unlikely to be beneficial or to change management.

P 69

In the era of micro-dissection sperm retrieval, is a diagnostic testicular biopsy necessary in the management of men with non-obstructive azoospermia?

J Kalsi, E Zacharakis, A Muneer, S Minhas
UCL Hospitals, London, United Kingdom

Introduction: A diagnostic testicular biopsy in the investigation of the azoospermic patient without synchronous sperm retrieval (SR) is controversial. This prospective study assessed the outcome of sperm retrieval (SR) using micro-dissection-TESE (m-TESE) and simultaneous diagnostic biopsy to determine if the definitive histology correlated with the outcome of sperm retrieval by m-TESE in men with non-obstructive azoospermia (NOA). We also sought to determine if FSH levels and testis size correlated with sperm retrieval rates.
Method: 89 men were prospectively assessed using mTESE. Patients were evaluated with a hormonal assay and genetic analyses. 30 men had previously undergone previous biopsy procedures at other centres. All patients underwent SR and a diagnostic biopsy of the testis which was sent for histopathological confirmation either on the day of an ICSI cycle or in isolation.
Results: Mean age of patients was 37.2 (range 29–56 years). The mean serum FSH levels in the Sertoli cell only, maturation arrest and hypospermatogenesis groups were 21.0 IU/L (2.8–75), 16.1 (1.6–67) and 14.9 IU/L (0.8–42.3) respectively. SR rates in the respective groups were 41.2%, 26.7% and 82.6%. There were no post-operative complications. In 30 men who had previously undergone biopsies, SR rates were 63.3%. The overall sperm retrival rate was 49.4%. There was no correlation between SR and FSH levels.
Conclusion: The isolated diagnostic testicular biopsy is not necessary in men undergoing micro-dissection sperm SR in NOA. In a large percentage of patients sperm will be retrieved at the time of mTESE SR, where histology would have suggested poor outcome.

BJUI SUPPLEMENTS

Wednesday 23 June 2010
Poster Session 7
14:00–16:00 Charter A
RENAL CANCER
Chairmen: Mr Neil Fenn & Professor Mihir Desai
Posters P70–P84

P 70

Radiofrequency Ablation of Renal Tumours – The Bristol experience

EU Johnson, M Callaway, H Roach, R Persad
Bristol Royal Infirmary, United Kingdom

Introduction: Following the frequent use of imaging in modern medicine there has been an increase in the detection of renal cancer. Depending on size, extension, and location these are usually managed with nephron-sparing surgery or radical nephrectomy. For some patients though this is not appropriate. RFA (Radiofrequency ablation) presents an attractive minimally invasive alternative for treating small renal tumours (<40 mm).
Patients and Methods: We report our experience in treating 16 patients (10 men, 6 women) with 16 renal tumours (50% were incidental findings) from December 2001 to September 2007 with a mean age of 72 years (46 – 84 years) and mean tumour size 37mm (15 – 90 mm). Three patients (19%) had solitary kidneys. Image guided (Computed Tomography/Ultrasound scan) Percutaneous RFA was performed under local anaesthesia with follow up ranging from 2 mths – 36 mths
Results: 2 patients (13%) required 3 sessions and one patient (6%) 2 sessions for ablation. One developed severe haematuria requiring embolization, 2 patients had minor complications (transient loin pain, injury to adjacent renal tissue) with 13 others (81%) remain complication free.4 deaths occurred during the period under review but none attributable to renal cancer. All but one patient remained cancer free at most recent follow-up review and another had a failed index session for technical reasons.
Conclusion: Our short and intermediate term figures are comparable with those reported in international journals and support the increasing popularity of radiofrequency ablation as an option for treating small renal tumours especially when extirpative surgery is not feasible.

P 71

Clampless Partial Nephrectomy with Radiofrequency assisted ablation: a promising new approach

R Issa, A Brett, P Le Roux, U Patel, C Corbishley, C J Anderson
St George's Hospital, London, United Kingdom

Introduction: Partial nephrectomy, open(OPN) and laparoscopic(LPN), is increasingly used in treatment of small renal tumours. However, this procedure is technically demanding and is associated with considerable risk of blood loss and of renal function loss related to ischaemic time. We use the Habib 4X radiofrequency ablation device to create an avascular tissue plane around the renal tumour before surgical excision to significantly reduce blood loss and the need for pedicle clamping.
Patients and Methods: We present our 2 year experience with this technique. A total of 38 consecutive patients who underwent partial nephrectomy at our institution from December 2007 to December 2009 were treated with this technique; 23 via open approach and 15 laparoscopically (9 handassisted, 4 robotic and 2 transperitoneal).
Results: All operations were performed successfully. The median blood loss was 305 ml (range 20–1700), no blood transfusions were required, and no delayed bleeding occurred. The median operative time was 148 minutes (range 90–425). The renal pedicle was clamped in 3 patients only for 15, 9 and 8 minutes. Surgical margins were positive in 2 patients only. The median hospital stay was 5 days (range 2–19). The mean creatinine level was 94 μmol/L preoperatively and postoperatively.
Conclusion: Radiofrequency ablation of peri-tumour plane significantly reduces the need for pedicle clamping and warm/cold ischaemia during partial nephrectomy. This technique can be used with open, laparoscopic and robotic assisted approaches.

Blood loss and positive surgical margin rate are low. The mean creatinine level as a surrogate for renal function did not change post-operatively.

P 72

Three-year follow up of radiofrequency ablation of renal cell carcinoma: First experience in Northern Ireland

A Thwaini, A Pahuja, A Hameed, T Nambirajan, C Hagan, W Loan
Belfast City Hospital, United Kingdom

Introduction and Objectives: To present oncological outcomes in a series of patients with cT1a renal cell carcinoma (RCC) treated with radiofrequency ablation (RFA) and its effect on the glomerular filtration rate (GFR).
Material and Methods: We reviewed the records of 22 renal units treated at the Belfast City Hospital, between January 2006 and September 2009. Average age is 61.5 years (41–80). Eighteen patients (22 renal units) were included with American Society of Anesthesiologists (ASA) II and III. Total renal tumours were 24. Total RFA sessions were 21. Five patients had solitary kidney. They had previous nephrectomy contralateral

RCC. Average tumour size was 2.63 cm range (1.2–4 cm). The treatment was on the right side in 13 and left side in 9 cases. A good response was identified by either disappearance of the lesion treated or a persistent non-enhancing lesion of smaller size during follow up. A partial response was identified by a persistent but non-enhancing lesion of similar size. Non responding lesions were identified by persistent/increasing lesions that are still enhancing. Renal impairment secondary to the RFA was identified by 50% decrease of the estimated glomerular filtration rate (GFR).
Results: Mean follow up was 12.1 months (3–32 months). A good response was found in 11(50%) patients. A partial response was found in 3(13.6%) patients and no response was identified in 8(36.3%) patients. There was renal impairment present in two patients.
Conclusion: RFA might be a reasonable treatment choice for the healthy patient, with appropriate informed consent. Intermediate results suggest variable oncological outcomes and preservation of renal function.

P 73

Percutaneous Radiofrequency Ablation of Renal Cell Carcinoma: The Leeds Experience

TM Wah, HC Irving
St. James's University Hospital, Leeds, United Kingdom

Purpose: To evaluate our clinical experience with percutaneous image-guided radiofrequency ablation (RFA) of renal cell carcinoma (RCC) and to assess factors that may influence the complication rate.
Methods: RFA was performed on 147 RCCs in 120 patients from June 2004 to Dec 2009 in a single institution. All treatments were performed using image-guidance (US or CT) and under general anaesthesia or conscious sedation. Cold pyeloperfusion or hydrodissection technique was used accordingly. The treatment response was examined with contrast enhanced CT or MRI. Technical success was defined by absence of contrast enhancement within the tumor on CT or MRI. All complications, the management and outcomes of the complications were prospectively documented. Multivariate analysis was performed to determine variables associated with major complications.
Results: The treated RCCs with size ranged from 0.9–5.6 cm (mean = 3.4 cm). Amongst them, 144 (97.9%) were completely ablated with a mean follow-up period of 21.8 months. Three patients declined re-treatment. There were 9 major complications including ureteric injury (n = 6), calyceal-cutaneous fistula (n = 1), acute tubular necrosis (n = 1) and abscess (n = 1). Multivariate analysis revealed that cold pyeloperfusion protects the collecting system from thermal injury ($p < 0.001$) and lower pole tumors were associated with higher incidence of pelvi-ureteric injury ($p < 0.001$).
Conclusions: Image-guided RFA is safe, effective and minimally invasive treatment for small RCC. Cold pyeloperfusion technique should be considered whenever performed RFA close to the collecting system/ureter. It is important to be aware of the higher incidence of PUJ injury for lower pole tumors so that patient could be consented accordingly.

P 74

Intermediate Follow up Post Laparoscopic Kidney Cryoablation

MU Mohammed, DM Gulur, V Kumar, M Thornton, FX Keeley JR
Southmead Hospital, Bristol, United Kingdom

Introduction: We have published our peri-operative complications for Laparoscopic Renal Cryoablation (LRC). We now present our intermediate follow-up results.
Patients and Methods: Data was collected prospectively for 54 patients with 59 renal masses who underwent LRC between August 2005 and December 2009. Follow-up for these patients is a contrast CT or MRI at three and twelve months post-operatively and yearly thereafter. Additional imaging is carried out in equivocal cases.
Results: The average age of the patients was 66 (36–89) years and the median ASA was 2. Total number of patients with a single kidney is 17(31%). After a mean follow up of 22 (1–53) months, two (4%) patients have died due to pre-existing co-morbidities, 50 (92%) continue with regular follow up and two (4%) have had follow up abroad. The histology results were as follows: RCC in 36 (61%); oncocytoma in 13 (22%); AML in 2 (3%); and benign in 8 (14%). One patient with a large central tumour in a solitary kidney has suffered a local recurrence and is under surveillance. For the 31 patients with histologically-proven malignancy, the cancer-specific survival is 100%; progression-free survival is 100%; and recurrence-free survival is 97.3%.
Conclusion: With intermediate-term follow-up, LRC appears to be an effective nephron-sparing option for small renal masses, especially for patients with multiple co-morbidities including patients with a single kidney. Long-term follow-up is necessary to determine the efficacy of LRC in comparison with partial nephrectomy and radiofrequency ablation.

P 75

The initial experience with percutaneous cryoablation of renal cell carcinoma in Leeds

TM Wah, HC Irving
St. James's University Hospital, Leeds, United Kingdom

Purpose: This aims to evaluate our initial clinical experience with percutaneous image-guided cryoablation of renal cell carcinoma (RCC).
Materials and Methods: Percutaneous cryoablation was performed on 16 RCCs in 15 patients from May 2008 to Dec 2009 in a single institution. All treatments were performed using CT-guidance and under general anaesthesia. Warm pyeloperfusion or hydrodissection technique was used accordingly. The treatment response was examined with contrast enhanced CT or MRI. Technical success was defined by absence of contrast enhancement within the tumor on CT or MRI. All complications, the management and outcomes of the complications were prospectively documented.
Results: A total of 16 renal tumors were cryoablated with a mean tumor size of 2.5 cm (range 0.7–5.5 cm). The mean patient age was 71 years (age range 38–82 years). The primary and overall technical success rate was 81.2% vs. 93.7% respectively. Sixteen renal tumours were completely ablated (13 during a single session, 2 after a second session and 1 after a third session) with a mean follow-up period of 7.5 months (range from 3–12 months). One patient declined re-treatment. There were 2 minor complications including subcapsular haematoma and transient lumbar plexus injury. One predicted ureteric injury occurred while treating a centrally RCC adjacent to the renal pelvis.

Conclusions: Percutaneous image-guided cryoablation is safe, effective and minimally invasive treatment for RCC. There is a definite learning curve for cryo-needle placement and residual disease should improve with operator's experience. Warm pyeloperfusion should be considered for treating tumour close to the collecting system/ureter.

P 76

Renal function after nephron-sparing surgery- what is the outcome and can we predict it?

R Gujadhur, M A Rochester, ETS Ho, RD Mills, NA Burgess
Norfolk and Norwich University Hospital, United Kingdom

Introduction: Preservation of renal function is a primary goal of nephron-sparing surgery (NSS). The aim of this pilot study was to assess change in estimated glomerular filtration rate (eGFR) after NSS and develop a model to predict change in eGFR based on preoperative renal and tumour volume.
Method: Patients who underwent NSS from 2005–2008 were studied. GFR was estimated using the MDRD equation, preoperatively and 12 months post-operatively. Total renal volume and tumour volume were estimated from preoperative imaging by the prolate ellipse method. Correlation was assessed by Pearson coefficient, and linear regression illustrated the relationship between loss of renal volume and fall in eGFR.
Results: 48 partial nephrectomies were performed in this period. The mean ± SD age was 55 ± 22 years. 87% were renal cell carcinomas. The mean ± SD estimated preoperative total renal volume was 400 ± 210cc, and mean tumour volume was 12.7 ± 11.9cc. Mean eGFR fell from 67.2 ± 16.7 ml/min to 50.8 ± 14.6 ml/min. Mean percentage fall in eGFR was 12.8 ± 23.4%. The mean ± SD ischaemia time was 10.4 ± 15.4 min.

The relationship between percentage loss of renal volume after partial nephrectomy and fall in eGFR was significant ($p = 0.0002$) with a slope of 2.6 (95% confidence interval 1.4–3.9). The Pearson correlation coefficient was 0.45, a significant correlation ($p = 0.04$).
Conclusions: The fall in renal function after nephron-sparing surgery in our institution compares favourably with published data. It is possible to predict the fall in eGFR after NSS with reasonable accuracy, which should allow better preoperative patient counseling for patients with T1 renal tumours.

P 77

Expanding the indications of partial nephrectomy – comparing Central and Peripheral lesions in elective and imperative nephron sparing

BE Ayres, S Ivaz, R Issa, PLe Roux, C Corbishley, CJ Anderson
St George's Hospital, London, United Kingdom

Introduction: Nephron-sparing surgery is increasingly used in the treatment of renal masses. We present our experience of 134 cases, comparing operative details and outcome for imperative and elective cases and central and peripheral tumours. Recently we have used a radiofrequency ablation assisted "clampless" technique (RFA).
Patients and Methods: Patient characteristics, operative data, complications and radiological follow-up were analysed from a prospectively collected database.
Results:

Table for P77

	Elective		Imperative		Central		Peripheral	
		RFA		RFA		RFA		RFA
Number of patients	68	22	36	8	18	14	16	13
Mean age (years)	55.6	57.9	61.1	56.4	57.5	60.3	57.0	58.1
Mean tumour size (mm)	33	29	43	25	41	30	32	25
Mean op time (min)	222	162	261	171	233	160	228	166
Warm/cold ischaemia (min)	20/43	0/0	28/44	0/0	16/46	1/0	20/40	0/0
Mean blood loss (ml)	986	301	1692	860	1192	582	938	327
Complications	26%	27%	31%	25%	17%	21%	25%	31%
Follow-up (months)	38	13	33	7	29	12	24	12
Local Recurrence	1	0	3*	1*	2	0	0	1*
Metastases	1	0	1	0	0	0	0	0

*1 was VHL

Conclusions: Apart from greater blood loss with imperative cases there were no differences between imperative and elective cases or central and peripheral tumours. RFA assisted cases were quicker with negligible ischaemic time and reduced blood loss. Nephron-sparing surgery is therefore not exclusive to small peripheral renal masses.

P 78

Contemporary use of Partial Nephrectomy in a Tertiary Care Cancer Centre

DJ Galvin, RH Thompson, A Vickers, G Dalbagni, K Touijer, P Russo
Memorial Sloan Kettering Cancer Centre, New York, United States

Aim: Partial nephrectomy has demonstrated not to compromise cancer control while preserving renal function in the management of small renal tumours. It is grossly underutilised and represents just 10% of surgery for renal tumours in the USA. The aim of this study is to evaluate the contemporary use of partial nephrectomy in a tertiary care centre.
Method: Using our nephrectomy database we identified 1,533 patients who were treated for a localized renal cortical tumor between 2000 and 2007. Patients with bilateral disease or solitary kidneys were excluded from the study, and patients required an estimated GFR of 45 mls/min per 1.73 m2 or greater. Predictors of partial nephrectomy were evaluated using logistic regression models.
Results: Overall 854 (56%) and 679 patients (44%) were treated with partial and radical nephrectomy. In the 820 patients treated electively for a tumor 4 cm or less the frequency of partial nephrectomy steadily increased from 69% in 2000 to 89% in 2007. Frequency of partial nephrectomy increased to 60% in the 365 patients with tumors 4 to 7 cms. On multivariate analysis male gender ($p = 0.025$), later surgery year ($p < 0.001$), younger patient age ($p = 0.005$), smaller tumor ($p < 0.001$) and open surgery ($p < 0.001$) were significant predictors of partial nephrectomy.
Conclusions: The use of partial nephrectomy is increasing and it is now performed in approximately 90% of patients with T1a tumors at our institution. For reasons that remain unclear, certain groups of patients are less likely to be treated with partial nephrectomy.

P 79

The impact of Partial Nephrectomy on renal function: how much is lost?

BE Ayres, S Ivaz, R Issa, PLe Roux, A Rane, CJ Anderson
St George's Hospital, London, United Kingdom

Introduction: The aim in nephron-sparing surgery is to preserve renal function. Much debate about ideal ischaemic times exists and we aim to determine changes in estimated glomerular filtration rate (eGFR) in both imperative (single kidney, renal failure, synchronous tumours/VHL) and elective settings using warm and cold ischaemia, and clampless techniques.

Patients and Methods: We analysed changes in the eGFR (ml/min/1.73 m^2) for up to 5 years following surgery in 134 consecutive partial nephrectomy cases. eGFR was calculated using the abbreviated MDRD equation. Recently we have used a radiofrequency ablation assisted "clampless" technique with the Habib 4X device.

Results:

Table for P79

	Overall	Elective		Imperative	
			RFA assist		RFA assist
Number	134	68	22	36	8
Mean age (years)	57.5	55.6	57.9	61.1	56.4
Mean tumour size (mm)	34	33	29	43	25
Mean op time (min)	195	222	162	261	171
Warm ischaemia (min)	11	20	0	28	0
Cold ischaemia (min)	24	43	0	44	0
Change in eGFR postop	−5	−9	+ 8	−8	+ 3
6 weeks	−4	−5	−3	−6	−4
6 months	−6	−6	−8	−4	−7
12 months	−6	−5	−9	−5	n/a
24 months	−4	−1	n/a	−6	n/a
36 months	0	+ 3	n/a	−4	n/a
48 months	−4	−2	n/a	−6	n/a
60 months	+ 1	+ 4	n/a	−3	n/a

Conclusions: Renal function remains stable for up to 5 years following partial nephrectomy. There is no difference between elective and imperative cases. Hilar clamping, cooling and the clampless technique appear to be equivalent in preserving renal function.

P 80

Is it still possible for all urological trainees to learn how to do an open nephrectomy?

J Gill, N George, I Eardley
Leeds Teaching Hospital Trust, United Kingdom

Introduction: A traditional core skill for urological surgeons is the ability to undertake an nephrectomy, perhaps under emergency conditions. However, in the early years of the 21st century, laparoscopic nephrectomy has become the technique of choice for most patients. Indeed, those cases that require open surgery are typically the "more difficult" cases. This change has affected the exposure of trainees to open nephrectomy, and we question whether it is feasible for all urological trainees to attain this competency.

Method: We prospectively studied the logbooks of CCT applicants in the UK and Ireland between 2004 and 2009. We recorded the numbers of open radical nephrectomy and laparoscopic nephrectomy in which the trainee either assisted (A), was supervised (S), or performed the case independently (P).

Results: Overall 241 trainees completed urological training in the UK and Ireland between 2004 and 2009. For open radical nephrectomy, we found that there has been a progressive reduction in the mean number of cases in categories (P + S) between 2004 (32 cases during training) to 2009 (23 cases during training). The proportion of trainees failing to achieve 15 such cases during training rose from 9.5% in 2004 to 29.8% in 2009.

Conclusion: Competence only partly relates to exposure, but it is increasingly difficult to ensure that all trainees are able to competently perform open nephrectomy at the time of certification. This has been recognised in the most recent urology curriculum. This may have relevance for the delivery of emergency urological services.

P 81

Laparoscopic and Open Radical Nephrectomy for Renal Carcinoma. Are They Oncologically Equivalent? A Comparison Using Loco-Regional Recurrence Data

TJ Christmas, S Agrawal, P Savage, J Larkin, M Gore
The Royal Marsden Hospital, London, United Kingdom

Introduction: Laparoscopic radical nephrectomy (LRN) is claimed to be equivalent to open radical nephrectomy (ORN) in oncological effectiveness. We used a database of patients with loco-regional recurrence after nephrectomy for renal carcinoma (RC) to compare oncological outcomes after LRN and ORN.

Patients and Methods: 60 patients underwent excision of loco-regional recurrence without distant metastatic disease between 1999–2009. The patients had undergone LRN in 10 and ORN in 50. The original carcinoma was clear cell in 50, papillary in 6, transitional cell in 3 and squamous in 1. Excision of lesions within the renal bed and ipsilateral nodes was performed. Previous surgical scars were excised. One patient required cardiac bypass to remove recurrence within the IVC. All patients are on follow-up.

Results: The commonest sites of recurrence were within the renal bed (ORN 46% v LRN 50%) and within lymph nodes (ORN 38% v LRN 70%). Recurrence was within the adrenal gland in ORN 16% and LRN 10%. Port site recurrence was present in LRN in 30% and skin recurrence in ORN in 6%. A single case of LRN had tumour inadvertently stapled into the renal vein/IVC.

Conclusions: The pattern of recurrence after ORN and LRN differ. LRN has a greater risk of skin recurrence. The increase in nodal recurrence and recurrence within the IVC with LRN are probably due to the inability to palpate hilar structures but could also be due to a less radical approach with LRN. Time will tell if this translates into a difference in survival.

P 82

Comparing Cryotherapy and Radiofrequency Ablation for small renal masses: are they equivalent?

S L Ivaz, BE Ayres, C Corbishley, A Rane, U Patel, CJ Anderson
St George's Hospital, London, United Kingdom

Introduction: Debate exists about efficacy of ablative treatments for small renal masses. Our unit offers selected patients laparoscopic cryotherapy (LC) or percutaneous radiofrequency ablation (RFA). We present our selection criteria, complications and oncological outcomes.
Patients and Methods: Since 2004, 50 patients underwent LC (n = 32) or RFA (n = 18). Anaesthetic risk and size/location of tumour determined choice of ablative approach.

Oncological outcomes were assessed by presence/absence of contrast enhancement on 6-monthly CT or MRI.
Results:

Table for P82

	Lap. cryotherapy	Perc. RFA
Patients	32	18
Tumours	33	14
Mean age	69.8	62.0
Charlson co-morbidity index	5.5	6.9
Anterior tumours	28	7
Posterior tumours	4	10
Mean tumour size (cm)	2.7	4.0*
Complications	8 (24%)	5 (28%)
Median follow-up (months)	21.5 (2.5–59.5)	17.3 (1.2–34.5)
Persistent disease	4 (12.1%)	5 (35.7%)*

*4 AMLs excluded

In LC, 1 open conversion (partial nephrectomy) was done for bleeding. Other complications were minor. 3 recurrences were initially treated unsuccessfully with RFA: 2 had subsequent successful surgery; one awaits retreatment.

RFA complications (5 patients) were: 1 ileus, 1 renal failure, 1 perforated colon, 1 neuropraxia(L2), 1 perinephric abscess and fistula, 1 haematoma. Disease recurrence was successfully treated by repeat RFA in 2 cases and a 3rd had nephrectomy. 2 await retreatment.
Conclusions: With follow-up of up to 5 years LC had fewer recurrences than RFA. However, RFA patients had larger tumours, higher co-morbidity score, and included 3 patients with recurrence post LC. Complication rates were similar, but more morbid post RFA. This data enhances the argument supporting randomised comparison.

P 83

Is it possible to render in-operable renal tumours operable using TKI inhibitors?

S Agrawal, J Beatty, T Dudderidge, A Sohaib, M Gore, T Christmas
Charing Cross Hospital, London, United Kingdom

Introduction: Cyto-reductive nephrectomy (CRN) has a proven role in metastatic renal cell carcinoma (RCC) management. Tumour load or local invasion may render tumours inoperable. We report our experience of neo-adjuvant tyrosine kinase inhibitors (TKI) with CRN.
Patients and Method: Patients who underwent neo-adjuvant TKI therapy and CRN were retrospectively identified. Treatments were aimed at palliation for metastatic, in-operable or locally advanced RCC. TKI duration, morbidity of CRN, pathological findings and current status were reviewed.
Results: 6 patients had locally invasive RCC with metastasis, 1 had bilateral RCC. 4 were deemed inoperable at presentation. 1 was a Jehovahs witness. 6 patients received Sunitinib and 1 Sorafenib.

Mean tumour volume reduction was 52.3% (range 33–85%). Median pre-operative Sunitinib dosing was 250 mg with TKI duration range 4–12 months. Median intra-operative blood loss was 360 ml (200–900 ml). In the patient with bilateral tumours, TKI therapy enabled bilateral partial nephrectomy. Currently status: stable disease (3), progressive reduction in metastasis (2) and progression off Sunitinib (2).

Pathological findings included: multiple foci of ischaemic necrosis, reduced peri-nephric vasculature, macroscopic and microscopic fibrosis and haemorrhage. Imaging also revealed a partial response of lytic bone.
Conclusions: Neo-adjuvant TKIs form a multi-modal approach to the management of metastatic RCC. Size reduction may result in resolution of clinical symptoms, safe nephrectomy, reduced blood loss, and facilitate nephron-sparing surgery. Additionally, we speculate that neo-adjuvant TKI/CRN may offer a survival advantage. Optimal dosing and duration of TKI therapy is unknown. Outcomes of current phase II trials are awaited, but early observations are promising.

P 84

Long Term Results of Surgery for Renal Tumours with Venous Extension

TJ Christmas, T Dudderidge, J Beatty, J Larkin, M Gore, N Moat
The Royal Marsden Hospital, London, United Kingdom

Introduction: Historically the main complication of surgery for renal carcinoma (RC) extending into the venous system has been major haemorrhage. We have examined our long-term database to determine the causes of morbidity and mortality in a large cohort of patients sub-classified according to the Mayo clinic I-IV level.
Patients and Methods: A consecutive series of 195 patients with RC and venous invasion underwent surgery from 1993–2009. These were level I - 46, level II - 66, level III - 31 and level IV - 52. Cardiac bypass was utilised in 72 cases (37%) with synchronous removal of tumour pulmonary artery emboli (PE) in 20.
Results: Per-operative mortality occurred in 2 cases (1%) - due to massive PE in one and haemorrhage in the other. After a median follow-up of 5.7 years 76 (39%) have died: the aetiology in 66 (87%) was metastatic RC. The death rate according to the level of the RC was: level I - 35%, level II - 38%, level III - 36% and level IV - 46%.
Conclusions: In this large series the operative mortality is minimal. The use of cardiac bypass in level III-IV cases has reduced the risk of uncontrolled haemorrhage and PE and allows removal of preoperative PEs. The long term mortality is acceptably low, is unrelated to the level of the tumour, and the commonest cause is metastatic disease.

BJUI SUPPLEMENTS

Thursday 24 June 2010
Poster Session 8
11:00–12:30 Charter A
LAPAROSCOPY/SURGICAL TECHNIQUES
Chairmen: Mr Chris Anderson & Mr Paul Butterworth
Posters P85–P94

P 85

Laparoscopic radical cystectomy and pelvic lymph node dissection: defining the early morbidity

MJ Jackson, GC Durkan, NA Soomro, MI Johnson
Freeman Hospital, Newcastle upon Tyne, United Kingdom

Introduction: To present our experience of laparoscopic radical cystectomy (LRC) and pelvic lymph node dissection (PLND) focussing on the complications encountered as classified by a validated grading system.
Method: 42 consecutive patients underwent LRC at a single centre between 2005 and 2009 for either muscle invasive bladder cancer or recurrent high grade non-muscle invasive bladder cancer. Mean patient age was 66 years, mean body mass index was 27 kg/m^2 and median ASA grade 2. 39 patients underwent concomitant laparoscopic PLND. We graded every postoperative complication within 90 days of surgery according to Clavien-Dindo classification.
Results: There were 42 discrete postoperative complications. One or more complications occurred in 64% of the cohort. Grade I complications were recorded in 5 patients (12%), grade II in 20 patients (48%), grade IIIa in 5 patients (12%), grade IIIb in 3 patients (7%), grade VIb in 2 patients (5%) and 1 patient (2%) died within 90 days (grade V complication) attributed on post mortem to pulmonary embolism. There were no grade VIa complications. Wound infections and paralytic ileus accounted for 29% of all the complications encountered
Conclusion: This is the first LRC series to use a validated complication reporting system. An overall complication rate of 64% is high compared with earlier LRC series, but comparable with that for open cystectomy when similar, rigorous reporting methodologies are employed. LRC is in its infancy and a standardised complication reporting methodology, like Clavien-Dindo, should be widely adopted to facilitate objective determination of the learning curve.

P 86

Are techniques to reduce warm ischemia time during laparoscopic partial nephrectomy associated with higher perioperative complications?

N Vasdev, A O'Riordan, P Haslam, N Soomro
Freeman Hospital, Newcastle upon Tyne, United Kingdom

Introduction: The kidney is often exposed to warm ischemia during laparoscopic partial nephrectomy (LPN). Warm ischemia time (WIT) is associated with acute and possible long-term renal damage, particularly beyond a 30-minute threshold. We evaluate whether an early release of vascular clamps and thus reducing WIT is associated with higher perioperative complications.
Patients and Methods: Between March 2003 and October 2009, 73 LPN's were performed for renal cell carcinoma. Vascular clamps, Tisseel® and surgicel® bolsters were used in the initial technique (group 1, n = 51), while a new technique of early vascular loop release with Rummel loops, floseal® and surgicel® bolsters (group 2, n = 22) was used from May 2007. Outcomes, including WIT, intraoperative blood loss, operative time, transfusion rates, and complications using the Clavien-Dindo classification, were compared between the two groups.
Results: The pre and intraoperative characteristics are summarized in Table 1.

Table 1 for P86

Pre-operative characteristics	Group 1 (Late release of vascular clamps)	Group 2 (Early release of vascular loops)	Mann-Whitney U test (p value)
N	50	21	
BMI	28.94 ± 6.166	30.52 ± 5.144	NS
Pre op Creatinine (mmol/L)	92.04 ± 18.17	101.0 ± 4.650	NS
Operative Time (minutes)	158.0 ± 47.52	139.3 ± 30.18	NS
Blood loss (ml)	446.5 ± 445.1	278.6 ± 188.8	NS
Warm ischemia time (min)	29.34 ± 7.818	16.81 ± 4.308	P<0.05
Blood transfusion rate (%)	8% (4)	14% (3)	NS
Average tumour size (mm)	23.44 ± 7.481	26.48 ± 8.970	NS
Mean Hospital stay (days)	6.700 ± 4.137	7.190 ± 3.586	NS
Conversion to open (%)	2% (1)	0	NS
Positive margin rate (%)	8% (4)	0	NS
Post operative mortality (days)	0	0	NS

The rate of major complications (grade III and above on the Clavien-Dindo classification) in group 1 and 2 was 4% (2 cases);

pseudoaneurysm requiring radiological embolization (1) and Pneumonia (1)] and 29% [(6 cases); pseudoaneurysm requiring radiological embolization (3), urinoma requiring JJ Stent (2) and Pneumonia (1)].
Conclusion: It is possible to release vascular control early with significant reduction in warm ischemia time. We have seen higher perioperative complication in group 2. This may be due to the fact that central and larger renal masses were removed in group 2. Our experience demonstrates the feasibility of the new technique to reduce intraoperative warm ischemia time.

P 87

LESS (Laparo-Endoscopic Single Site Surgery): initial experience in upper tract extirpation and reconstruction

A.J. Symes, S Best, J Cadeddu, A Rane
East Surrey Hospital, Redhill, United Kingdom

Introduction: We present our initial experience with LESS simple nephrectomy and pyeloplasty.
Materials and Methods: All procedures were performed through a solitary intra-umbilical incision. 21 patients underwent LESS nephrectomy; mean operative time was 124 minutes. 2 Clavien I complications and 1 Clavien IIIa complication were noted. 22 patients underwent LESS pyeloplasty. An additional 3-mm instrument was sited percutaneously in 7 cases, to facilitate suturing during pyeloplasty and/or to act as a liver retractor. Mean operative time was 182 minutes; 3 Clavien IIIb complications were noted.
Results: All cases were completed successfully. There were 2 conversions to conventional multiport laparoscopy in the nephrectomy series and 1 in the pyeloplasty series.
Conclusion: Laparoscopic ablative and reconstructive procedures are possible through a single umbilical incision. We demonstrate safe and successful completion in our initial series.

P 88

Larger catheter diameter is associated with increased urethral strictures following Laparoscopic Prostatectomy

M Williams, P Patel, I J Wharton, F Rizvi, A P Doherty
University Hospital Birmingham, United Kingdom

Introduction: Bladder neck and urethral strictures are a recognised complication of radical prostatectomy. The aim of this study was to determine if catheter diameter affected post operative stricture rate.
Method: 650 patients who underwent laparoscopic radical prostatectomy by a single surgeon between June 2003 and November 2009 were retrospectively reviewed in the study. Patient demographics including age, BMI, previous urological surgery, operative time, blood loss, length of catheterisation and other complications were recorded.
Results: 7.2% of patients with a 20F catheter developed a stricture compared to 1.8% with a 16F catheter. The diameter of catheter did not affect the site of stricture occurrence. Overall, 31.25% occurred at the bladder neck, 65.6% were urethral strictures and 3.125% were sub-meatal.

Table for P88

	n	No. of Strictures	Stricture rate (%)
20 F	194	14	7.2
18 F	288	15	5.2
16 F	168	3	1.8
Total	650	32	4.9

Discussion: Large catheters have traditionally been used post radical prostatectomy because of the concern of post operative bleeding and the need for irrigation. Our results suggest that a larger catheter is an important factor for post operative stricture formation. In our experience the 16F catheter was not associated with increased rates of blockage; bypassing; or UTI's. This data suggests that 16F catheters should be used routinely.

P 89

Outpatient laparoscopic radical prostatectomy

S Agrawal, PW Doyle, JA Taylor, J Martin, G Hellawell, MH Winkler
Charing Cross Hospital, London, United Kingdom

Introduction: Overnight hospital stay is expensive and complications are more common the longer the hospital stay. We demonstrate that true day case LRP (without overnight hospital stay) is feasible and safe with minor modifications of the care pathway.
Material and Methods: We utilised the extraperitoneal 'Stolzenburg' technique. After 100 initial LRPs the following modifications were introduced to the care pathway: low inflation pressure, minimal trendelenburg position, no drain, meticulous haemostasis, water tight anastomosis, consistent operating times < 180min, avoidance of peritoneal breach, reduction of opiate use and application of TAP (Transversus Abdominis Plane) blocks.
Results: Analysis of 100 standard 23 hr LAP showed no readmissions due to surgical complications i.e. bleeding, urine leak, infection etc with early discharge. Of 20 patients deemed to meet the criteria for operating day discharge 50% (10 patients) were discharged home successfully. Intraoperative morphine was reduced from 17.5 mg to 0 mg. Only 12% of patients required rescue opiate analgesia on return to the ward. Readmission rate was 10% and related mainly to catheter problems. Telephone follow up established that 80% of patients were completely pain free and comfortable.
Conclusions: True day case LRP is feasible and safe with minor change of practice. TAP blocks almost abolish opiate use. This modified care pathway may hasten post operative recovery and reduce treatment costs.

P 90

The oncological outcomes of Robotic-assisted Radical Prostatectomy in a high volume UK institution

LJ Lavan, B Challacombe, JD Beatty, E Wan, T Dudderidge, CW Ogden
The Royal Marsden NHS Trust, London, United Kingdom

Introduction: Robotic-assisted radical prostatectomy (RARP) is rapidly becoming the new standard of care for the surgical treatment of localised prostate cancer in the UK. Relatively little is known about the oncological outcomes of RARP in a non-PSA screened British population.
Method: We reviewed a prospectively collected database (functional and oncological outcomes) of 342 patients who underwent RARP, predominantly by a single surgeon. Men with median age of 61.5 years (range 44–74 yrs), mean BMI of 27.1 and mean PSA of 8.65 ng/ml (range 0.72–49) underwent RARP. Of these 64 (18.7%) had palpable disease and 53 were D'Amico high risk disease.
Results: 45/272 (16.5%) with T2 disease had positive surgical margins at final pathological

analysis compared to 34/58 (58.6%) with T3 disease. Mean robotic console time was 2. 7 hours, estimated blood loss was 200 mls and median length of hospital stay was 2 days (range 1–23). There was 1 open conversion, 7 blood transfusions and 12 (3.5%) Clavien III complications including 1 laparotomy for bleeding, 1 artificial urinary sphincter and five endoscopic clip removals. 19 patients had a persistent PSA at 3 months and were treated with salvage radiotherapy with 3 failures. 6 (13%) patients with T2 positive margins and 8 (23.5%) with T3 positive margins have had biochemical recurrence at a median follow-up of 14 months and been successfully treated with salvage radiotherapy.
Conclusion: RARP provides good early oncological control in patients with non-screened localised prostate cancer with acceptable peri-operative morbidity. The enthusiasm for this new procedure seems justified in the short-term.

P 91

Robotic-assisted laparoscopic prostatectomy: detailed analysis of operative times during the early phase of the learning curve

HS Dev, NL Sharma, DE Neal, NC Shah
Addenbrooke's Hospital, Cambridge, United Kingdom

Patients: A prospective database was used to evaluate the operating times of individual surgical steps, in the first 79 Robotic-assisted laparoscopic prostatectomy (RALP) procedures performed independently by a robotic-naïve laparoscopic surgeon.
Method: The 3-arm DaVinci robotic system was used to perform a variant of the Vattikuti RALP technique, under the mentorship of an experienced robotic prostatectomist. The time taken to complete each of the ten individual surgical steps was recorded, along with the blood loss and length of hospital stay.
Results: There were significant improvements in operating time (224 → 186 min), length of stay (1.93 → 1.44 days) and blood loss (413 → 230 ml).

Analysis revealed a rapid reduction in operating time over the first 50 cases for most operating steps. Thereafter the times continue to improve at a slower rate, with a total operative time of 2 hours by case 250.

The nerve-sparing and anastamosis steps demonstrated modest improvements in operating time, whereas the dorsal vein and Rocco stitches failed to reveal any significant change. The remaining steps showed substantial decreases in duration, with the largest improvement seen in the bladder take-down step ($\rho = -0.5394$, $p < 0.001$).
Conclusion: The largest gains in operating efficiency, across each surgical step, are made by the 50th case. The relative difficulties in nerve sparing and anastamosis have been quantitatively demonstrated, supporting a greater need for targeted mentoring at these steps. These results support our efforts to refine robotic training using a structured mentoring programme.

Table 1 for P91: Breakdown of operating times for individual steps of the RALP procedure, comparing the first 15 cases to the last 15 cases.

	Mean time (min) (all cases)	Mean time (min) (first 15 cases)	Mean time (min) (last 15 cases)	Spearman's rank correlation coefficient (case number and duration)	p value
Bladder Take Down	20	31	15	−0.539	<.001
Endopelvic fascia	14	17	11	−0.385	<.01
Dorsal Vein stitch	10	12	8	−0.131	NS
Bladder neck	23	27	20	−0.346	<.01
Seminal Vesicles	25	30	20	−0.398	<.01
Pedical/nerve sparing	35	46	33	−0.276	<0.05
Apical Dissection	11	13	8	−0.301	<0.05
Lymph node dissection	22	26	18	−0.452	<.01
Anastamosis	32	34	28	−0.281	<0.05
Rocco stitch	12	12	14	−0.064	NS

P 92

Application of the 'Bordeaux technique' in robot-assisted radical prostatectomy improves early continence

JM Withington, A Henderson, D Cahill
Guy's Hospital, London, United Kingdom

Introduction: Our technique for radical prostatectomy has constantly evolved to improve early continence. The 'Bordeaux technique' describes division of the dorsal vein complex (DVC) without ligation or lateral urethral dissection with reported immediate continence of 80%. We introduced this to our robot-assisted radical prostatectomy (RARP) technique October 2009.
Patients and Methods: Prospective case-control study comparing 27 cases performed from October to December 2009 using the Bordeaux technique with all other cases performed from January to September 2009, all performed by a single surgeon.

No significant differences in age or disease characteristics existed between the groups.

Immediate continence was defined as pad-free at < 2weeks. Continence at 6 weeks is also reported.
Results: The procedures were uncomplicated. Intra-operative blood loss was greater using the modified technique, though no patient required blood transfusion.

Oncological outcomes were comparable for the two techniques.

Early continence rates for laparoscopic radical prostatectomy (LRP) and standard and for RARP using the Bordeaux technique are presented in the table below. Both immediate continence and 6-week continence are improved significantly in the Bordeaux technique group, compared with standard RARP.

Table for P92

	LRP N = 43	Standard RARP N = 32	Bordeaux technique RARP N = 27
Immediate continence	20%	28%	41%
6-week continence	49%	63%	82% (11/17 with sufficient follow-up)

Conclusion: RARP with delayed endopelvic fascia incision and DVC division without ligation before oversewing preserves the urethral complex maximally. This translates into better early continence.

This single innovation has produced the largest stepwise improvement in early continence at our institution.

P 93

Robotic Partial Nephrectomy. First UK series

Al Alleemudder, T Duddridge, A Rao, D Hrouda, J Vale, B Khoubehi
St Mary's Hospital, London, United Kingdom

Introduction: Partial nephrectomy for small low grade tumours is well established in order to maintain renal function and oncological outcome. Robotic partial nephrectomy(RPN) is rapidly gaining acceptance as alternative to the standard open technique with its associated morbidity, and laparoscopic partial nephrectomy, with its steep learning curve and relatively high complication rate. We present the first UK series of RPN undertaken by three surgeons.
Patient and Methods: In this prospective study, data from 20 patients who had undergone RPN between April 2008 and January 2010 were analysed. The standardised quantitative Nephrectomy Scoring System (R.E.N.A.L) was used to determine the complexity and suitability of our cases for RPN.
Results: 20 patients successfully underwent RPN with a mean age of 53.4 years and tumour size of 2.5 cm. The mean operative time was 213 min and mean warm ischaemia time of 32.5 min. There were 2 conversions and 3 post-operative bleeds requiring transfusion, with no other major complications. Histology showed RCC in 16 cases. All the surgical margins were negative and to date there has been no local or distant recurrence. The mean R.E.N.A.L Score suggested all the lesions had a low to moderate complexity and were suitable for partial nephrectomy.
Conclusion: The results of our initial experience are similar to other published series. Although RPN is limited by availability and cost, we feel it is a safe and viable alternative to open surgery with all the advantages of a minimally invasive technique. Longer term follow up studies are required to determine the oncological outcome of this technique.

P 94

Surgical Conversion from Partial to Radical Nephrectomy

DJ Galvin, A Adamy, M Kaag, C Savage, MF O'Brien, P Russo
Memorial Sloan Kettering Cancer Center, New York, United States

Introduction: The consequenes of converting from partial (PN) to radical nephrectomy [RN], include increased risk of chronic renal impairment and cardiovascular morbidity[1]. We decided to assess the reasons for conversion and the effects on renal function in a contemporary series of patients intended to undergo PN.
Materials and Methods: Using our Institutional database, we identified all patients undergoing PN who were subsequently converted to RN between January 2003 and October 2008. All patients had a solitary renal mass amenable to PN on pre-operative CT or MRI imaging. Patients converted from minimally invasive to open PN were not included. Our aim was to analyze predictors associated with a higher rate of conversion from PN to RN.

Table 1 for P94: Summary of reasons for conversions in both open and laparoscopic patients (n = 61).

Reason	Number (Proportion)
Arterial supply compromised	2 (3%)
Failure to progress	2 (3%)
Haemorrhage (parasitic)	3 (5%)
Inadequate renal pelvis remaining	1 (1.7%)
Insufficient residual kidney	9 (15%)
Invaded hilar structures	15 (25%)
Satellite tumors	5 (8%)
Size discrepancy	10 (17%)
Unable to obtain clear margins	7 (12%)
Unexpected Renal vein thrombus	2 (3%)
Vasospasm of renal artery	1 (1.7%)
Venous drainage compromised	3 (5%)
Unable to identify tumor*	1 (1.7%)

*laparoscopic patients

Results: Between January 2003 and October 2008, 1029 patients underwent PN, of whom 61 were converted to RN (6%). 164 patients underwent laparoscopic PN of which only 2 had a conversion to RN. Thus formal analysis of the laparoscopic group was not feasible. Mean post-operative GFR was 44.8 ml/min/1.73 m^2 (range 10–82) for the RN group compared to 61.7 ml/min/1.73 m^2 (range 5–129) for th PN group by MDRD equation. Patients who underwent a conversion tended to be slightly more likely to be male (69% vs 62%), have larger tumors (4.7 cm vs 3.1) and be more likely to present with local disease (31% vs 13%).
Conclusions: Conversion to RN is an uncommon event in patients undergoing PN in this contemporary series and the risk increases with increasing tumor size. Conversion confers chronic kidney disease on most patients.

BJUI SUPPLEMENTS

Thursday 24 June 2010
Poster Session 9
11:00–12:30 Charter 2
BASIC SCIENCE - ONCOLOGY
Chairmen: Professor John Kelly & Mr James Catto
Posters P95–P104

P 95

Green tea extract (epigallocatechin 3- gallate) negates the effect of radiotherapy on prostate cancer cells

F Thomas, J MP Holly, A Bahl, R Persad, C Perks
University of Bristol, United Kingdomouthmead Hospital, Bristol, United Kingdomreen tea extract (epigallocatechin 3- gallate) negates the effect of radiotherapy on prostate cancer cells.

Introduction: Radiotherapy is used in treatment of localized prostate cancer. People consume Green tea as a chemopreventive agent against prostate cancer. Green tea as an antioxidant can induce superoxide dismutase enzymes to scavenge the free oxygen radicals generated by radiotherapy and decrease the effectiveness of radiotherapy.
Materials and Methods: Prostate cancer cell lines DU145 cells were treated with EGCG or radiotherapy alone or in combination. Cell death was assessed using Trypan blue cell counting and PARP cleavage. The antioxidant function was assessed by probing for MnSOD (Manganese superoxide dismutase) and CuZnSOD (Copper Zinc superoxide dismutase) enzymes. Radiotherapy was delivered using a linear accelerator. Cell cycle analysis was carried out using flow cytometry.
Results: Radiotherapy at 3.5 Gy induced a 5.9 fold increase in cell death of DU145 cells. Subapoptotic dose of EGCG(1.5–7.5 μM) did not induce cell death alone but when EGCG was combined with IR it significantly reduced cell death induced by IR (radiotherapy) alone. Pre-treatment of the cells with EGCG(1/2 hr–3 hrs) followed by IR significantly reduced the accumulation of cells in G2/M phase and there was a significant shift in the accumulation of cells in G0/G1 and S phase thus delaying the effect of IR. When IR and EGCG were used in combination there was 1.5 and 2 fold rise in MnSOD levels when compared to control and IR respectively.
Conclusion: Radiotherapy is effective in inducing apoptosis in DU145 cells but its effect is negated by the presence of antioxidants like EGCG by induction of SOD and also by decreasing the accumulation of cells in G2/M phase. This study adds to the evidence that green tea negates the effects of radiotherapy.

P 96

Mechanism of Radiosensitisation of human Prostate Cancer cell line (LNCaP) by DAG Lactone

DJ Galvin, T Thin, JP Truman, R Kolesnick, Z Fuks, A Haimovitz-Friedman
Memorial Sloan Kettering Cancer Centre, New York, United States

Introduction: We previously demonstrated that pre-treatment of human prostate cancer cell line LNCaP with either 12-0-tetradecanoylphorbol 13-acetate (TPA) or diacylglycerol-lactone (DAG-lactone) radiosensitized these cells. DAG lactone induces apoptosis through the ATM mediated repression of ceramide synthase (CerS). Here we assessed whether ATM down-regulation affected DNA repair pathways.
Method: LNCaP cells were pretreated with 10 uM DAG-lactone and irradiated with 20 or 40Gy. Apoptosis was assessed at 48 hours by trypan blue exclusion. γ-H2AX and BRCA1 foci formation at 1 and 8 hours post-radiation were scored.
Results: Pre-treatment with DAG-lactone significantly enhanced apoptosis post radiation from 1.1% to 13.9% (20 Gy) and 19.9% (40 Gy) respectively. Immunofluorescent staining for γ-H2AX and BRCA1 demonstrated a dose-dependent increase in γ-H2AX foci formation at 20 Gy and 40 Gy for both 1 hr and 8 hr time points. There was no difference in the BRCA1 foci between pre-treatment with DAG-lactone either at 20 Gy or at 40 Gy at both 1 hr or at 8 hr post-radiation. Our data also shows that 40 Gy alone produces the same amount of DNA double strand breaks (dsbs; as measured by γ-H2AX at 8 hr) as 20 Gy + DAG-lactone, yet 40 Gy alone does not induce apoptosis in LNCaP cells, while 20Gy + DAG-lactone does, indicating that ATM down-regulation is necessary for the apoptotic response.
Conclusion: Although these studies indicate that HR is active, further experiments need to be carried out to explore whether non-homologous end-joining (NHEJ) is functional in LNCaP treated with DAG-lactone and radiation. Hence, the trigger for CerS activation still needs to be established.

P 97

Investigation of the cytotoxic properties of a novel microtubule-targeting compound, PBOX-15, in hypoxic prostate cancer cell lines

JC Forde, D Hollywood, M Lawler, TH Lynch, L Marignol, L Marignol
St. James's Hospital, Dublin, Ireland

Introduction: Tumour hypoxia is emerging as a common feature of prostate tumours associated with poor prognosis and resistance to chemo-radiotherapy regimes.

Hypoxia is dominated by the stabilisation of Hypoxia-Inducible Factor-1 alpha (HIF-1α). The efficacy of microtubule-targeting agents has been shown to be modulated by HIF-1 α. We proposed that administration of PBOX-15, a novel microtubule-targeting agent, to patients with hypoxic prostate tumours may reduce the hypoxic response. We also proposed to investigate the radiosensitizing properties of PBOX-15.
Method: The cytotoxic effect PBOX-15 was determined in primary 22Rv1 and metastatic DU145 prostate cancer cells in both aerobic and hypoxic conditions using clonogenic assays. Sensitivity was correlated with HIF-1 α gene (RQ-PCR, Taqman®) and protein (Western blot) expression. Clonogenic assays were then used to determine sensitivity of a primary 22Rv1 cells to PBOX-15 alone or in combination to a single 2 Gy dose fraction.
Results: Primary 22Rv1 cells were significantly more sensitive to PBOX-15 than metastatic DU145 cells under both conditions (Air, $p = 0.001$; Hypoxia, $p = 0.002$). PBOX-15 maintained its cytotoxic activity under hypoxic conditions in DU145 cells ($p = 0.041$), but had reduced properties in hypoxic 22Rv1 cells ($p = 0.035$). Reduced HIF-1α gene expression was evident within 4 hours of hypoxic exposure in both untreated and PBOX-15 treated cell lines. PBOX-15 appeared to up-regulate HIF-1α protein expression both cell lines, in particular the 22Rv1. Pre-treatment with PBOX-15 prevented onset of radio-resistance and significantly reduced the hypoxic survival fraction ($p = 0.01$).
Conclusion: The use of PBOX-15 as a radio-sensitizer could have benefits in patients identified as having aggressive hypoxic prostate tumours.

P 98

Investigating the role for c-myc and bHLH transcription factors in driving phenotypic versatility of cancer stem cells in castrate resistant prostate cancer

AD Lamb, A Ramos-Montoya, M Vias, I Mills, DE Neal
Addenbrooke's Hospital, Cambridge, United Kingdom

Castrate resistant prostate cancer has been shown to exhibit a neuroendocrine phenotype, with expression of notch pathway related basic helix-loop-helix transcription factors in both human tissue and mouse models. In the neural system, these basic helix loop helix neural transcription factors regulate notch signalling and stem cell commitment into neural lineages. C-myc is a well known oncogene in prostate cancer and induces survival of androgen dependent LNCaP cells in androgen deprived conditions. In normal tissues, c-Myc induces stem cells to differentiate into specific epidermal lineages. We have now shown using quantitative PCR and chromatin immunoprecipitation that expression of a certain bHLH gene is up-regulated in response to activated c-Myc as well as being a target of androgen receptor (AR) activity. Furthermore, cell growth assays show that like c-Myc it can also deliver androgen-independence in androgen-dependent LNCaP cells, a finding that will be followed up in vivo. Paradoxically, silencing its activity in cell line models of androgen independent disease actually increases growth rate. Identification of p21 as a target raises the possibility that this bHLH transcription factor acts by regulating cell cycle progression and other downstream mediators are being sought to elucidate this mechanism of androgen independence. In conclusion, interactions between c-Myc and bHLH transcription factors represent a possible mechanism by which populations of cancer cells with stem-like properties can selectively commit to an altered, possibly neurodendocrine, phenotype in the presence of an active but non-androgen dependent AR.

P 99

GA-binding protein alpha: an ETS family member with an important role in prostate cancer

N Sharma, HE Scott, IG Mills, CE Massie, DE Neal
Addenbrooke's Hospital, Cambridge, United Kingdom

Introduction: Many of the ETS factors are implicated in prostate cancer, including gene fusions with TMPRSS2. GA-binding protein alpha (GABPα) is a member of the ETS transcription factor family, and is amongst the subset which contains a pointed domain, known to facilitate protein-protein interactions.
Materials and Methods: Previous work in our group identified GABPα, amongst other ETS factors, as a potential androgen receptor (AR) cofactor. Several techniques have been employed to identify the role of GABPα in prostate cancer and, in particular, its interaction with the AR.
Results: Immunohistochemistry showed increased expression of GABPα in prostate cancer compared to benign prostate tissue. Reduced expression of GABPα led to both a reduction in invasive potential and reduced growth rates of prostate cancer cells. Using chromatin immunoprecipitation (ChIP) and ChIP-sequencing, the binding sites of GABPα in prostate cancer cells (hormone-dependent and hormone-independent lines) have been identified. As it is known that there are high levels of redundant promoter occupancy amongst Ets factors, these sites were compared to other Ets binding sites in the same cell lines, and to AR binding sites. Overlap between GABPα and AR binding sites was observed, as was overlap amongst Ets factors.
Conclusion: The subsets of unique GABPα binding sites and those which overlap with AR binding sites could represent important genes for the development and progression of prostate cancer. The generation of stable tetracycline-inducible GABPα knockdown cell lines has allowed further characterisation of the role of GABPα in prostate cancer

P 100

Induction of effective anti-tumour responses following mucosal bacterial vector mediated DNA vaccination with an endogenous prostate cancer specific antigen

S. Ahmad, G. Casey, P. Sweeney, M. Tangney, G.C. O'Sullivan
Cork Cancer Research Centre, Ireland

Introduction: Induction of systemic immune responses directed against antigenic targets over-expressed by cancer cells represents a powerful therapeutic strategy to target metastatic cancers. Bacterial vector-mediated mucosal delivery of tumour-associated antigen expressing plasmids to antigen presenting cells has potential to induce effective, durable, systemic immune responses.
Method: We aimed to develop a novel strategy to generate specific anti-tumour immune responses in a murine model of prostate cancer, involving oral administration of an attenuated replication-incompetent strain of Salmonella typhimurium containing

a plasmid coding for murine Prostate Stem Cell Antigen (mPSCA). Male C57 BL/6 mice were gavage fed with transformed Salmonella typhimurium (SL7207/pmPSCA) or controls, twice at fortnightly interval. One week after last feed, mice were challenged subcutaneously with tumourigenic doses of TRAMPC1 cells (murine prostate cancer cell line). Tumour dynamics and animal survival were recorded. ELISA was performed for the determination of IFN-γ. In vivo cytotoxic assay was also performed.

Results: Induction of tumour protective immunity was achieved by oral feeding of the antigen plasmid bearing bacteria, with >50% immunised mice remaining tumour free. No significant toxicity was observed. Induction of humoural immune responses was demonstrated by measurement of IFN-γ levels. Splenocytes derived from vaccinated mice, when adoptively transferred to naive animals, prevented tumour growth in 66% challenged animals.

Conclusions: We have shown for the first time that the endogenous prostate cancer antigen can be delivered using a bacterial vector. This strategy resulted in significant immune stimulation and tumour growth retardation.

P 101

Immune upregulation in-vivo following high intensity focused ultrasound for renal cancer

RW Ritchie, TA Leslie, Cde Santo, R Arscott, V Cerundulo, D Cranston
University of Oxford, United Kingdom

Introduction: The growth of renal cancer is associated with a tumour mediated decline in immune function. In part, this is due to tumour derived factors which result in the accumulation of myeloid-derived suppressor cells (MDSCs) within the host. MDSCs interfere with the differentiation, function, and survival of T-cells. High Intensity Focused Ultrasound (HIFU) causes tissue damage without the requirement for extirpative surgery. The ablated zone of necrotic tissue may stimulate anti-tumour immunity.

Method: Patients with < 4cm diameter renal tumours were recruited; diagnosis was confirmed by pre-treatment biopsy. Extracorporeal HIFU was performed using the Model JC device (Chongqing, China; 0.8 MHz), followed by partial nephrectomy after 2 weeks. Peripheral blood mononuclear cells (PBMCs) were harvested pre- and post-HIFU (6 & 24 hours; 2, 6 & 26 weeks). PBMCs were analysed using the following fluorochrome-conjugated antibodies for flow cytometry: CD3, CD4, CD8, CD11b, CD14, CD15 & HLA-DR.

Results: HIFU treatment was completed without major complication. No significant decline in renal function was observed. Tissue specimens confirmed the diagnosis of renal cancer with significant HIFU-induced necrosis in the majority of cases. Pre-treatment PBMCs demonstrate elevated levels of the population of CD11b + CD15 + CD14-HLA-DR- MDSCs compared with healthy controls. Following HIFU treatment, peripheral samples demonstrate progressive decline in this MDSC population with time. Simultaneously an increase in the CD3 cell population is demonstrated.

Conclusions: Renal cancer may induce T-cell tolerance through the generation of MDSCs. HIFU appears to induce a decline in this population of potent T-cell suppressors and may protect against metastatic disease and metanchronous tumours.

P 102

Differential expression of microRNA processing machinery in Urothelial Carcinoma

K S Khan, M Glover, S Blizard, S Miah, D J Rosario, J W Catto
Royal Hallamshire Hospital, Sheffield, United Kingdom

Introduction: It is recognised that altered microRNA expression is important in human cancers. We have found microRNA up and down-regulation in bladder cancer. The expression of RNA processing and inhibitory molecules alters microRNA concentrations and may play a role in human carcinogenesis. Recent data suggest these molecules reflect tumour phenotype and are potential biomarkers (NEJM 2008;359(25):2641–50). Here we evaluate the expression of microRNA processing and inhibitory molecules in bladder cancer.

Material and Methods: We studied the urothelium from 156 patients with Urothelial Cell Carcinoma and 31 benign controls. Following micro-dissection we obtained RNA for analysis. We used quantitative rtPCR (Taqman) to measure the expression of microRNA processing (Dicer, Drosha, Exportin5, DGCR8 and RAN) and inhibitory (Lin28, Lin28B, DND1) molecules. Relative quantification was determined using endogenous controls. In 75 samples we also analysed the expression of 365 microRNAs.

Results: The expression of microRNA processing molecules has a bimodal distribution. Dicer and Drosha undergo up-regulation prior to onset of malignancy. Following tumorogenesis, the expression of both ribonuclesases decreases to sub-normal levels. The opposite is seen for DGCR8, RAN and Exportin5 ($p < 0.0001$). Inhibitory molecules (Lin28, Lin28B and DND1) are upregulated with tumorogenesis ($p < 0.0001$). When tumour phenotype was analysed there was no difference between low or high grade cancers ($p > 0.05$) for the processing molecules.

Conclusion: The expression of microRNA processing and inhibitory molecules is altered in the urothelium prior to and with the onset of carcinogenesis. This occurs in both low and high grade tumours, suggesting it is involved in the initiation of urothelial carcinogenesis.

P 103

Inhibition of Aurora Kinase potentiates the anti-tumour activity of Paclitaxel in Urothelial Cell Carcinoma

K Saeb-Parsy, A Veerakumarasivam, H Scott, A Venkitaraman, DE Neal, JD Kelly
Addenbrooke's Hospital, Cambridge, United Kingdom

Introduction: Approximately 50% of patients initially treated with a curative intent for organ-confined transitional cell carcinoma (TCC) experience distant recurrence. Patients with advanced unresectable disease who maintain a good performance status can be offered combination chemotherapy. This treatment is often palliative and ultimately patients become resistant to these therapies. We explored the combination of Aurora kinase inhibitor (AT9283) and Paclitaxel in the management of TCC cell line (EJ28).

Materials and Methods: We used colony formation and MTS assays to perform dose response and time course experiments using AT9238 and paclitaxel as individual agents or in combination. To quantitatively determine the extent of the interaction we calculated the combination index. We assessed a

sequential dosing schedule whereby EJ28 cells were pre-treated with AT9283 followed by paclitaxel and colony formation assessed.
Results: AT9283 inhibited EJ28 cell growth with an IC50 = 25 nm determined by cell colony formation. AT9283 was a potent inhibitor of cell growth in combination with paclitaxel at IC50 (AT9283 IC50 25 nm, Paclitaxel IC50 4 nm) and efficacy maintained at less than IC50 doses of paclitaxel. Combination index analysis indicated a synergistic interaction between AT9283 plus paclitaxel. Sequential dosing showed a trend for enhanced activity of AT9238 followed by paclitaxel compared to concurrent therapy; the trend was observed for all of the concentrations tested.
Conclusion: Combination of Aurora Kinase inhibitor and paclitaxel has a synergistic antiproliferative property. The series of experiments indicating a synergistic interaction between AT9283 and paclitaxel supports the concept for taking the agent forward in bladder cancer.

P 104

Optimisation of microRNA extraction from urine samples with a view for a diagnostic and prognostic test for bladder cancer

S Miah, E Dudziec, D Rosario, F Hamdy, J Catto
Royal Hallamshire Hospital, Sheffield, United Kingdom

Introduction: MicroRNAs are single stranded non-coding RNA molecules 19–25nt in length. The differential expression of microRNA has been established in numerous cancers including bladder cancer. Our study aims confirm the presence of microRNA in urine samples and develop an optimum protocol for this process. Furthermore we aimed to demonstrate differential expression of microRNA in urine samples between bladder tumour and non bladder tumour patients.
Methods and Materials: MicroRNA was extracted from freshly voided and frozen urinary samples, using various extraction protocols. We evaluated samples processed immediately, those stored at room temperature and those with repeated freeze/thawing. We then profiled the expression of a panel of microRNAs in 93 urine samples from 60 benign controls and 30 from patients with bladder cancer. We used triplicate real time multiplex rtPCR reactions to measure RNA concentration.
Results: MicroRNA can be extracted from urine samples upto 48 hours after voiding when stored at room temperature. Statistically there was no difference between yields of microRNA from urine samples that were immediately processed with those stored at room temperature for 48 hr. Furthermore there was no need for the addition of RNase inhibitors to these urine samples. Finally we identified microRNAs in bladder cancer urine samples shown to discriminate between high– and low-grade bladder cancer.
Conclusion: MicroRNA can be obtained in urinary samples from patients with cancer upto 48 hrs of voiding. Profiling of microRNA expression in urine samples shows presence of microRNA that have been used to discriminate between high- and low grade bladder cancer.

