BJUI BJU INTERNATIONAL

Tuesday 23 June, 1100–1230
PROSTATE CANCER DIAGNOSIS
Chairmen: Professor Roger Kirby & Dr Paul Lange

P 1

Baseline prostate specific antigen level and the risk of prostate cancer and prostate specific mortality

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Introduction: We investigated the risk of prostate cancer and prostate-specific and all-cause mortality by baseline prostate-specific antigen (PSA) level.
Patients and Methods: From a regional database of PSA results, men with a baseline PSA test between 01/01/1994 and 31/12/1998 were identified and followed for prostate cancer diagnosis and prostate-specific and all-cause mortality until 31/12/2006. The absolute risk and Hazard ratios for cancer diagnosis by baseline PSA level were determined.

Table. (P1.)

Absolute risk of cancer/1000 person yrs (Hazard Ratio*)				
PSA level	Age < 50	50–59	60–69	= 70
0–0.99	0.06 (1.0)	0.44 (1.0)	0.68 (1.0)	1.14 (1.0)
1–1.99	0.37 (6.1)	1.56 (3.5)	1.69 (2.5)	2.07 (1.8)
2–2.99	1.96 (32.5)	2.82 (6.4)	3.16 (4.6)	2.79 (2.5)
3–3.99	6.29 (108.0)	7.54 (16.9)	7.41 (10.9)	3.98 (3.5)
4–9.99	6.77 (116.0)	14.76 (33.1)	12.16 (17.8)	8.68 (7.6)
= 10	7.76 (123.4)	36.06 (80.1)	45.39 (64.4)	57.99 (46.8)
No. cancers	53	455	1075	1861
No. patients	8443	14124	19249	26016

Results: 68,354 men were included, with 50,676 (74.1%) having baseline PSA < 4.0 ng/ml. 3,444 (5.1%) were diagnosed with prostate cancer during the follow-up period (mean 9.05 years). Within age groups, the absolute risk and hazard ratio of cancer increased incrementally with PSA level (see Table). At any age, PSA < 4.0 ng/ml was associated with low risk of cancer (< 8/1000/yr). In total, 23,135 (34.1%) men died, with 1,184 of these from prostate cancer (5.1% of all deaths). Prostate-specific mortality increased incrementally with baseline PSA but remained very low compared with overall mortality.
Conclusions: Following a PSA result, men need to be aware not only of their risk of prostate cancer but also of having cancer that may cause them harm during their lifetime. These data should inform and reassure men of their risk of clinically significant prostate cancer.

P 2

Clopidogrel use during TRUS prostatic biopsy: results from a survey of UK urologists

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Introduction: Data regarding the risks and benefits of continuing or discontinuing therapy with clopidogrel prior to various urological procedures is lacking. The risk of thromboembolism after discontinuation needs to be weighed against the risk of procedure-related bleeding whilst continuing clopidogrel.
Methods: A postal questionnaire was sent to UK urology consultants regarding the management of patients on clopidogrel undergoing various urological procedures. A sub-analysis of the data was performed to assess clopidogrel useage during TRUS biopsy.
Results: Two hundred and ninety-seven (52%) questionnaires were returned. 90.6% of respondents stop clopidogrel prior to TRUS biopsy. The time clopidogrel was stopped pre-biopsy and restarted post-biopsy was very variable. Almost half (49.5%) the respondents would stop clopidogrel irrespective of its indication and 40.7% never consulted a cardiologist/haematologist before stopping clopidogrel. 13 respondents encountered excessive bleeding/haematuria post-biopsy requiring transfusion in patients who continued clopidogrel and 22 respondents reported an adverse thromboembolic event after stopping clopidogrel.
Conclusions: This survey has shown a significant variation in practice with regards clopidogrel in the setting of TRUS biopsy. This survey highlights the need for evidence-based guidelines for clopidogrel use/discontinuation during TRUS biopsy.

P 3

Use of oral transmucosal fentanyl citrate (OTFC) in TRUS prostate biopsy patients

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Introduction: Transrectal ultrasound-guided prostate biopsy (TRUSP) is a routinely performed outpatient procedure, using local anaesthetic infiltration which can have variable efficacy. OTFC sticks are short-acting oral opiates, used in various clinical settings. In this study, we have investigated their use in TRUSP.
Methods: Sixty-one patients had TRUSP during a 3-month period. Following local anaesthetic infiltration they were randomized to receive either 200 mcg OTFC or placebo sticks. Pain scores (1–10) and baseline observations were recorded before and after biopsy. Patients were monitored for 2 hours following TRUSP.
Results: Thirty received OTFC, 31 had placebo. 5 patients reported mild side effects such as dizziness and light-headedness with OTFC (2 in the placebo group). Mean pain scores were 2.8 vs. 3.9, OTFC vs. placebo ($p = 0.002$). 8 patients who had repeat biopsies with OTFC showed a significant improvement in mean pain score, from 5.7 to 2.6 ($p = 0.017$). These patients also noted additional anxiolytic effects.
Conclusions: In this pilot study we have shown that OTFC is a safe treatment for patients undergoing TRUS prostate biopsy. Studies comparing OTFC alone to local anaesthetic are warranted to confirm its efficacy as an analgesic.

P 4

The efficacy of periprostatic local anaesthetic infiltration in transrectal ultrasound (TRUS) biopsy of prostate: a prospective randomised control trial

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Introduction: The objective of this study is to establish the benefit of periprostatic local anaesthesia infiltration in alleviating the pain and also to determine the best location of infiltration during this painful procedure.
Methods: We conducted a prospective randomised control trial between June 2006 to June 2008 on patients who underwent a TRUS biopsy of prostate. Table 1 shows the patient demographics and route of anaesthesia used. Pain was assessed after the procedure with the Visual Analog Pain Score (VAS).

Table 1. Patient characteristics, randomization, mode of anaesthesia and Pain Score (P4).

Group	No. of patients	Mean Age + /−SD	Site of Injection	Amount of Lignocaine 1%	Pain Score (VAS)		
					Mean	Median	SD
A	90	67.81 + /−9.44	None	Nil	3.92*	4	2.43
B	106	68.45 + /−6.95	Apex	10cc	2.59*	2	1.92
C	87	68.20 + /−7.60	Base	5cc at each base	3.07	3	2.31
D	106	67.94 + /−7.57	Apex and Base	5cc at apex and 3cc at each base	3.15	3	2.50

ANOVA, $p = 0.001$
*Pair wise significant at 0.001.

Results: A total of 389 patients were randomised in blocks into 4 groups. Table 1 shows the randomization and pain scores (VAS) for the different groups. The most significant ($p = 0.001$) difference was noted when comparing Group B (apex) and Group A (no anaesthesia). Better pain score was also achieved when all 10 ml Lignocaine 1% was administered at the apex (Group B) compared to 5 ml (Group D). There were no significant differences in the pain score in relation to the number of biopsy core taken.
Conclusions: Periprostatic local anaesthetic infiltration is beneficial for pain alleviation and the infiltration with 10 ml of Lignocaine 1% at the apex appears to be the best modality to be used.

P 5

A modified transperineal template guided saturation biopsy technique provides a high cancer yield with low retention risk

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Introduction: Transperineal template guided saturation biopsy (TTSB) has been reported to detect prostate cancer (PCa) in 26–41% of men requiring repeat biopsy. However, high rates of retention (11–38%) have also been reported.
Patients and Methods: Using a brachytherapy template and implant probe, a modified TTSB avoiding the periurethral area at the base, was performed on 32 patients under GA. They had previously undergone a median of 2 (range 1–4) sets of transrectal biopsy (TRUSB). Indications for TTSB were persistent suspicion of PCa ($n = 29$) and prostate mapping ($n = 3$), where initial TRUSB had suggested insignificant cancer.

Results: Mean age was 64 yrs (range 43–76), with median PSA of 12 ng/ml (2–57) and mean prostate volume of 40 cc (17–75). Mean of 25 (16–37) cores were taken at TTSB. PCa was diagnosed in 76% of those with previously negative TRUSB (Gleason score 6 in 38%, 7 in 36%, 8–10 in 26%). All 3 undergoing mapping exhibited upgrading. The anterior third of the gland was involved in 76%. None developed urinary retention or required overnight stay.
Conclusions: Modified TTSB is useful in patients with previous negative TRUSB and persistent suspicion of PCa, providing a high cancer yield. It is also helpful in young men with minimal PCa on initial TRUSB. The procedure is well tolerated with low complication risk.

P 6

Transperineal template biopsies for men on active surveillance for prostate cancer lead to high rates of subsequent radical treatment

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Introduction: Transperineal template prostate biopsies may be used to restage men on active surveillance (AS) programmes for prostate cancer.
Patients and Methods: 50 men on our established AS programme for low risk prostate cancer, diagnosed by standard 12-core TRUS biopsies underwent template biopsy 12–18 months after diagnosis regardless of PSA or earlier if there was PSA elevation.
Results: The mean age was 64 years and mean time on AS was 16.0 months. The median PSA at time of template biopsy was 8.7 ng/ml (range 0.4–20.5 ng/ml) and the mean prostate volume was 47 cc. 19 (38%) men had higher grade disease on re-biopsy, 7 (14%) men had lower grade disease and 24 (48%) had no change in disease grade. 29 (58%) men had increased disease volume, but of these 13 had no change in grade. Overall, 32 (64%) men had either higher grade or volume disease and of these 28 proceeded to radical intervention. The remainder continue on AS.
Conclusions: Two-thirds of men on AS had either higher grade or volume disease diagnosed since the introduction of template biopsies. About half of men were removed from the AS programme as a consequence of the template biopsy and underwent definitive treatment.

P 7

Transperineal template prostate biopsies under local anaesthesia

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Introduction: Transperineal template prostate biopsies have advantages over trans-rectal saturation biopsies: avoidance of enteric flora, better access to the anterior zone, systematic prostatic mapping, and minimising repetitive sampling of previously biopsied areas. A major drawback was the

need for general anaesthesia. We report outcomes of a local anaesthetic technique.
Patients and Methods: 44 men underwent template biopsies under local anaesthesia. The first 18 were performed in theatre with provision for sedation if required. The remainder were carried out in outpatients. Patients were placed into the lithotomy position and 50 mls 1% xylocaine with adrenaline (1:200000) was infiltrated into a perineal cutaneous field, and then under transrectal ultrasound guidance into the pelvic floor and periprostatic planes. 24 biopsies were taken from six zones.
Results: Mean prostate volume was 48 cc. Supplementary sedation was required in six of the first 18 patients. In the subsequent 26, following a technique adjustment, men universally responded that they would have the procedure again and would recommend the procedure. Mean visual analogue scores of probe insertion, anaesthetic injection and biopsies were 2.8, 3.2 and 2.7, respectively. There were no cases of sepsis or retention.
Conclusions: Local anaesthetic template biopsy is well tolerated and acceptable using patient reported outcomes.

P 8

Template transperineal prostate mapping biopsies for prostate cancer risk stratification and cancer localisation

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Introduction: Men with low-intermediate risk prostate cancer have to choose between active surveillance and radical treatment, so require accurate risk stratification. Template transperineal prostate mapping biopsies may have a role in reducing uncertainty over risk and provide tumour localisation to guide focal therapy.
Methods: One hundred and ninety-six men with either negative TRUS biopsy or low-intermediate risk prostate cancer underwent prostate mapping under GA/spinal using a 5-mm brachytherapy grid and stepper with transrectal ultrasound guidance (4/7/2006–1/10/2008).
Results: Mean age 61 years and PSA were 7.1 ng/ml. Side-effects included: mild ecchymoses in all, 4% retention, 1% haematuria requiring admission, no sepsis. Biopsies taken at TRUS and prostate mapping was mean 10.1 (range 6–24) and 31.2 (range 11–80), respectively. Gleason upgrading occurred in one-third. Mean number of cores positive on TRUS and prostate mapping was 1.5 (range 0–8) and 5.2 (range 0–35), respectively (t-test, $p < 0.001$). Approximately 60% with unilateral disease on TRUS had bilateral cancer on mapping.
Conclusions: Prostate mapping gives precise risk stratification with low morbidity. These outcomes have implications for using TRUS biopsy to decide on active surveillance versus radical therapy. Localisation of cancer for focal therapy research is best served by prostate mapping.

P 9

Prostate HistoScanning – computer aided transrectal ultrasound imaging for prostate cancer diagnosis: interim results from a prospective multi-centre trial

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Introduction: Prostate cancer diagnosis relies on systematic biopsies, due to lack of reliable imaging. Prostate HistoScanning (ultrasound tissue characterisation) has shown encouraging results in detecting cancer in a single centre study. We present interim results from an on-going multicentre European trial.
Methods: Men diagnosed with prostate cancer underwent prostate HistoScanning prior to scheduled radical prostatectomy. HistoScanning utilises the ultrasound backscattered echo signal captured by the transducer and analysed by specific tissue characterisation algorithms to differentiate malignant from normal tissue. The ability of HistoScanning to detect and determine volume of malignant lesions was evaluated against 3 mm step-sectioned whole mounted RP specimens analysed on a 5×5 mm grid.
Results: 14 patients had 8 lesions > 0.5 cc and 7 lesions < 0.5 cc on histology. Histoscanning detected all 8 lesions > 0.5 cc giving a 100% sensitivity and 86% specificity for significant cancer. There was also a close correlation of lesion volume estimation between Histoscanning and histology (correlation co-efficient $r = 0.78$, $p < 0.001$).
Conclusions: These interim results of the open phase of a multicentre trial demonstrate good accuracy of detection in cancer lesions of volume = 0.5 cc. The subsequent blinded phase will be initiated to validate these findings.

P 10

Prostate core biopsies; a clinical audit into false positive reporting of adenocarcinoma due to contamination

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Introduction: Systematic review of prostate biopsy schemes continue to result in technical changes that increase sensitivity for prostate cancer. However, frequently histological reports do not accurately reflect the volume or location of disease. Carry-over of tissue between lobes may contribute to this discrepancy. The aim of this study is to determine the prevalence of carry-over contamination.
Methods: Electronic clinical records for a single NHS trust were searched to identify all patients who had a prostate needle core biopsy performed between May 2003 and May 2008. The histology of those reported to have bilateral prostate adenocarcinoma with one lobe containing a volume of $< 5\%$ were examined for features suggestive of contamination.
Results: One thousand and seventy-two patients had a prostate needle core biopsy performed during the 5-year period. Of these, 117 were found to have bilateral adenocarcinoma with one lobe containing a volume $< 5\%$. Histological review revealed in 5 of the 117 cases the tumour in the lobe containing $< 5\%$ was likely to be contamination.
Conclusions: Revision of needle core biopsy schemes has increased the diagnostic sensitivity for prostate cancer. However, histological determination of tumour volume and location continues to be inaccurate in a number of cases due to carry-over contamination. We feel that careful cleaning or replacement of the biopsy needle after sampling each prostate lobe would avoid such inaccuracy.

BJUI BJU INTERNATIONAL

Tuesday 23 June, 1100–1230
BPH
Chairmen: Mr Mark Speakman & Professor James N'Dow

P 11

The patient and partner agree that the treatment of LUTS reduces his bother and improves his quality of life. Prospective 12 years follow-up study

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Introduction: To determine if the partner* agrees with the patient suffering from LUTS improve after treatment.
Patients and Methods: 458 men referred with LUTS and 219 partners were recruited into the study between January 1993 and September 1994. Assessment included AUA score, flow rates, QoL and bother validated self-reported questionnaires completed by both. Data were collected at baseline, 3 months, 6 months, 6 years and 12 years. 280 men underwent TURP and 178 were managed by medical treatment.
Results: For the TURP group, the mean QoL for patient and partner at baseline were 8.16 and 9.90 respectively. At 6 months, 6 years and 12 years, these improved to 2.43, 3.71, 3.74 and 1.76, 4.07, 4.76 respectively. For the medical treatment group, the mean QoL for patient and partner at baseline were 7.08 and 8.35 respectively. At 6 months, 6 years and 12 years, these improved to 5.0, 3.6, 3.28 and 5.67, 3.61, 2.81 respectively. Improvements in QoL and bother noted by the patient and his partner were statistically significant.
Conclusions: The longest prospective in-depth study has shown that partners are affected by patients' LUTS, appreciate the improvement after treatment and may be valuable contributors in assessment.

[* partner/spouse]

P 12

Can T-lymphocyte scores be used to predict progression in patients with benign prostatic hyperplasia (BPH)?

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Chronic inflammation has been associated with progression of BPH. This study sought to determine whether the number of CD4 + and CD8 + T-lymphocytes in a trans-rectal ultrasound biopsy of the prostate can be used to predict progression in BPH. 100 patients were randomly selected from a pool of patients with histologically proven benign TRUS biopsy specimens. Clinicopathological data included prostate volume, IPSS, PSA, flow rate, residual volume, and previous prostate surgery. Data analysed as a marker of disease progression included acute urinary retention, $\geqslant$4 point rise in IPSS, prescription of medical therapy (alpha blocker or 5-alpha-reductase inhibitor) and bladder outlet surgery. 96 biopsies were successfully immunohistochemically stained for the presence of CD4 + and CD8 + lymphocytes and the density of infiltrate was assessed using random field sampling and point counting. 42% (40/96) of patients progressed. There was low correlation between CD4 and CD8 densities in paired sections ($r^2 = 0.2133$). CD8 + infiltrate density predicted progression to acute urinary retention ($n = 10$) with sensitivity of 60%, specificity of 73.3% and a positive predictive value of 20.6%, without statistical significance. CD4 + infiltrate density suggested a trend to progression without statistical significance. Overall, CD4 + and CD8 + densities did not predict progression of BPH in a statistically significant manner.

P 13

Patient preference for Tamsulosin OCAS over MR formulations for LUTS/BPH

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Introduction: Tamsulosin OCAS is considered an improved formulation of the modified release (MR) capsules, an established first-line treatment for LUTS/BPH. Although trials have suggested equivalent efficacy, OCAS has a lower incidence of orthostatic hypotension and ejaculatory dysfunction. The objective of this study was to determine whether these benefits equated to a patient preference.
Materials and Methods: Patient preference for the two formulations was determined using Discrete Choice Analysis in 50 men = 45 years with LUTS/BPH. Disease severity and HRQoL was assessed by IPSS and EuroQol EQ-5D. Preferences were recorded with/without cost consideration to estimate Willingness-to-Pay (WTP).
Results: 56% of the trial population had moderate and 26% had severe symptoms on IPSS scores. The mean EQ-5D was 0.78. Respondents preferred OCAS over MR capsules (OR 19.45, 95% CI), with orthostatic hypotension (OR 9.07) and ejaculatory dysfunction (OR 2.04) being important determining factors. On average, participants were willing to pay an extra £72.00 per month for OCAS.
Conclusions: This study indicates a strong patient preference for Tamsulosin OCAS when allowed informed choice based on adverse event profiles. This preference equated to a willingness to pay an extra £72 per month for Tamsulosin OCAS instead of MR capsules.

P 14

The new 120 W GreenLight High Performance System (HPS) laser – is it an effective tool in the treatment of the symptomatic benign prostate?

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Introduction: With the advent of the more powerful 120 W 'GreenLight' laser we investigated the amount of time and energy required to create a satisfactory channel and correlated this with the reduction in prostate volume and PSA.
Patients and Methods: The data on 157 consecutive patients with symptomatic benign prostatic enlargement treated with the 120 W HPS between July 2007 and September 2008 were collected prospectively including prostate volume, total laser energy, operative time, prostate volume and PSA reduction.
Results: The mean prostate volume was 58 cc (range 20–147 cc). The mean operative time was 44 minutes (13–100 minutes) with an average of 222.3 kJ (65–508 kJ) of laser energy delivered. There was a linear relationship between prostate volume and energy used ($r = 0.80$) and operative time ($r = 0.74$). Mean prostate volume reduction was 45% (12–71%) with a mean PSA reduction of 59% (15–92%) ($n = 84$). The mean increase in flow rate (Qmax) was 207% (25–929%) ($n = 48$).
Conclusions: The 'Greenlight' HPS is an efficient tool in terms of tissue removal, achieving reductions in prostate volume and improvement in flow rates equitable with other surgical modalities. The linear relationship between energy levels, operative time and prostate volume allows for accurate preoperative planning of theatre lists.

P 15

International Multicentre Experience of GreenLight HPS 120 W Laser in Symptomatic BPH

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We present our multinational multicentre experience of the GreenLight HPS System. 624 consecutive cases treated over a 13 month period are assessed with mean follow up 6.8 months 1–13 months). Mean patient age was 69 (44–99) and mean prostate volume 65 ml (12–260 ml.) 46% of patients were on some form of anticoagulant therapy. IPSS and flow characteristics are shown in the table along with results. The procedure was effective with

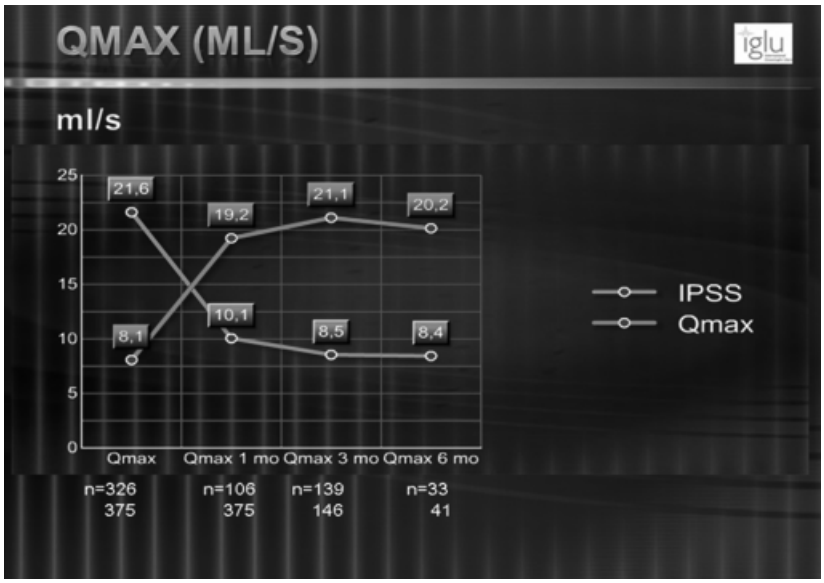

Figure. (P15.)

flow rate improvements in excess of 100% and IPSS reductions of more than 50% at all time points. No TUR synmdrome was seen, 3 (0.6%) patients needed blood transfusion and there are no cases of urinary incontince beyond three months. Energy usage and techniques differ significantly from the original GreenLight PV 80 W system. GreenLight HPS is an effective and safe method of treating symptomatic BPH.

P 16

One night stay for turp using bipolar resection

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Introduction: Bipolar resection systems have been developed that might permit TURP with a single night stay as opposed to the current average 3.5 days.
Methods: A protocol TURP pathway was instituted using a bipolar resection system. At the end of the procedure a 20 French 2 way catheter was placed, 20 mg of iv frusemide was given and iv fluids prescribed to ensure a good urine output.
Results: Eighty-eight unselected bipolar resection cases were performed by a single Consultant. Mean age was 72 (57–88), resection size was 27 g (3–168) and mean LOS was 1.58 days (range 1–23). Overnight stay was achieved in 62 patients (70%). Filtering for age < 80, resection < 50 g, major risk factors and good social support left 70 cases of whom 79% were discharged after 1 night. Complications included washouts in 8% of cases, post discharge A&E attendance in 9% and urethral stricture in 2%.
Conclusions: Close post-operative monitoring for catheter blockage is needed and re-attendance post discharge is quite frequent. Within these caveats, bipolar resection is effective in achieving overnight stay for TURP and is a cost effective way of achieving a higher caseload with existing Urological bed numbers.

P 17

A randomised controlled trial of the incidence of TUR syndrome in bipolar versus monopolar transurethral resection of the prostate for benign prostatic obstruction

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Introduction: TUR syndrome is a recognised complication of TURP, defined as a post-operative serum sodium of < 125 mmol/L with at least two symptoms which can be cardiological or neurological.
Patients and Methods: Two hundred and ten patients were recruited in this prospective randomized study. 110 patients underwent TURP using saline irrigation (bipolar) and 100 patients with glycine irrigation (monopolar). Both groups were well

matched for age (72 vs. 73 years, p = 0.32) and TRUS volumes (68.9 vs. 69.8 cc, p = 0.85).
Results: Resection times (38 vs. 35 min, p = 0.29) and the number of capsular perforations (25, 27, p = 0.49) were comparable. In the monopolar arm, fluid absorption was higher (1015 vs. 548 ml, p < 0.001) with a lower immediate post-operative sodium (135.8 vs.138.7 mmol/L, p < 0.001) and serum osmolality (284 vs. 289 mOsm/L, p < 0.001). Three patients (1.42%) developed TUR syndrome, absorbing an average of 4.03 L. One patient had a sodium of < 125 mmol/L with hypotension and nine patients (4.28%) developed at least two symptoms but a non-diagnostic fall in sodium. In the bipolar arm, three patients had symptoms only with minimal change in serum sodium.
Conclusions: TUR syndrome did not occur in the bipolar arm of the study suggesting that transurethral resection in saline is safer.

P 18

Bipolar versus monopolar transurethral resection of the prostate for benign prostatic obstruction: a randomised prospective trial with one year follow up

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Introduction: To compare the efficacy of bipolar versus monopolar transurethral resection of the prostate (TURP) in the treatment of benign prostatic obstruction using the Olympus SurgMaster TURis (transurethral resection in saline) System.
Patients and Methods: Between June 2005 and Sept 2007, 156 patients were recruited in this prospective, randomised multicentre trial. 80 and 76 patients underwent bipolar (saline) and monopolar (glycine) TURP respectively. Both groups were comparable in terms of age (72 vs. 73 years, p = 0.65) and TRUS volumes (71.6 vs. 73.6 cc, p = 0.75). Peri-operative variables were recorded and both groups were followed up at 3, 6 and 12 months with IPSS scores and flow rates.
Results: Resection times were similar in both groups (mean: 37 min). In the bipolar arm, mean duration of post-operative catheterisation was less (48 vs. 52 hrs, p = 0.97) with a shorter total inpatient stay (90 vs. 103 hrs, p = 0.06). The complication rate in both groups were similar (25% vs. 30%, p = 0.1). At 12 months, improvements observed were comparable with regards to IPSS scores (p = 0.9), QoL scores (p = 0.3), Qmax (p = 0.5) and residual volumes (p = 0.3).
Conclusions: The efficacy of bipolar TURP is similar to standard monopolar TURP, but with a shorter (> 10%) hospital stay.

P 19

A Randomised Trial comparing the Long-Term Results of HoLEP and TURP in Urodynamically Obstructed patients: Results at 7 years

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Introduction: Durability is one of the most important aspects which differentiate Open Prostatectomy and TURP from many of the newer modalities.
Methods: Patients were enrolled between June 1997 and December 2000. All were urodynamically obstructed with a prostate size between 40–200 g. Follow-up was at 1,3,6,12 and 24 months. Parameters assessed included IPSS score, Qmax, QoL score, BPHII, ICSmale-SF and IIEF. Adverse events were assessed.
Results: Thirty-one (14 HoLEP vs. 17 TURP) of the initial 61 patients were available with 12 deceased and 18 lost to follow-up. The mean follow-up was 7.6 years and the mean age at follow-up was 79.8 + /- 6.2 years. There were no significant differences seen in any parameter. The mean values (HoLEP vs TURP) were: Qmax 22.1 vs 17.8, AUA 8 vs 10.3, QoL 1.5 vs 1.3, BPHII 1.5 vs 0.6, IIEF –EF 11.6 vs 9.2, ICS V1-5 4.2 vs 3, ICS I1-6 3.1 vs 1.2. Of the assessable patients, no patient had required re-operation in the HoLEP arm compared to 3/17 in the TURP arm.
Conclusions: The results of this randomised trial confirm that HoLEP is at least equivalent to TURP in the long-term with fewer re-operations being necessary.

P 20

An efficient way of trial without catheter

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Introduction: This randomised controlled trial evaluates two methods of trial without catheter (TWOC) in men following an episode of acute urinary retention: (1) standard catheter removal and (2) bladder infusion prior to TWOC.
Methods: Thirty-nine consecutive patients were randomised into two groups. Standard group underwent the standard catheter removal (n = 20). Infused group underwent saline bladder infusion over 5 minutes prior to TWOC (n = 19). Outcome measures included time to discharge, outcome of TWOC, patient discomfort and voiding efficiency.
Results: There was no difference in successful TWOC in both groups. For discharge time, there was a significant difference with the infused group being discharged at a mean of 82.2 minutes earlier. Bladder infusion was less well tolerated with 26% of infused patients experiencing some discomfort compared to none in the standard group. There was no difference in voiding efficiency in both groups. Voiding efficiency at first void was significantly higher when passing a TWOC compared to when failing to void (p = 0.001).
Conclusions: Bladder infusion prior to TWOC provides the same outcome as standard catheter removal but provides an earlier discharge. Voiding efficiency at first void provides an earlier and reliable prediction of success in TWOC.

BJUI
BJU INTERNATIONAL

Tuesday 23 June, 1400–1600
BASIC SCIENCE
Chairmen: Mr Leyshon Griffiths & Mr Rob Pickard

P 21

The correlation of estimated and isotope GFR in patients with bowel in the urinary tract

JL Ockrim, R Hamid, PJR Shah, TJ Greenwell
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Introduction: Surveillance for patients with urinary tract reconstruction/diversion includes assessment of renal function with chromium EDTA Glomerular Filtration Rate (Cr-EDTA GFR). Estimated GFR (eGFR) is derived from serum creatinine, by formulae validated in normal, renal failure and transplant patients, with correlation coefficients of 70%; but have not been validated in patients with bowel interposition. We compared eGFR (derived from the MDRD) with Cr-EDTA GFR in patients with urinary tract reconstruction/diversion.
Patients and Methods: A retrospective review of 50 patients with urinary tract reconstruction/diversion and Cr-EDTA GFR, serum creatinine and eGFR. Patient demographics, type of bowel reconstruction/diversion and time since surgery were noted.
Results: Data was obtained on 28 women and 22 men who had ileal conduit (3), ileal pouch or neobladder (7), ileocystoplasty (30) and colocystoplasty (10) performed a median of 12 years previously (range 1–35). Serum creatinine ranged from 51–154 μmol/l, eGFR from 33–159 μmol/l/1.73 m^2 and Cr-EDTA GFR from 36–125 μmol/l/1.73 m^2. Correlation between Cr-EDTA GFR and eGFR was poor ($R^2 = 0.001$) and much worse than the correlation between serum creatinine and Cr-EDTA GFR ($R^2 = 0.433$).
Conclusions: There is poor correlation between eGFR and Cr-EDTA GFR in patients with urinary tract reconstruction/diversion. eGFR should not be used as a surrogate marker for GFR in these patients.

P 22

Isolated detrusor muscles cells lengthen in outflow obstruction

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Introduction: We have developed a technique, novel to human detrusor tissue that offers a means of studying detrusor pharmacodynamics without the requirement for full thickness bladder samples. We have tested the hypothesis that there is variation in working muscle length in different pathologies.
Patients and Methods: Patients undergoing cystoscopy were recruited to the study with ethical approval and consent. A bladder biopsy was incubated with an enzymatic dispersal solution. The dispersed cells were transferred to slides, where the muscarinic agonist carbachol were added before fixation. Digital photographs were taken, from which samples of isolated detrusor cell lengths were measured under varying conditions.
Results: Patients with outflow obstruction have significantly longer resting cell lengths (mean μm ± sem than those with OAB and controls (79.5 ± 3.14 (n = 1), 57.9 ± 3.02 (n = 4) and 59.8 ± 9.03 (n = 1) respectively). However there was no significant difference in the fully contracted lengths in the presence of 100 μM carbachol (40.1 ± 9.04 (n = 1) 44.05 ± 2.5 (n = 4) and 50.2 ± 2.3 (n = 1) respectively).
Conclusions: The single cell length measurement technique is a useful alternative to organ bath experiments, which necessitate the need for much larger biopsy samples. These data provide evidence of increased resting detrusor cell length in outflow obstruction but with preservation of contractility.

P 23

FGFR3 mutation is not the initiating mutation in Urothelial Cell Cancer

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Introduction: Fibroblast Growth Factor Receptor 3 (FGFR3) mutations are the most frequent (66–88%) found in superficial urothelial cell cancer (UCC). Activating mutations of this receptor allow oncogenic stimulation of the mitogen activated protein kinase pathway (MAPK). Functional significance of this as a sole "driver" mutation in UCC is unknown.
Materials and Methods: We targeted the expression of the mutated form of the FGFR3 (K644E + /– and K644M + /–) to the murine urothelium using the urothelial specific Uroplakin II promoter. We also combined the K644E + /– mutation with either ß-Catenin or a KRasG12D activating mutation. Mice were taken at an initial 3 month time points and cohorts (n = 20) aged to 12 months.
Results: In all cohorts (Wildtype, UroFGFR3K644E + /–, UroFGFR3K644M + /–, UroBcat flact/ + FGFR3K644E + /– UroBcatflact/flactFGFR3K644E + /–, UroKRASG12D + /–FGFR3K644E + /–) mice were aged to 12 months with no macro/microscopic evidence of urothelial hyperplasia or UCC. Genotype specific survival ($p < 0.001$) showed no difference between cohorts and wildtype. However mice with FGFR3 activating mutations showed immunohistochemical up-regulation of cytoplasmic Sprouty2 in their urothelial cells.
Conclusions: Activating mutations of FGFR3 do not seem to be the sole initiating factor for UCC. Neither does combination with KRas or B-Catenin activating mutations appear to cause UCC. In this setting Sprouty2 may play a role by downregulating the MAPK oncogenic pathway.

P 24

The differential expression of microRNAs in bladder cancer is associated with altered gene expression

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Introduction: MicroRNAs are single stranded non-coding RNA molecules 19–25 nt in length that regulate gene expression shown to be differentially expressed in bladder cancer. Our study aims to confirm this differential expression and to demonstrate the common epi-genetic implications secondary to the altered expression of microRNAs in bladder cancer.
Methods: We extracted micoRNA from 75 urothelial samples all analysed for 365 human miRNAs. We subsequently utilised TargetScan to predict the biological targets of these differentially expressed miRNA. Finally we analysed the expression of these common target genes in 71 bladder cancer tumours.
Results: Sixteen miRNAs were differentially expressed between the bladder cancer cells and normal urothelium (13 up-regulated and 3 down-regulated). TargetScan identified the corresponding genes that are targeted by these miRNA. We analysed the expression of these genes in 71 bladder urothelium samples and discovered that patterns of gene expression matched those predicted by TargetScan. This included known and novel oncogenes and tumour supproser genes associated with bladder cancer pathophysiology.
Conclusions: Our data confirms the differential expression of miRNAs of bladder cancer. Furthermore it demonstrates the link between differential microRNA expression and its altered expression of oncogenes and tumour suppressor genes in relation to bladder cancer.

P 25

The effect of the renal capsule on the size of ablation produced using microwaves at 2.45 gGHz

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Introduction: The renal capsule, composed of collagen and elastin, is a tough fibrous structure encapsulating the kidney and is 2–3 mm in depth. Although many of its mechanical properties have been studied in canine kidneys little is documented concerning its potential effect on thermal ablation during minimally invasive therapy. Exophytic renal tumours may stretch the overlying capsule and current practice of pre-ablation core biopsies will create multiple defects potentially effecting the thermal ablative lesion. We investigated the effect of the renal capsule on lesion size obtained with microwave ablation at 2.45 GHz.
Methods: Fresh cadaveric porcine kidneys were obtained from a local abattoir and half the renal capsule was removed. A single ablation was performed at room temperature in each half of the kidney. Power was constant at 80 W with variable treatment times of 30 s, 60 s and 120 s and each power-time combination was repeated 4 times. The applicator was inserted to the same depth for all ablations. Calipers were used to measure surface dimensions (diameter and width), and following sectioning, depth and internal diameter at 25%, 50% and 75% of depth. Area under the curve of depth vs radius was used as the primary measure of lesion size.
Results: Lesion size increases non-linearly with treatment time according to a Boltzmann sigmoidal curve. For all treatment times the lesion size was larger in the presence of the renal capsule, however, the difference was small (0.02–0.2 cm^2) and not significant (Table 1).

Table 1. (P25.)

Power (W)	Time (s)	Mean area under the curve (AUC) (cm2)			
		Capsule	No Capsule	Difference	P-Value
80	30	0.99345	0.9542	0.03925	0.37192898
80	60	1.36475	1.3392	0.02555	0.9107826
80	120	1.64775	1.48275	0.165	0.0560552

Discussion: The renal capsule does not affect lesion size obtained with 2.45 GHz microwave radiation in cadaveric porcine kidneys. Microwaves cause heating primarily by oscillating polar water molecules (dielectric heating). The renal capsule being composed mainly of elastin and collagen is relatively acellular and, therefore, has little water and is likely to be transparent to microwaves. The renal capsule is unlikely to insulate heat energy (which may increase lesion size), generated following ablation, being only 2–3 mm in depth. These results suggest that current practice of core biopsy, which necessitates injury to the renal capsule, immediately preceding ablation is unlikely to affect lesion size using microwaves at this frequency.

P 26

PTEN can function as a tumour suppressor in clear cell renal carcinoma

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Introduction: PTEN is the 2nd most frequently inactivated tumour suppressor in human cancers. While its role has been well studied in other neoplasms, little is known about its function in ccRCC. Approximately 75% of patients with ccRCC have inactivation of the VHL tumour suppressor. Relatively aggressive 786-O ccRCC cells are both PTEN and VHL deficient. Therefore, we asked whether PTEN functions as a tumour suppressor in ccRCC.
Methods: Gain of function studies were performed on 786-O cells expressing PTEN, VHL or both. Growth, migration, protein and mRNA were assayed. Tumour xenograft experiments were performed in nude mice. Loss of function studies were performed by silencing PTEN in RCC4 and RCC10 cells. Human ccRCCs were analysed for PTEN expression.
Results: 1. PTEN expression is reduced in a subset of human ccRCC. 2. PTEN suppresses VEGF mRNA in 2 independent ccRCC models. 3. Restoration of PTEN in 786-O cells inhibits migration, anchorage independent growth and tumour xenograft growth in nude mice.
Conclusions: Collectively, our results show that PTEN is able to function as a tumour suppressor in ccRCC and that loss of PTEN may be a component of the multi-step process of ccRCC tumourigenesis. This makes PTEN a potential therapeutic target in ccRCC.

P 27

Investigation into methylation of the Secreted Frizzled Related Proteins (SFRP) family of Wnt antagonists in prostate cancer

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Introduction: Wnt signalling has diverse roles in cell development. The activities of

Wnts are suppressed by Secreted Frizzled-Related Proteins (SFRPs). Promoter hypermethylation associated silencing of SFRPs was reported in human cancers. This study has investigated promoter hypermethylation of the SFRP genes in prostate cancer (CaP).
Methods: DNA methylation of SFRP was investigated by conventional and quantitative methylation specific PCR (QMSP), bisulfite sequencing and pyrosequencing in CaP cell lines (LNCaP, DU145, RC58, PC-3 and 22Rv1), normal prostate cell lines (PWR1E and RWPE1) and CaP (40), benign prostatic hyperplasia (BPH) (37), histologically normal prostate (39) and high-grade prostatic intraepithelial neoplasia (HGPIN) (15).
Results: Methylation frequencies in CaP were SFRP1: 2/33 (5.88%), SFRP2: 28/39 (72%), SFRP4: 1/40 (2.5%) and SFRP5: 18/27 (67%). In vitro studies also revealed frequent hypermethylation of SFRP2 in LNCaP, DU145, PC-3 and 22Rv1. SFRP2 analysis by QMSP showed lower levels of methylation in histologically normal prostate 4/38 (11%), BPH 3/33 (9%), and HGPIN 3/14 (21%) compared with CaP 28/39 (72%), $P < 0.0001$.
Conclusions: Our findings show SFRP2 is a frequent target of promoter hypermethylation in CaP. The low frequency of SFRP2 methylation in HGPIN suggests the epigenetic hit does not occur as an early event in CaP initiation.

P 28

Regulation of ADAMTS15 by dihydrotestosterone in prostate cancer cells and identification of putative androgen response elements

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Introduction: Prostate cancer is a leading cause of cancer death. Death from prostate cancer is usually a consequence of metastases. Some metalloproteinases are implicated in the process of cancer progression. ADAMTS proteases (A Disintegrin And Metalloproteinase with ThromboSpondin motifs) are metalloproteinases that play diverse roles in tissues. Prostate cancer cells express ADAMTS-15 but its role in prostate cancer progression is unknown. Low expression levels of ADAMTS-15 is associated with poor prognosis in breast cancer patients. This study was designed to determine whether ADAMTS-15 expression is regulated by androgens in prostate cancer cells.
Materials and Methods: The ADAMTS15 gene and promoter region were screened to identify putative androgen response elements (AREs). Androgen sensitive LNCaP prostate cancer cells were treated with dihydrotestosterone (DHT) and Flutamide. Changes in ADAMTS-15 mRNA and protein expression were analysed.
Results: 13 putative AREs were found associated with the ADAMTS15 gene. ADAMTS-15 mRNA and protein expression were down-regulated by DHT. Flutamide did not inhibit the effect of DHT.
Conclusions: ADAMTS-15 expression is androgen-regulated, possibly via binding of activated androgen receptors to AREs associated with the gene. Down-regulation by DHT in prostate cancer cells suggests that ADAMTS-15 could be playing an anti-tumour role in prostate cancer progression.

P 29

To investigate the role of microRNAs expression in antiestrogenic regulation in prostate cancer cells

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Introduction: To investigate the role of microRNAs expression in antiestrogenic regulation in prostate cancer (PCa) cells
Methods: MicroRNAs expression profiles of DU145 cells with antiestrogen ICI-182,780 (antiE) treatment and vehicle control were determined by microRNA microarray and statistically compared to identify the differentially expressed microRNA. Then, real-time reverse-transcription-polymerase chain reaction analysis (RT-PCR) was used to confirm the antiE-induced microRNA expression changes. Finally, the involvement of estrogen receptor-ß (ERß) in the antiE-induced microRNA expression and the effects of siRNA knockdown of ERß were investigated.
Results: Of 705 human microRNAs examined, DU145 cells expressed 198 microRNAs with detectable signals above the background. antiE-treatment induced significant changes in 17 microRNAs expression. The upregulation of hsa-miR-765 by ICI in DU145 cells was confirmed by RT-PCR. As the hsa-miR-765 is located at intron 40 of ARHGEF11 gene, antiE-treatment can also induce the ARHGEF11 mRNA expression in the cells. siRNA targeting ERß specifically reduced ERß expression and blocked the antiE-induced upregulation of ARHGEF11 and hsa-miR-765 in the cells.
Conclusions: The antiestrogenic regulation of miRNA expression in PCa cells and its regulation is likely mediated by ERß-mediated signaling. Thus, the upregulation of hsa-miR-765 and/its host (ARHGEF11) may be attributable to the cell growth inhibitory effects of antiE.

P 30

A novel role for the adipokine visfatin in prostate cancer

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Introduction: Visfatin is a novel adipokine correlated with visceral fat accumulation and obesity, a condition associated with progression of established prostate cancer. Both tumour aggressiveness as well as mortality from prostate cancer are positively correlated with body mass index (BMI). We therefore looked at visfatin as a possible mediator in the relationship between obesity and prostate cancer.
Methods: We examined the effects of visfatin on LNCaP (androgen-sensitive) and PC3 (androgen-insensitive) human prostate cancer cell line proliferation, apoptosis and cell signalling as well as measuring expression of visfatin in human prostate tissue.
Results: Visfatin is highly expressed in LNCaP and PC3 cell lines, as well as in both benign and malignant human prostate tissue. We also demonstrate that visfatin significantly increases proliferation in PC3 cells ($p < 0.001$) but not LNCaP cells. Visfatin was shown to significantly promote the expression/activity of the angiogenic molecules MMP-2/9 in PC3 cells. Incubation with visfatin in PC3 cells also showed a significant activation of the MAPK ERK1/2 ($p < 0.05$).
Conclusions: These findings suggest a possible role for visfatin in prostate cancer progression and provide an insight into the role of obesity in the natural history of prostate cancer.

P 31

Membrane c-Src kinase expression is associated with decreased prostate cancer specific survival

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Introduction: Src kinase is a non-receptor protein tyrosine kinase associated with a variety of malignancies. Numerous cell line studies have demonstrated the role of c-Src in prostate cancer but clinical data is surprisingly limited.
Methods: Immunohistochemical staining was carried out on a cohort of 164 hormone naïve prostate cancer patients for c-Src and phosphorylated c-Src at serine 419 (the classical activation site of the protein) (Campbell et al BJC 2008; 99: 1769–74). Protein expression in membrane, cytoplasm and nucleus for each of the antibodies was double scored using the weighted histoscore and subsequently correlated with survival, Gleason grade and metastases.
Results: Both c-Src and phosphorylated c-Src expression was observed in the cytoplasm and membrane of the prostate tumour cell. Expression of phosphorylated c-Src in the membrane, cytoplasm and nucleus was not significantly associated with patient outcome measures. However, high membrane c-Src expression was significantly associated with decreased cancer specific survival ($p < 0.001$). In addition, expression levels of membrane c-Src were significantly associated with increased Gleason grade ($p = 0.014$).
Conclusions: Membrane c-Src expression is associated with poor prognosis in hormone naïve prostate cancer patients suggesting a role for Src kinase inhibitors in this patient group.

P 32

Loss of Sprouty2 Drives an Invasive Phenotype in Prostate Cancer and May Co-operate with HER2/3 in a Subgroup with Aggressive Disease

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Introduction: We recently identified epigenetic silencing as a mechanism for the loss of Sprouty2 (Spry2) expression. Here, we report our findings on its function in prostate cancer.
Methods and Results: Testing its biological significance, Spry2 function was diminished either through over expression of a functionally deficient Y55F Spry2 mutant or siRNA targeting Spry2. In DU145 human prostate cancer cells, both approaches led to a more invasive phenotype in a MatrigelTM based assay and *in vivo* tumorigenicity. hSpry2 expressing clones in DU145 and PC3M cells have suppressed proliferation, colony formation and cellular migration ($P = 0.015$, 0.017 and 0.0016 respectively). Using a prostate cancer tissue microarray, expression of Spry2 and members of the EGF receptor families were characterized. Reduced Spry2 immunoreactivity was weakly associated with high grade tumors ($P = 0.034$), supporting previous RT-PCR expression data. More importantly, in the presence of suppressed Spry2 expression, patients with tumors over-expressing HER2 and/or HER3 had a less favorable survival outcome (Log rank: $P < 0.05$).
Conclusions: These results suggest a key role for Spry2 in clinical CaP; further investigations to define its interaction with aberrant RTK function are warranted.

P 33

Inhibition of the aquaporin water channels (AQPs) increases the sensitivity of DU145 cells to cryotherapy

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Introduction: The aquaporin family of water channels are intrinsic membrane proteins that facilitate selective water and small solutes movement across the plasma membrane. In this study we investigated the potential role of AQPs inhibition in sensitising tumour cells to cryotherapy.
Materials and Methods: DU145 cells were cooled to $-10^{\circ}C$. The expression of AQP1,3 and 9 was examined in response to freezing using polymerase chain reaction and western blot analysis. Cells were cooled in the presence or absence of the aquaporin inhibitor mercuric chloride and cell survival was assessed using colorimetric assay. Small interfering RNA duplex(siRNA) was used to specifically suppress AQP3.
Results: Prostate cancer cells express AQP1,3and 9. There was a significant increase in AQP3 in the immediate post-freeze period followed by reduction to the untreated level by 24 hours post-freezing. Inhibition of AQPs by HgCl2 resulted in complete loss of DU145 cell viability ($P < 0.01$). qPCR and Western blot analysis showed that AQP3 silencing caused a significant reduction in AQP3 mRNA and protein levels. AQP3 knocked down cells were more sensitive to freeze injury compared to control cells ($P < 0.001$).
Conclusions: We demonstrated that AQP3 is involved directly in cryoinjury. Inhibition of AQP3 increases the sensitivity of prostate cancer cells to cryotherapy.

P 34

M30 and M65 as novel biomarkers of advanced prostate cancer

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Introduction: Cytokeratins (CK) form the epithelial cytoskeleton, with high levels in CaP. CK18 is a novel biomarker of cell death, M30 assays detect apoptosis from caspase-cleaved CK18 fragments and M65 detects cleaved and intact CK18 (a measure of necrosis). This study assessed utility of these markers in advanced CaP.
Methods: Serum M30 and M60 levels were measured retrospectively in 134 patients with T3(114) and T4(20) CaP. The levels were then correlated with disease progression and disease-specific survival.
Results: M65 correlated with PSA ($p = 0.0068$), M30 did not. Patients with the lowest M30 levels had the best overall survival (3-year OS 85% vs. 58%, $p = 0.03$). Of particular interest were patients with lower PSA and low M30 levels. This combination predicted a better prognosis when compared to patients with similar PSA but normal or elevated M30 (80% vs. 62%, $p = 0.02$).
Conclusions: This pilot is the first report of the prognostic impact of the biomarkers M30 and M65 in patients with advanced CaP. Elevated M65 confirms its potential as a marker of disease burden in future therapeutic trials. Low M30 levels predict better survival, particularly in advanced stage patients with low PSA. They may allow better discrimination between slowly and rapidly progressive CaP.

P 35

Serum total hK2 as a marker of bone metastasis and biochemical failure in prostate cancer

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Introduction and Objectives: PSA and its derivatives remain the most clinically important serum markers in prostate cancer, with applications to all aspects of its management. Human kallikrein 2 (hK2) is a serum protease very similar to PSA but with independent regulation of its serum levels. Here we present the first study of its use for detection of metastatic disease and prediction of biochemical failure following androgen ablation therapy.

Patients and Methods: Levels of serum total hk2 (thK2), total PSA (tPSA), free PSA (fPSA) and %f/tPSA were measured in peripheral blood samples collected from 389 men with histologically proven prostate cancer.

Results: 52 patients developed subsequent biochemical relapse. Patients with positive bone scans exhibited significantly higher levels of thK2, tPSA and fPSA compared to the group with negative scans (all $p = 0.005$), with thK2 showing the strongest overall accuracy (AUC = 0.831). Men with higher levels of thK2 ($p = 0.005$), fPSA ($p = 0.03$) or tPSA ($p = 0.05$) were significantly more likely to relapse following androgen ablation therapy. Serum thK2 exhibited the highest discrimination for biochemical relapse [concordance indices: thK2 = 0.688, fPSA = 0.670, and tPSA = 0.654].

Conclusions: Elevated serum thK2 levels appear to be associated with bone scan positivity and higher propensity to develop early biochemical relapse.

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P 36

The management of over 100 angiomyolipomata at a single UK institution over a ten-year period

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Introduction: We aimed to examine the presentation, management and outcomes of patients with renal angiomyolipomata (AMLs) over a ten-year period at our institution.
Patients and Methods: One hundred and two patients (70 tuberous sclerosis complex-TSC; 32 sporadic) with a median follow-up of four years have been treated to date. 77 patients with stable disease were followed up with surveillance imaging and 25 patients received interventions, some more than one. Indications for intervention included spontaneous life threatening haemorrhage, large size of AML (10–20 cm), pain and visceral compressive symptoms.
Results: Interventions consist of selective arterial embolisation (SAE) (n = 19), surgery (n = 10), and radio-frequency ablation (RFA) (n = 4). SAE was effective in controlling haemorrhage from AMLs in the acute setting (n = 6) but some patients treated electively required further intervention (n = 4) and there was a significant elective complication rate. No complications occurred after surgery or radio-frequency ablation. One patient was entered into a trial and treated with sirolimus, as yet with immature follow-up.
Conclusions: SAE appears effective at controlling haemorrhage from AMLs in the acute setting but is of limited value in the elective management of these tumours. RFA and the use of sirolimus may prove in the future to be safer as well as equally effective.

P 37

Hexylaminolaevulinate 'blue light' fluorescence is valuable for upper tract CIS diagnosis

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Introduction: The reliability of ureterorenoscopy and biopsy in the diagnosis of upper tract CIS remains disputed. Hexylaminolaevulinate 'blue light' fluorescence improves the detection of bladder tumors, particularly carcinoma *in situ*, compared with standard white-light cystoscopy. We carried out a preliminary evaluation of this technology in upper tract diagnosis.
Patients and Methods: Patients with positive urine cytology from ureteric washings but normal further investigations including multiple random bladder biopsies and negative white light flexible ureterorenoscopies were recruited. Hexvix® was instilled into a closed system created with a ureteric access sheath for 30 minutes prior to renoscopy using a flexible renoscope with blue filter. All fluorescent areas and random non-fluorescent areas were biopsied.
Results: 5/7 fluorescent area biopsies showed CIS, severe dysplasia or nuclear atypia. Two biopsies were insufficient for diagnosis. All random biopsies from non-fluorescent areas showed normal urothelium.
Conclusions: Upper tract CIS remains difficult to diagnose. We describe a novel use of 'blue light' fluorescence to maximise diagnostic yield. This approach aids targeting biopsies and could help with in-situ laser or diathermy. Although this technology is expensive, we believe it should be available within Cancer Networks to facilitate diagnosis and treatment and may help decrease the need for nephroureterectomies.

P 38

Day case laparoscopic dismembered pyeloplasty – a safe and feasible option

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Introduction: Laparoscopic pyeloplasty (LP) is considered a gold standard treatment for PUJ obstruction in many centres. We aimed to evaluate the feasibility and safety of implementing a day case surgery policy for laparoscopic pyeloplasty.
Methods: Patients with primary PUJ obstruction were selected for day case LP. The inclusion criteria included clinically fit (i.e. ASA Grade 1–2) patients who were well motivated and had good support at home. All patients had a ureteric stent inserted in an antegrade fashion at the time of pyelotomy. No drain was used. Patients were discharged when they were comfortable on the same evening at 18 hrs.
Results: Between October 2006 and November 2007 sixteen patients had LP, of which 10 (12 to 67 years old) were planned as day cases. All planned day cases were discharged on the day of surgery with a median operative time of 180 mins and mean post-operative stay of 249 mins (100–370 min). There were no open conversions or readmissions. Oral agents provided adequate analgesia for all. Post-operative MAG3 diuretic renography showed resolution of PUJ obstruction.
Conclusions: LP is a minimally invasive urological procedure, which can be done safely and effectively as a day case in selected patients.

P 39

The development and validation of the first virtual reality laparoscopic nephrectomy simulator

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Introduction: In partnership with Mentice (Sweden) we have developed Procedicus MIST Nephrectomy©, the worlds first virtual reality laparoscopic nephrectomy simulator. It has haptic feedback and the simulation is divided into 3 tasks: dividing the ureter, dissecting the renal hilum and dissecting the kidney within Gerota's fascia from the peritoneum. The simulator records 72 metrics of performance during the exercises. This study aims to establish face, content and construct validity.
Materials and Methods: Face and content validity were evaluated by seven experts in laparoscopic urology who used the simulator and completed a structured questionnaire. Construct validity was investigated by comparing the performance of seven experts with ten novices.
Results: All experts felt the simulator was a valuable training tool. The simulated instruments, graphics, and individual tasks were rated as above average for authenticity (mean Leikart scores 3.2 to 4.2). Experts performed all 3 tasks significantly quicker than novices with overall task times of 1545 sec and 2267 sec respectively ($P < 0.01$). Experts also had less blood loss than novices ($P < 0.02$).
Conclusions: Face and content validity has been demonstrated for the Procedicus MIST Nephrectomy©. Furthermore the simulator can distinguish between expert and novice laparoscopic surgeons, thus supporting construct validity.

P 40

Laparoscopic cryotherapy for T1 renal tumours: a single centre experience 2004–2008

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Introduction: Cryoablation is emerging as a viable alternative to extirpation for local control when partial nephrectomy is inadvisable. This approach for small renal tumours reduces the risks of open or laparoscopic partial nephrectomy. Clinical and oncological outcomes are assessed.
Methods: All data were collected from a prospective database. Ideal patients were those with imperative nephron sparing indications; multiple co morbidities; senior age and exophytic tumours = 3 cm. Either retro- or transperitoneal laparoscopy was applied. All patients had intraoperative biopsy. Follow up with CT/MRI scans was done initially at 3 months and then 6 monthly.
Results: We performed 30 cryoablations. Mean tumour size was 27 mm; mean operative time 156 minutes; mean blood loss 65 ml; five patients developed ileus. One open conversion was done for tumour cracking with bleeding requiring partial nephrectomy. Overall mean follow up was 700 days with 2 patients demonstrating local recurrence on CT criteria; one had tumour persistence immediately post procedure. Recurrences occurred in larger tumours. GFR was unchanged post procedure.
Conclusions: Cryoablation for T1 renal tumours is feasible, with low complication rate and tumour eradication equivalent to published series. Long term follow-up data is awaited.

P 41

Laparoscopically assisted renal cryoablation for small renal tumours: first UK multicentre report

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Introduction: Laparoscopic renal cryosurgery is safe and effective treatment for small renal tumours. We present our first UK multicentre experience of perioperative morbidity and short term oncological follow-up from 5 institutions.
Methods: One hundred and twenty-one renal tumours suspicious for malignancy on CT or MRI, were suitable for cryosurgery. Majority of these patient were considered high anaesthetic risk. Under laparoscopic vision and with intracorporeal ultrasound guidance, the tumour was identified and a biopsy was taken before freezing (at least 2 freeze cycles). Persistent non-enhancement of the lesion (CT or MRI) was considered as successful ablation.
Results: Mean age was 68.1 (range 32–85), tumour size 28 mm (range 12–56), ASA score 2.3 and mean hospital stay was 3.8 days (range 1–43). Biopsy results included: 91 carcinomas (75.2%), 15 oncocytoma, 2 AML, 11 non diagnostic or normal and 1cyst, sarcoma each. 3 patients had major complication (1 open partial nephrectomy, 1 open cryotherapy and 1 intestinal obstuction in a patient with multiple previous bowel surgery). 17 patients had minor complications. Follow-up was available for 0–41 months. 1 recurrence and 2 new tumours during follow-up were treated by partial nephrectomy.
Conclusions: Cryoablation is an attractive treatment option with minimal morbidity for small renal tumours, especially for patients with high co-morbidity.

P 42

Radiofrequency assisted partial nephrectomy without hilar clamping; a novel technique using the HABIB 4x ™

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Introduction and Objectives: In selected cases nephron sparing surgery offers equivalent oncological outcomes to radical nephrectomy, with superior renal function outcomes and improved quality of life. Hilar vessel clamping during partial nephrectomy can however result in hypoxic injury to the kidney. The HABIB 4x™ is a novel bipolar radiofrequency device used in liver resection to create haemostasis along a surgical plane. We present our initial experience with this device performing non-ischaemic partial nephrectomy without hilar clamping.
Materials and Methods: Nineteen partial nephrectomies were performed; 10 via open approach and 9 laparoscopically (7 hand-assisted, 1 robotic and 1 transperitoneal). Tumour size ranged from 1–4 cm.
Results: All operations were performed successfully and without major bleeding. One patient required renal hilum clamping for 10 minutes. Mean operative time was 150 minutes, and hospital stay 4 days. No patients were transfused. There was 1 urine leak managed conservatively with retrograde ureteric stenting. Histology revealed 17 renal cell cancers, 1 non-functioning moiety, and 1 oncocytoma. There was 1 positive margin.
Conclusions: Radiofrequency assisted partial nephrectomy appears to be feasible and safe in selected cases. Advantages include avoidance of renal ischaemic time and the ability to distinguish histologically

between normal and cancerous tissue following resection.

P 43

Comparing eGFR changes in partial nephrectomy (PN), cryoablation (CA) and radiofrequency ablation (RFA) – a single centre experience

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Introduction: The effect of nephron-sparing surgery on eGFR (estimated Glomerular Filtration Rate) is unclear. Comparisons of baseline to post-operative creatinine ratios are well published, but as eGFR is a more accepted measure of renal function and relates to quality of life we postulate preference for this measurement.
Materials and Methods: One hundred partial nephrectomies, 28 laparoscopic cryoablations and 14 percutaneous radiofrequency ablations (RFA) were compared from prospective database. eGFR was calculated by the Modified Diet in Renal Disease (MDRD) formula.
Results: Median eGFR follow-up was 1 year for the first two groups and 4 months for RFA. Overall there was a mean decrease of −7% (maximum change range −61% to + 64%) after imperative PN; −9% (range −72% to + 33%) after elective PN; 0% (range −24% to + 60%) after laparoscopic cryotherapy and −1% (−25% to + 16%) after RFA. These differences were not significant. Two imperative PN patients, with preoperative eGFRs less than 15 ml/min, required permanent renal replacement therapy one year post-op.
Conclusions: Overall nephron-sparing surgery results in a small mean eGFR reduction although the maximum range of change is wide. Imperative partial nephrectomy with eGFR < 15 ml/min preoperatively is likely to need permanent renal replacement at one year.

P 44

The multimodality management of small renal tumours – a single centre experience of 150 cases

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Introduction: In the treatment of small renal masses, our unit offers *extirpative* surgery (open, laparoscopic, robotic partial nephrectomy) and *probe ablative* therapy (laparoscopic cryoablation and percutaneous radiofrequency ablation). We compare our experience of these treatments.
Methods: Data was collected from prospective database between 1999–2008. Partial nephrectomy was done for elective or imperative indications. Ablative therapies were considered in those with imperative nephron sparing indications; multiple comorbidities; senior age and exophytic tumours = 3.5 cm. Oncological outcomes were determined by margin status or CT/MRI enhancement indicating recurrence.

Results:

Table. (P44.)

Treatment modality	Number of patients	Mean age of patients	Mean size of tumour (cm)	Transfusion Rate	Mean eGFR change	Tumour Recurrence	Range of follow-up (months)
Partial nephrectomy	106	59	3.4	17%	Decrease by 8%	3/80 (3.7%)	3–110
Laparoscopic cryotherapy	30	70	2.7	3%	No mean change	3/30 (10%)	3–50
Percutaneous RFA	14	69	3.4	0%	Decrease by 1%	2/14 (14%)	3–40

Conclusions: The treatment options for small renal masses are increasing. Ablative techniques offer high-risk patients safe treatment with equivalent renal function outcome and acceptable cancer control. Regular clinical use of these modalities improves understanding regarding patient selection as well as technique. Partial nephrectomy is the standard to which such innovation should be compared.

P 45

Laparoscopic HIFU for small kidney tumours – Phase I trial results

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Churchill Hospital, Oxford, UK

HIFU causes coagulative necrosis within a targeted area of tissue. Extra-corporeal HIFU devices have been used to ablate kidney tumours but the rib cage prevents optimal treatment delivery. This Phase I trial assessed a laparoscopic HIFU device.

Seven patients with renal tumours were treated with laparoscopic HIFU then radical nephrectomy. A specific area of tumour was targeted; no attempt was made to ablate the entire tumour. The resected specimens were examined histologically.

No tumour ablation was seen in the first three patients (extensive peri-nephric fat; cystic tumour). Modifications in treatment protocol resulted in evidence of ablation in the remaining patients. Within the ablated zones there was no evidence of vital tissue.

There were no intra-operative or post-operative complications directly related to HIFU therapy.

Patients have reached a mean follow-up of 20 months (range 10–27) with no evidence of metastatic disease or late complications.

Tumour ablation with laparoscopic HIFU is feasible. Homogenous ablation can be achieved with no vital tissue within the targeted zone. The technique is associated with low morbidity and may have a role in the definitive management of small tumours. Further long term studies ablating entire tumours are required to evaluate efficacy as a primary treatment modality.

P 46

Outcome of laparoscopic nephrectomy (LN) in octogenarians

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Aim: Over 570 LNs have been performed in this hospital since 2001, of which 29 (5%) have been in octogenarians. The aim was to assess peri- and post-operative outcome in this high-risk group.
Methods: Data was collected retrospectively.
Results: The average age was 82 (80–91) years. Eighteen (65%) patients presented with symptoms. All patients were pre-assessed leading to 8 anaesthetic consults. The average operating time was 167 (100–300) minutes. The average blood loss was 245 (0–1300) ml. Fourteen patients (48%)

developed complications (major and minor) and six patients (21%) were transferred to HDU. Complications included: 5 infections, 2 pulmonary oedema and 2 cardiac events, 1 renal failure and 1 gastrointestinal bleed. The average hospital stay was 10 (4–57) days. Twenty-four (83%) patients had a neoplasm. One patient died on day 57. Twenty three (79%) of the patients were alive and well at one year. Four died from metastatic cancer and two died from cardiac events.
Conclusions: The octogenarian who undergoes LN has a significant risk of developing complications. Pre-operative optimisation of anaesthetic fitness and careful peri-operative monitoring is needed to ensure a good surgical outcome, as there is a significant risk of cancer related death in this group.

P 47

Laparoscopic cytoreductive nephrectomy: A Four centre experience

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Introduction: Laparoscopic Radical Nephrectomy(LRN) has become the standard of care for the management of renal malignancy. Concern exists with regard to safety in the subset of patients with very large tumours +/− hilar lymphadenopathy who have been selected for cytoreduction as a facet of multimodal treatment. This study analysed the experience of four UK centres in performing laparoscopic cytoreductive nephrectomy in order to assess the operative safety and hence feasibility of laparoscopic CRN in the UK.
Patients and Methods: Twenty-five patients with metastatic renal cell carcinoma (RCC) underwent laparoscopic CRN in four UK centres between October 2003 and November 2007. Peri-operative parameters, postoperative recovery and complications were measured prospectively.
Results: The median tumour size was 7 cm. The median operative time was 175 mins. Median blood loss was 75 mls. 3 patients required blood transfusion, two patients required conversion to open one of which was abandoned. The hospital stay varied between 2.5 days and 11 days (median 3 days). There was no 30 day mortality.
Conclusions: Laparoscopic CRN has been shown in our experience to be a viable and safe treatment modality for patients with metastatic RCC.

P 48

Preoperative clinical predictors of renal function following radical nephrectomy for renal tumours

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Introduction: Radical nephrectomy is a risk factor for developing chronic kidney disease. We used preoperative clinical parameters to calculate post-nephrectomy GFR.
Patients and Methods: Seventy-five patients undergoing radical nephrectomy for renal tumours were studied to assess whether age, baseline GFR, and tumour size on cross-sectional imaging can predict GFR performed immediately postoperatively and at subsequent followup. GFR was estimated using the MDRD formula. Linear regression analysis was performed to produce a model for calculating postoperative GFR.
Results: Mean age was 65 years; 64% were males. Renal cell carcinoma comprised 85% of cases. Mean tumour size was 7 cm (range 1.5–15). Mean baseline GFR was 67.1 ml/min (range 24–90). Mean immediate postoperative GFR was 48.0 ml/min (range 21–90), while mean GFR performed at median follow-up of 4 months was 45.3 ml/min (range 18–90). Baseline GFR was the best predictor for postoperative GFR, followed by tumour size. The regression model gave a good adjusted R^2 predictive value of 63% using the equation:

Postoperative GFR = −5.35 + (0.58?baseline GFR) + (1.53?tumour size)

The same parameters could also predict immediate postoperative GFR but with less accuracy (adjusted R^2 of 48.4%).
Conclusions: Using patient's age, baseline GFR, and tumour size, postoperative GFR could be calculated with acceptable accuracy after radical nephrectomy.

P 49

Outcomes of surgical treatment for renal cancer with intracaval tumour thrombus above the hepatic veins

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Introduction: To report our experience of surgical treatment of renal tumours with inferior vena cava tumour thrombus above the hepatic veins, utilising cardiopulmonary bypass and circulatory arrest.
Patients and Methods: A retrospective review of 48 consecutive cases (median age 58 years). Peri-operative, histological, disease-free and overall survival data were recorded.
Results: Tumour thrombus was above the hepatic veins in 23 patients and above the diaphragm in 25 patients. The median cardiac bypass and circulatory arrest times were 160 minutes (range: 109–275) and 35 minutes (range: 9–64), respectively. Three patients underwent synchronous cardiac surgical procedures. There were 3 (6.3%) peri-operative deaths. ASA grade and peri-operative blood transfusion requirements appeared significant in predicting peri-operative death ($P < 0.05$).

Despite extensive pre-operative screening for metastases the median disease-free survival was only 10.2 months. The median overall survival was 23 months (range: 0–18.7 years). Cox regression analysis showed that perinephric fat invasion confers a significantly poorer prognosis ($P = 0.005$).
Conclusions: Radical surgery for patients with extensive vena cava tumour thrombus has acceptable operative morbidity and mortality. It provides symptom palliation and the possibility of long term survival. Improvements in pre-operative detection of occult metastasis may improve case selection and newer adjuvant therapies may improve survival in this high risk group.

P 50

Indeterminate pulmonary nodules in renal cell carcinoma – how often do they represent metastatic disease?

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Introduction: Computed tomography (CT) scans used in the staging of renal cell carcinoma often reveal small, size insignificant pulmonary nodules which potentially represent metastatic disease and could therefore influence clinical management.
Patients and Methods: The initial and follow-up CT scan reports of a single urological surgeon's series of 89 consecutive patients with pathologically diagnosed renal cell carcinoma from July 2005 to August 2008 were assessed.
Results: 31 out of 86 cases (36%) had one or more indeterminate pulmonary nodules. 28 of these patients had had at least one

follow-up CT scan and 5 (18%) progressed to metastatic disease in a median period of 6 months (range 2–14 months). The only radiological similarity between these 5 patients was that their renal tumours were at least 6 cm in size. However, a further 10 patients, whose pulmonary nodules were not metastases, had tumours of 6 cm or more.
Discussion: Indeterminate pulmonary nodules are a common finding in the staging of renal cell carcinoma. In this series a significant proportion (18%) represented pulmonary metastases with initial tumour size the only radiological clue. This must be taken into account when discussing the diagnosis and prognosis with the patient and also in planning treatment strategy.

BJUI BJU INTERNATIONAL

Wednesday 24 June 1100–1230
ANDROLOGY
Chairmen: Mr Steve Payne & Mr Nick Watkin

P 51

Pharmacist prescribing of PDE5 inhibitors. An alternative to the doctor?

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Introduction: While PDE5 inhibitors are usually prescribed by physicians, a number of pressures have led some countries to explore prescribing by pharmacists. We report the results of one such trial in the UK.
Methods: Sildenafil was made available via a protocol based prescription from a pharmacist. National press and TV advertised the availability. Patients were clinically assessed by the pharmacist including biochemical testing and were given supplies of sildenafil, with follow-up by a physician and the pharmacist.
Results: Five hundred and sixty-eight men made appointments, 431 attended and 367 were eligible for treatment. Most lived locally but several travelled over 200 miles to seek treatment. 78.5% were referred to their GP because of cardiovascular abnormalities. Only 120 men attended for the physician medical. 72 remain within the system, receiving medication.
Conclusions: Safe pharmacist prescribing of PDE5 inhibitors is possible. Some patients value the impersonal nature of the system, as evidenced by their willingness to travel great distances to receive medication. The pick up rate for cardiovascular risk factors is high, but may reflect the random nature of the assessment. The drop out rate from treatment was high. Many men clearly value the availability of such medications without the need for medical assessment.

P 52

Calculated free and bioavailable testosterone in men with erectile dysfunction. A controlled study

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Introduction: Total testosterone is the main circulating androgen in human males. Testosterone deficiency in men with vasculogenic erectile dysfunction (ED) and it is effects on cardiovascular disease remains controversial. This controlled study examined the circulating levels of testosterone in men with ED and in a control group of potent men to assess the role testosterone plays in the metabolic syndrome.
Materials and Methods: One hundred and ten consecutive men with ED and an age-matched 118 men with normal potency were recruited. Total testosterone and sex hormone-binding globulin (SHBG) were measured using immunoassay techniques. Free and bioavailable testosterones were calculated.
Results: Mean age was 58.4 yrs and 57.8 yrs for ED group and control group respectively. Mean total testosterone level in the ED group was 14.5 nmol/l (SD $\pm$ 6.5 nmol/l) and 17.8 nmol/l (SD $\pm$ 6.3 nmol/l) in the potent group ($p < 0.001$). Total testosterone $<$ 12 nmol/l was found in 23.6% in the ED group and 12.7% in the potent group. Bioavailable testosterone was 10.8 nmol/l in the ED group and 14.9 nmol/l in the potent group. Both free and bioavailable testosterone were significantly lower in the ED group ($p < 0.001$).
Conclusions: The above results could explain the role played by low levels of total testosterone in the pathogenesis of metabolic syndrome.

P 53

Penile length measurements in adult men in the United Kingdom

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Introduction: Micropenis and penile dysmorphophobia are disease entities relating to penile size. Reference ranges for normal penile length have been reported from several countries and show some differences in normal length between different nations. We present the first study of penile length measurement from the UK.
Methods: Penile measurements were taken from men undergoing routine examination in clinics and in theatre during EUA. Penile length was measured with a ruler as urethral meatus to penopubic skin junction ("pendulous") length, meatus to pubic bone flaccid ("pubic") length and meatus to pubic bone stretched flaccid ("stretched") length. The patient's age, testis volume (by orchidometer) and referral reason were also recorded.
Results: Measurements from 600 patients were available for analysis. The ages ranged from 15–90 years. The mean values of penile dimensions recorded in the present study were pendulous length 9.09 cm ($+/-1.51$ cm SD), pubic length 10.61 cm ($+/-1.38$ cm SD) and stretched length 14.74 cm ($+/-1.58$ cm SD). Using Pearson correlation analysis we found no difference in penile length between men of differing ages (Fig 1). There was also no significant correlation between penile length and testis size or differing referral groups.
Conclusions: This data establishes a reference range for male genital size in the United Kingdom which should help urologists in counselling patients prior to seeking penile lengthening procedures or in patients requiring reassurance.

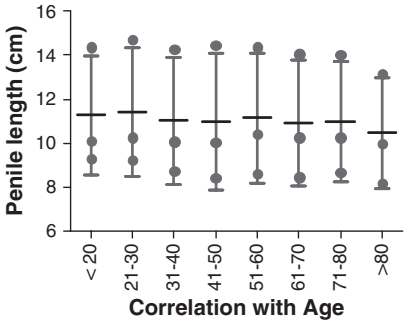

Figure. (P53.)

P 54

Management of 'soft glans' following penile prosthesis surgery

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Introduction: Failure of engorgement of the glans penis is a recognised finding following penile implant surgery and is cause of patients' and partners' dissatisfaction. Incidence and management of this condition are reported.

Materials and Methods: Over a 10-year-period, 464 patients have undergone the insertion of a penile prosthesis. The reason for insertion included Peyronie's disease (n = 98), cavernosal fibrosis (n = 114), acute priapism (n = 50), and vascular disease(n = 202). 26 patients complained of soft glans (5.6%).

All patients were managed either with a PDE5-inhibitor, intraurethral alprostadil (500 & 1000 mcg) or a combination of both of the above. A glanspexys was offered when the glans was also hypermobile and did not respond to medical therapy.

Results: After a median follow-up of 16 months (range 2–40), only 2 patients responded successfully to PDE5i alone. Intraurethral alprostadil guaranteed an adequate rigidity of the glans in 10 patients. A combination of intraurethral alprostadil and PDE5i was required in 4 cases. Medical treatment failed in 10 patients that were managed with glanspexys that guaranteed an adequate stability of the glans in 9 patients.

Conclusions: Soft glans penis occurs in 5.6% of penile implants which can be successfully managed medically in 60% of cases. Patients should be fully counselled pre-operatively about this.

P 55

A comparison of the outcome from intra-cytoplasmic sperm injection using fresh versus frozen sperm

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Introduction: To compare the outcomes of first-attempt ICSI-ET (intra-cytoplasmic sperm injection and embryo transfer) cycles when using frozen testicular sperm, fresh testicular sperm, frozen epididymal sperm and fresh epididymal sperm.

Materials and Methods: Retrospective analysis of the outcome of 259 first attempt ICSI cycles for 259 couples, performed between 1997 and 2008. The fertilisation, chemical pregnancy, clinical pregnancy, and delivery rates were calculated for each group.

Results: The results are tabulated below;

Table. (P55.)

	N = 259	Fertilisation rate	Chemical pregnancy rate	Clinical pregnancy rate	Delivery rate
Fresh testicular sperm	60	52.57%	44.8%	41.4%	37.9%
Frozen testicular sperm	30	59.68%	51.9%	44.4%	37%
Fresh epididymal sperm	127	60.78%	52.1%	46.3%	38.8%
Frozen epididymal sperm	42	52.59%	40%	35%	32.5%

There was no significant difference between any of the 4 groups in the fertilisation, chemical pregnancy, clinical pregnancy, or delivery rates.

Conclusions: Using frozen sperm has the advantage of avoiding repeated surgical sperm retrieval with each cycle and ensures the availability of sperm before beginning the IVF cycle thus reducing costs and avoiding unnecessary cycles. It is a reliable method that has a favourable outcome when compared to fresh sperm. Also testicular and epididymal sperm have similar ICSI outcomes.

P 56

The role of cross-sectional imaging in staging metastatic squamous cell carcinoma of the penis

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Introduction: Locoregional spread of squamous cell carcinoma (SCC) penis occurs primarily via the lymphatic system. The aim of this study was to investigate the accuracy of cross-sectional imaging in staging metastatic disease in patients with penile carcinoma.

Patients and Methods: Thirty patients with SCC of the penis underwent cross sectional imaging before undergoing inguinal lymphadenectomy procedures. 82 basins were imaged using MRI or CT. Two radiologists, who were blinded to the histological outcome reported on the presence of lymph node disease using a set criteria. The radiological findings were correlated with the pathological specimens.

Results: MRI and CT imaging had a sensitivity of 35% and 64% with a specificity of 80% and 59% respectively. Using a combination of the techniques resulted in a sensitivity of 46% and specificity of 72% with an overall positive predictive value of 65%. 20% of basins from patients with T2 G2 tumours appeared benign on imaging but had positive nodes on histological analysis of the specimen.

Conclusions: This study highlights the limitations of cross-sectional imaging in detecting lymph node metastases associated with SCC of the penis. Novel imaging modalities must be developed with the aim of reducing the number of patients undergoing lymphadenectomy.

P 57

Does frozen section analysis with Superficial Modified Inguinal Lymphadenectomy (SML) remain the gold standard in the management of clinically node negative men with penile cancer?

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Introduction: The management of non-palpable lymph nodes in penile cancer is

controversial. The aim of this study was to assess the role of intra-operative frozen section (FS) examination with SML in these patients.
Materials and Methods: Thirty-seven men underwent bilateral SML with FS. Histopathological characteristics of the frozen and paraffin sections were reviewed including qualitative and quantitative nodal burden, morbidity and mortality.
Results: Twenty-four per cent (9) were FS positive (FS +) and 76% (28) negative (FS−). All men with positive lymph nodes underwent deep inguinal node resection. Average number of nodes resected from both groups was comparable, with total nodal count increasing on paraffin section, but no increase in the number of positive nodes. Although small foci (< 1 mm) of tumour identified on subsequent examination of remaining tissue post FS resulted in radical lymphadenectomy in 2 patients, they remain disease-free. Morbidity was higher in FS + men 66%, compared with 50% in the FS− group, Mortality in the FS + group (22%) was significantly higher compared with the FS− group 11%.
Conclusions: SML with intra-operative frozen section analysis remains the gold standard in the management of non-palpable lymph nodes. A single diagnostic and therapeutic procedure identifies patients requiring immediate radical surgery, which is oncologically safe.

P 58

Predictors of penile cancer recurrence following conservative surgical resection

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Introduction: The aim of this study was to assess the long term outcome of conservative surgery for penile cancer and identify parameters which predict tumour recurrence.
Materials and Methods: The histopathological characteristics and outcome of 174 patients undergoing conservative surgery (partial penectomy with reconstruction, glansectomy and glans resurfacing) for penile cancer were analysed.
Results: 132 (75.6%) remained tumour free with 23 men (13%) developing local recurrence at the site of primary resection and 19 (11%) patients developing metastases within the groin basins or at distant sites. Independent predictors of tumour recurrence, included stage, lymphovascular invasion, and pathological lymph nodes ($p < 0.01$); with tumour recurrence associated with a higher mortality rate. Mortality rates were 30.9% for overall tumour recurrence (21.7% local recurrence and 42.1% metastases), compared to 9.1% in those men recurrence free.
Conclusions: Conservative surgical treatment of penile cancer is best suited to those men who at the time of initial surgery have a lower tumour stage (< pT2), no lymphovascular invasion, or lymph node metastases. Each of these factors is independently associated with a greater incidence of tumour recurrence and subsequent higher patient mortality. Patients with unfavourable parameters should be selected for either radical surgery, or offered adjuvant treatments.

P 59

Long term outcome of epididymectomy for the management of patients with chronic epididymal pain

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Introduction: Chronic epididymal pain is a source of great anxiety and distress amongst patients and is challenging to manage. We evaluated the long term outcomes of patients who had epididymectomy for treatment of chronic epididymal pain in our institution.
Materials and Methods: Seventy-two patients who had epididymectomy between 1994–2007 were mailed a questionnaire regarding their treatment. Questions regarding pain were rated on a scale between 0–10 (0 = no pain, 10 = severe pain). Statistical analysis was performed using Wilcoxon and Fisher's exact tests with $p < 0.05$ considered significant.
Results: Fifty-three patients replied and the mean follow up time was 7.4 years. 45 patients (84.9%) had epididymectomy for post vasectomy (PV) pain whilst the remainder (8/53, 15.1%) had for other non-vasectomy (NV) reasons. There were significant improvements in pain score in both the PV (mean 7.3 pre-op to 2.4 post-op, $p < 0.001$) and NV (mean 7 pre-op to 2.8 post-op, $p = 0.002$) groups. 93.3% (42/45) of PV patients had less or no pain post-procedure compared to 75% (6/8) of NV patients. Satisfaction with epididymectomy was also higher in the PV (42/45, 93.3%) compared to the NV (5/8, 62.5%) group ($p = 0.038$).
Conclusions: Epididymectomy is an effective treatment option particularly for treatment of post vasectomy epididymal pain.

P 60

Penile glans resurfacing for benign and pre-malignant conditions

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Introduction: To assess the long-term outcome of glans resurfacing for benign and pre-malignant conditions.
Materials and Methods: Glans resurfacing was performed in 21 patients for Carcinoma in Situ of the glans (CIS) and Balanitis Xerotica Obliterans (BXO) using a thin split thickness skin graft harvested from the inner thigh. Total glans resurfacing was performed in 8 patients and partial resurfacing was performed in 13. For CIS cases, intraoperative frozen section was used to ensure clear margins.
Results: Mean patient age was 54.7 years (34–72). Graft take was complete in 20 patients (91%). At a median follow up of 8.7 months (2–26), all patients treated for BXO reported excellent cosmetic and functional results and resumption of sexual activity. A glansectomy was required in 4 patients treated for CIS, following definitive histopathological examination. In the remaining patients treated for CIS the cosmetic and functional results were excellent in 5 cases with no recurrence. 70% of patients treated for CIS have resumed sexual activity.
Conclusions: Glans resurfacing offers good functional and cosmetic outcomes in both benign and pre-malignant conditions. In the latter group, patients must be made aware that a glansectomy may be required in up to 40%.

BJUI BJU INTERNATIONAL

Wednesday 24 June, 1100–1230
IMAGING AND STONES
Chairmen: Professor Jean de la Rossette & Mr Paul Downey

P 61

Evaluation of Contrast Enhanced Ultrasound for investigation of complex cystic Renal masses

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Introduction: Cystic renal masses are conventionally assessed by CT and ultrasound scans. Contrast Enhanced Ultrasound (CEUS) may be a novel tool for investigation of such masses and aim of the study was to evaluate its potential.
Patients and Methods: 19 patients underwent CEUS in our Trust for investigations of complex cystic renal masses. The results were compared with other investigation modalities i.e. CT and ultrasound scans.
Results: In eight patients, CEUS suggested a benign lesion where CT and/or ultrasound scan had been inconclusive. In five patients, CEUS suggested malignancy where conventional imaging had been equivocal. Of these patients, three patients went on to have surgery which confirmed the diagnosis of malignant disease. In a further two cases, both CT and CEUS suggested a cystic renal tumour but surgical histology revealed a benign cystic nephroma. In the remaining four cases, CEUS did not provide any additional information to conventional imaging.
Conclusions: CEUS provided additional information to conventional imaging in thirteen patients and appears to be a useful investigation in cases of complex cystic renal masses but requires further evaluation.

P 62

A prospective study of emergency referrals to urology for renal colic/loin pain and results from a questionnaire study of current UK practice

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In our hospital, emergency admissions with suspected renal colic are initially managed by General Surgeons. The investigations performed and level of senior assessment prior to referral were noted to be very variable and often relied on demonstration of dipstick haematuria. This prompted us to carry out a prospective study in our department and a questionnaire review of UK practice. One hundred referrals with suspected renal colic were studied using a detailed pro-forma over a 12-month period. A questionnaire was circulated to every UK department of urology asking about local protocols for managing renal colic referrals.

At referral only 18% had undergone imaging with CT or IVU. 40% of referrals had no urological pathology and 14% of referrals were shown to have significant General Surgical pathology including appendicitis, gallstones and diverticulitis. Urinanalysis for blood was negative in 13% with a ureteric stone present and positive in 58% with no urological problem. The results of the postal questionnaire will be presented.

Our results demonstrate that patient safety is compromised by urological referral for "renal colic" without definitive imaging and that a non-contrast CT is the accepted gold standard modality. We believe dipstick haematuria testing should be abandoned for emergency surgical admissions.

P 63

Clinical evaluation of contrast enhanced ultra-low dose CT In patients presenting with acute renal colic

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Introduction: Unenhanced CT of the renal tract (CT-KUB) has replaced IVU in many centres as the standard imaging for patients presenting with acute ureteric colic. However, concerns over the high radiation exposure with CT-KUB (8–16 mSv Niemann et al, AJR 2008; 191: 396–401) justifies evaluation of protocols with lower exposures. We report the use of ultra-low dose contrast-enhanced CT in the nephrographic phase of enhancement (ULDCECT) in patients presenting clinically with acute ureteric colic.
Patients and Methods: 53 patients consented to undergo IVU and ULDCECT on the same day as their hospital admission. Diagnostic accuracy of ULDCECT was determined by comparison with IVU and long term clinical outcome, including any intervention.
Results: ULDCECT had superior sensitivity (97%) and specificity (95%) in the identification of renal tract stone disease to IVU (84% and 81% respectively), with comparable radiation exposure (1.5 mSv versus 1.1 mSv). Furthermore, ULDCECT revealed non stone disease in 8 patients (15%), including renal tumour, acute appendicitis, perforated diverticulitis and common bile duct stone, two of whom required emergency general surgery.
Conclusions: ULDCECT provides diagnostically accurate imaging in patients presenting with acute ureteric colic and significantly outperforms IVU for an equivalent radiation burden both for renal stone disease and other acute pathologies.

P 64

Symptomatic urolithiasis – the accuracy of imaging and its impact on a tertiary referral centre

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Introduction: Acute Urological services are being centralised with Emergency departments (ED) in surrounding hospitals and primary care providers referring patients directly inwards to the central hub. An accurate diagnosis is essential to avoid inappropriate and potentially dangerous transfer of patients with non urological conditions to the centralized urology service. We reviewed the accuracy of imaging in patients suspected of having symptomatic urolithiasis.
Patients and Methods: Prospective data was collected on the modality and accuracy of imaging in 50 consecutive patients referred to the Urology Service.
Results: 25 patients (50%) had an Intravenous Urogram[IVU], 19 (38%) had unenhanced CT of the urinary tract [CTKUB] and 9 (18%) had plain Xrays. In total 14% of patients referred with symptomatic Urolithiasis from a satellite Hospital had been inaccurately diagnosed.
Conclusions: Diagnosis of symptomatic urolithiasis based on IVU is often incorrect. In contrast CTKUB is far more accurate. At a time of increasing centralistion it is vital that there is accurate interpretation of imaging prior to transfer. When IVU is the primary investigation then at least 14% of patients will be misdiagnosed, leading to patients being transferred inappropriately to urology services. CTKUB is the most accurate imaging technique and should be the primary imaging modality in the acute setting.

P 65

Socioeconomic benefits of a fast-track approach for patients presenting with ureteric colic

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Introduction: We determined whether a fast-track approach for the management of patients presenting with ureteric colic, using non-contrast CT (NCCT) and instant reporting by a urologist, could help plan management optimally and reduce operating costs.
Patients and Methods: All patients with suspected ureteric colic in our emergency department over a five-month period underwent low-dose NCCT examination of the abdomen/pelvis within four hours of arrival. Images were reviewed directly by a urology consultant and a management plan devised.
Results: One hundred and three patients underwent NCCT. Of these, 41 (40%) patients had no urinary tract calculi and were discharged. Non-urological pathology was detected in 8 patients (8%) who were referred to appropriate specialities. 54 (52%) patients had calculi of which 17 (31%) patients required admission. Ureteric stent insertion was needed in 7/17 patients. Instant imaging and reporting reduced inpatient admission for ureteric colic by 69%. Using hospital tariff charges (£320/inpatient day), a minimum total cost saving of £11840 was achieved over five months.
Conclusions: Instant reporting of NCCT can lead to a considerable reduction in urological inpatient admissions and cost savings for urology departments. Our study suggests that hospitals may benefit from urologists having networked picture archiving and communication systems available at home.

P 66

The 'Smart Stethoscope': predicting the outcome of lithotripsy

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Introduction: The 'Smart Stethoscope' is an exciting and innovative sensor which monitors ESWL effectiveness. Characteristics of passive acoustic emissions generated as a shock strikes a stone indicate whether it is effective (on target and causing cavitation).
Patients and Methods: The 2.5 cm sensor was taped to the flank of consented patients with renal stones. During this ethically approved phase II trial results did not influence management. Outcome of treatment was predicted by the sensor and the treating radiographer. A Consultant Urologist defined effectiveness on follow-up imaging.
Results: 81 treatments were monitored. The sensor correctly predicted 100% of effective treatments (19/81). The radiographer predicted 37% of effective treatments. Overall the sensor's prediction rate was 99%. 13 patients had multiple studies. 4 with mixed results; none required ancillary procedures. We hypothesize that ineffective treatments may be due to poor targeting. Patients with effective treatments had lower ancillary procedure rate (6% versus 55%; $p = 0.00$) and shorter 'time to stone free' (3.5 months versus 5 months; $p = 0.08$).
Conclusions: Real-time sensor monitoring may aid stone targeting and indicate resistant stones. A phase 3 study using this to modify treatment is currently underway.

P 67

Urologist and radiologist PCNL tracts: the UK experience

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Aims: We aim to explore the practice of who makes the PCNL tract in the UK and Ireland as well as presenting our data for a team approach to PCNL tracts in Northern Ireland.
Methods: A national questionnaire was carried out across NHS hospitals. In addition, a retrospective analysis of 134 PCNL cases done in Belfast City and Altnagelvin Hospitals between 2004–2007 was conducted. Group-I included 103 (77%) cases with urologist-made tract, while group-II included 31 (23%) cases with radiologist-made tract.
Results: A response from 88% NHS hospitals was obtained. 61% of responded NHS hospitals perform PCNL. 45% adopt a radiologist-made tract. 44% use urologist-made tract, while the remaining 11% use both.

In our study, most of the radiologist-performed tracts were complex cases. Failed access occurred in 6 (5.8%) cases in group-I and none in group-II. Clearance rate for staghorn stones was 83%, 34%; for renal pelvic stones 95%, 60% and for calyceal stones 78%, 33% for groups-I and II respectively.
Conclusions: There is a significantly higher stone-free rate in group-I ($p = 0.025$). This is possibly attributed to the complexity of these cases. However, we recommend team approach for complex cases. This results in a negligible failed access rate when a combined approach is used.

P 68

An audit of modifications to Per-Cutaneous Nephro-Lithotomy (PCNL) resulting in reduction of analgesic usage and length of stay

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Introduction: Conventionally a nephrostomy tube is left in place at the end of PCNL. We present data evaluating alternate means to reduce pain using intercostal nerve blocks (ICNB) or stented PCNL.
Methods: We prospectively audited patients undergoing PCNL in 3 groups: group one involved patients undergoing standard PCNL; group two patients were administed ICNB at end of PCNL and in group three we substituted nephrostomy tube with antegrade stent followed by application of fibrin sealant on the track. The patients', postoperative analgesia use, pain scores, length of hospital stay, and postoperative complications were recorded and compared to the previously audited group of patients.
Results: Outcomes were compared at end of each audit round in the three groups: standard PCNL (n = 50) vs standard PCNL + ICNB (n = 50) vs stented PCNL (n = 22). Mean opiate use was 90, 80 and 41 mgs; Mean NSAID use was 6.8, 6.6 and 3.6 tablets; Mean paracetamol use was 6.1, 2.7 and 7.1 gms; and mean hospital stay was 7.8, 5.1 and 2.6 days in standard PCNL, PCNL + ICNB and stented PCNL respectively.
Conclusions: Stented PCNL is safe and effective alternative to standard PCNL coupled with a reduction in hospital stay and postoperative analgesia usage.

P 69

The 'Stone Score': a validated method for grading complexity of percutaneous nephrolithotomy procedures

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Introduction: Although it is recognised that percutaneous nephrolithotomy (PCNL) procedures differ in complexity there is no standard. We propose the 'Stone Score' as a reproducible method of defining this.
Patients and Methods: Devised drawing on our institution's extensive PCNL experience the 'Stone Score' stratifies cases into four groups.

I Solitary stone (mid/lower pole) + simple anatomy
II Solitary stone (upper pole) + simple anatomy
Or multiple stones + simple anatomy
Or solitary stone + complex anatomy
III Multiple stones + complex anatomy
Or stones in a calyceal diverticulum
Or partial staghorn
IV Staghorn
Or spina bifida or spinal injury patient
Complex Anatomy = abnormal kidney, collecting system or ileal conduit.

All 80 procedures performed in one year at our tertiary centre were scored and data prospectively recorded.
Results: 2 independent clinicians had greater than 90% score agreement. On multivariate linear regression stone clearance independently and significantly correlated with 'Stone Score' ($p = 0.01$) but not stone surface area. The 'Stone Score' did not correlate with complications; possibly because overall complication rate was low.
Conclusions: With hospitals' and surgeons' outcome data increasingly scrutinised an objective reliable method of describing case mix is crucial in interpretation and comparison of results.

P 70

Cost-effectiveness and efficiency of SWL versus flexible ureteroscopic Holmium: YAG laser lithotripsy in the treatment of lower pole renal calculi

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Aim: To compare the cost-effectiveness and outcome efficiency of extracorporeal shockwave lithotripsy (SWL) versus intracorporeal flexible ureteroscopic laser lithotripsy (FURS) for lower pole renal calculi $\leqslant 20$ mm.
Materials and Methods: Patients who had treatment for their radio-opaque lower pole renal calculi were categorised into SWL and FURS group. The primary outcomes compared were the clinical success, stone-free, retreatment and additional procedure rate, perceived and actual cost. Clinical success was defined as stone-free status or asymptomatic insignificant residual fragments < 3 mm. Perceived cost was defined as the cost of procedure alone, and actual cost included cost of additional procedures and overhead costs to result in clinical success.
Results: The FURS (n = 37) and SWL (n = 51) group were comparable in terms of their sex, age, stone size and presence of ureteric stent. The final clinical success rate (100% vs 100%), stone-free rate (64.9% vs 58.8%), retreatment rate (16.2% vs 21.6%), and auxillary procedure rate (21.6% vs 7.8%) did not differ significantly. The mean perceived cost of each FURS and SWL procedure were similar (£249 vs £292 respectively), however when other costs were considered, the FURS group was significantly more costly (£2602 vs £426, $p = 0.000$, Mann-Whitney).
Conclusions: SWL was efficacious and cost-effective for treatment of lower pole renal calculi $\leqslant 20$ mm.

P 71

Efficacy of flexible ureteroscopy and laser lithotripsy for lower pole renal calculi

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Introduction: Lower pole renal calculi are difficult to treat due to various anatomical factors. We report our experience in treating lower pole renal calculi with flexible uretero-renoscopy and laser lithotripsy.
Patients and Methods: Patient, procedure and stone data was collected prospectively between November 2005-October 2008 into a designated database. One hundred and two procedures were performed in 84 patients. Stone clearance, defined as stone free or calculi < 3 mm, was assessed by plain X-ray post procedure.
Results: The mean age was 51.84 years. The mean calculi size was 14.3 mm (range 5–27 mm). An access sheath was used in 5 patients (6%). Sixty-eight patients (81%) had a ureteric stent inserted after the procedure. Sixty-seven patients had a single procedure. Re-operation rate was 20%. Stone free rates after one procedure were 85%, 79% and 30% respectively for calculi measuring 5–10 mm (n = 46), 11–20 mm (n = 28) and > 20 mm (n = 10). The overall stone free rate was 76%, 92% and 92% after 1, 2 and 3 procedures, respectively. One patient required percutaneous nephrolithotomy. The commonest complications included infection and stent symptoms.
Conclusions: Flexible uretero-renoscopy and laser lithotripsy is a safe and effective minimally invasive treatment option for patients with 5–20 mm lower pole calculi.

P 72

Early SWL for ureteric stones with the technomed sonolith vision lithotriptor improves stone free rates

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Objective: To report the results of our pilot study of emergency shockwave lithotripsy (SWL) using a fourth generation lithotriptor for ureteric stones.

Patients and Methods: 54 patients with acute ureteric colic were referred for emergency SWL with the Technomed Sonolith Vision (TSV) lithotriptor between October 2007 and August 2008. Inclusion criteria were: radiopaque, unstented, 5–15 mm calculi in the PUJ/ureter, no UTI or acute renal failure. Age, stone size, location (upper/UU, middle/MU, lower ureter/LU), treatment numbers and stone-free rate (SFR) were analysed.

Results: 50 patients (93%) had complete follow-up data. Mean age: 45 yrs, (range 16–77). Average stone size: 8.3 mm (5–20 mm). 5 (10%) patients required 2 sessions of SWL. Overall SFR was 94 % at 1 month. SFR: PUJ/UU - 95% (40/42); MU - 100% (2/2); LU - 83% (5/6). 3 patients (6%) required ureteroscopy. No serious complications were observed.

Conclusions: Our previously reported overall SFR for elective SWL for ureteric stones is 82%. The 94% SFR observed here is also significantly higher than previously recorded in the literature (72% Tombal et al, 82% Seitz et al) and also matches ureteroscopy SFRs in many centres. We recommend an early trial of SWL as primary treatment.

P 73

Transgluteal SWL for distal ureteric stones substantially increases the stone free rate

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Introduction: Audit of results of treatment with the EDAP-TMS Sonolith Vision Lithotriptor suggests that the stone free rate (SFR) is comparable with the Dornier HM3, except for distal ureteric stones. Further analysis was performed.

Methods: Patients were initially treated prone with the treatment head against the lower abdomen: treatment was performed supine using a transgluteal window in few cases with a high BMI made it impossible to reach the stone if treated prone. Patients were assessed at 2 weeks by KUB.

Results:

Table 1. (P73.)

Group 1	n = 38		
Position	N	SFR	SFR (2nd SWL)
PRONE	33	8 (24%)	7 (45%)
SUPINE	5	5 (100%)	

Reduced efficacy prone was due to attenuation of shockwave because of poor interface due to gas in overlying bowel and a longer skin to stone distance.

We subsequently treated patients with distal ureteric stones supine which provides for a shorter skin to stone distance and a better fluid interface.

Table 2. (P73.)

Group 2	n = 28		
Position	N	SFR	SFR (2nd SWL)
SUPINE	24	18 (75%)	6 (100%)

Treatment was abandoned in 4 patients due to sciatic nerve pain.

Conclusions: Patients with distal ureteric stones are more likely to be stone free following SWL with the EDAP-TMS Sonolith Vision if they are treated supine.

P 74

Bisphosphonates: effective inhibitors of calcium oxalate crystallisation

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Urolithiasis treatment is currently limited to removing stones rather than preventing their formation. This research investigated different bisphosphonates for their inhibitory properties on the crystallisation of calcium oxalate (CaOx) - the commonest constituent of urinary calculi.

CaOx crystals were generated in a well-recognised artificial urine solution (Robertson WG et al. J. Urol 1986; 135:1322–1326) using the Mixed Suspension Mixed Product Removal system. This provided a reliable, reproducible environment closely comparable to urine within the pelvi-calyceal system of a stone-former. Five bisphosphonates were tested over a range of concentrations for their inhibitory properties on CaOx crystallisation using a state of the art laser diffraction particle-sizer.

The sizes of CaOx crystals generated in the control experiments after equilibrium (80 mins) fell in a biphasic distribution peaking at 20 microns (single crystals) and 100 microns (crystal aggregates). After adding bisphosphonates, the group of aggregates diminished significantly and in some cases was completely eliminated (see table).

Disodium Pamidronate was the most effective inhibitor and Disodium Clodronate the least. Bisphosphonates are widely used in the treatment of bone disease and are excreted renally at concentrations shown here to be effective against CaOx crystallisation. They therefore hold exciting promise in the prevention of urinary stone disease.

Table. (P74.)

Drug tested	[Drug] μmol/l	% volume of 100 μm particles at 80 mins (mean +/−SE)	% volume of particles at 80 mins as a percentage of control (*$p<0.05$)
Control	N/A	4.47 +/−1.37	100
Sodium Alendronate	25	1.26 +/−0.34	28.19*
	50	1.03 +/−0.45	23.04*
	100	0.15 +/−0.09	3.36*
Sodium Ibandronate	25	1.82 +/−0.41	40.72*
	50	1.22 +/−0.47	27.29
	100	0.28 +/−0.04	6.26*
Disodium Pamidronate	25	0.40 +/−0.25	8.95*
	50	0.41 +/−0.21	9.17*
	100	0 +/−0	0*
Sodium Risedronate	25	1.34 +/−1.0	29.98
	50	0.14 +/−0.1	3.13*
	100	0 +/−0	0*
Disodium Clodronate	100	0.88 +/−1.08	19.69

P 75

Optimising surgical technique for complex stone disease in the morbidly obese

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Introduction: The prevalence of obesity in the UK is rising as the average BMI increases — 23% of the population has a BMI of > 30 kg/m2. Obesity is associated with increased morbidity and mortality and presents particular cardiopulmonary risk to those patients placed prone for traditional PCNL surgery. 'Anterior PCNL' involves creation of a tract immediately behind the posterior axillary line with the patient placed in the semi-lateral position.
Patients: Thirty-seven patients have undergone anterior PCNL in our institution over the last 14 months of whom 8 had BMIs over 30 at the time of surgery.
Methods: Patient data was recorded using the BAUS Section of Endourology PCNL proforma. All punctures were performed by the same Urologist.
Results: Blood loss; HDU Admission, Operative time; Length of stay; Operative complications and stone clearance rate were evaluated in all patients. BMI above 30 was not a risk factor for any statistically significant complications although all 8 obese patients had to undergo a 'cut down' to the external oblique before puncture and tract formation could be undertaken.
Conclusions: Anterior PCNL is quicker and anaesthetically safer, particularly in this high risk subgroup of patients, and is the procedure of choice in our unit.

Wednesday 24 June, 1400–1600
BLADDER DYSFUNCTION/FEMALE UROLOGY/RECONSTRUCTION/TRAUMA
Chairmen: Professor Chris Chapple & Mr Dan Wood

P 76

A comparison of simple and video cystometry interpretation in complex lower urinary tract dysfunction

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Introduction: To compare inter-observer variability in management following review of simple cystometry trace alone (CMG) or in combination with video imaging (VCMG) in patients with complex lower urinary tract dysfunction.
Patients and Methods: Histories, CMG and VCMG of 54 patients with complex obstructive (n = 10), incontinence (n = 20) or neuropathic (n = 24) dysfunction were reviewed by three reconstructive urologists blinded to original VCMG diagnoses, management and outcomes. Suggested managements following each were recorded and variation analysed.
Results: Similar management decisions between consultants occurred in 30% of CMG and 60% following review of all VCMG components. CMG agreement was best for obstruction (75%), and was not improved by VCMG (70%, p = 0.52). Management based on CMG alone was worst for incontinence and neuropathic dysfunction. In these cases the correlation between suggested management was only 30% and 25% respectively, but increased to 60% (p = 0.04) and 70% (p = 0.02) respectively when all components of VCMG were used.
Conclusions: There is considerable variability in management based on the interpretation of the CMG/VCMG, even in specialist hands. Consistency doubled when all components of VCMG were reviewed for patients with incontinence or neuropathic dysfunction, but not obstruction. Video cystometry is an essential component of decision-making for patients with complex incontinence or neuropathic dysfunction.

P 77

Long term quality of life outcome after mesh sacrocolpopexy for vaginal vault prolapse

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Objective: We sought to evaluate the long term outcome of mesh sacrocolopexy and its impact on patient's quality of life.
Patients and Methods: Consecutive patients from 2000 to 2006 with confirmed stage 2–4 vaginal vault prolapse subsequently underwent mesh sacrocolopexy. Telephone interviews using the Cleveland Clinic Short Form-20 Pelvic Floor Distress inventory questionnaire with UDI, POPDI and CRADI subscales were completed by all patients to assess pre- and post-operative symptoms, improvement in sexual function and overall satisfaction.
Results: Twenty-one patients underwent abdominal mesh sacrocolpopexy. The median period post-operative follow up was 52.2 months (range 21–99). Total PFDI scores significantly improved postoperatively ($p < 0.0001$). Analysis of subscale scores showed that all patients noted significant improvement of symptoms in the POPDI category ($p < 0.0001$). CRADI and UDI subscale scores showed no significant change postoperatively ($p = 0.542$;$p = 0.08$). Score difference over time post-operatively demonstrated a non-significant decreasing slope ($p = 0.227$) suggestive of long term symptom stability. 90% of patients reported significant improvement in sexual function and excellent long term global satisfaction for sacrocolopexy.
Conclusions: Our results suggest that mesh sacrocolpopexy is safe and effective surgical option for treatment of vaginal vault prolapse providing symptom improvement and stability in the long term.

P 78

Have the NICE guidelines on management of female urinary incontinence led to a change in practise? – A region wide audit

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Introduction: Our regional audit investigated patients undergoing continence surgery or intra-vesical Botulinum Toxin-A in 2003 and 2007. Many of the 2006 NICE guidelines on urinary incontinence reflected existing regional guidelines. Controversially, some are based on cost effectiveness rather than clinical evidence and these in particular were investigated to identify if publication has precipitated a change in practise.
Methods: Data was collected retrospectively for all patients undergoing continence procedures in one region in 2007 and compared with data previously obtained in 2003.
Results: Most of the existing regional guidelines were followed for the majority of cases with compliance over 95% for some guidelines. Twenty-two urologists performed 219 stress urinary incontinence procedures but only 1 achieved the NICE target of 20 for any single procedure. Despite NICE recommendations, continence surgery without urodynamics occurred in only 3% (7/219), unchanged from 4% (6/139) in 2003. Of patients receiving Botulinum toxin-A, only 47% (82/173) received oxybutynin as first-line anticholinergic and only 13% (22/173) were offered sacral nerve stimulation.
Conclusions: NICE guidelines based on cost rather than clinical evidence have not caused any identifiable change in the practise of our region's urologists. NICE guidance on procedure numbers and SNS is not practical locally, without dramatic changes to service configuration.

P 79

Sustained and significant quality of life improvement after intra-detrusor botulinum neurotoxin type A injections for neurogenic detrusor overactivity secondary to Multiple Sclerosis

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Objective: The objective of this study is to demonstrate the impact of intra-detrusor injections of botulinum neurotoxin type A (BoNT/A) on quality of life (QoL) of Multiple Sclerosis (MS) patients with neurogenic detrusor overactivity (NDO).
Patients and Methods: This is a prospective, open-label study of 112 MS patients treated with intra-detrusor BoNT/A injections (300 IU Botox®) using a flexible cystoscope in outpatient setting since 2002.
Measurements: Change in QoL was assessed using Urogenital Distress inventory (UDI6) and Incontinence Impact Questionnaire (IIQ7), before and 4 weeks after BoNT/A injections. All patients had pretreatment urodynamics to document DO.
Results: After intra-detrusor BoNT/A injections there was a significant improvement in QoL and this effect was sustained after subsequent injections. Mean UDI6 and IIQ7 scores reduced from 63 to 21 and 63 to 14 (n = 112) after the first injections, from 55 to 20 and 53 to 12 (n = 59) after second, from 54 to 12 and 52 to 6 (n = 33) after the third, from 50 to 19 and 52 to 12 (n = 19) after fourth, from 57 to 14 and 54 to 8 (n = 5) after the fifth, respectively.
Conclusions: Intradetrusor BoNT/A injections produce a highly significant improvement in OAB symptoms and QoL in MS patients.

P 80

Sacral neuromodulation in lower urinary tract dysfunction: a single-centre experience over 10 years

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Introduction: Sacral neuromodulation (SNS) is a NICE-approved treatment suitable for refractory overactive bladder symptoms, and also non-obstructive urinary retention in women. However, the need for intensive follow-up, and the frequency of complications means it remains a specialised procedure. We report our experience with the technique over a ten year period.
Methods: A casenote review was undertaken of all 131 patients who have received SNS over the last ten years. Details on indication, clinical outcomes, complications and surgical revision rates were recorded.
Results: Final data analysis is still pending, but those with completed datasets showed a ratio of female to male patients of 4.6:1, with a mean age of 46.4 years. Patients were evenly divided between OAB and retention. Mean follow-up was 40 months (range 6–120 months).

Indication for SNS did not affect outcomes. At any given follow-up point around 70% of patients reported significant clinical benefit from their implant. 36% of patients required revision surgery, with a mean 1.75 procedures each. Mean time to first revision in these patients was 23 months.
Conclusions: SNS can provide effective treatment LUTS in patients who have failed other therapies. However, close follow-up is needed due to the high rate of revision surgery.

P 81

The ProACT device for post-prostatectomy incontinence

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Introduction: The preliminary results of the Multicentre FDA study of the ProACT device are presented.
Materials and Methods: Patients were followed at 6 weeks, 6, 12 and 18 months, then annually. Major endpoints were assessed at 18 months. Validated questionnaires assessing quality of life, sexual and urinary function and urodynamics were performed.
Results: One hundred and twenty-three men were implanted. At 18 months, 87 patients are available for analysis. Mean age at implant was 69.6 (range 50–93) years. Mean 24 hour pad weight improved from 413.1 g at baseline to 158 g at 18 months. Fifty-five per cent had a > 50% reduction in pad weight at 6 months and 60.7% at 18 months. Quality of Life improved from a mean baseline of 50 to 70.9 at 6 months and 76.7 at 18 months. Mean post void residual increased from 5.6 mls to 16.4 mls. Adverse events in all patients included transient pain (26%); initial worsening of incontinence (24%); device migration (15%); urinary retention (13%); mechanical failure (11%); UTI (12%); perforation at time of implant (12%); difficulty urinating (11%) and urgency (11%).
Conclusions: The ProACT device achieves a significant improvement in post-prostatectomy incontinence.

P 82

Advance Male Transobturator Sling Suspension (ATOSS). UK experience and lessons learnt

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Introduction: Surgical intervention with periurethral injectables or an artificial urinary sphincter (AUS) has been the only treatment available for male stress incontinence. A recent development in male surgical incontinence surgery has been the use of synthetic slings.
Patients and Methods: From May 2007 we have offered male patients with genuine stress incontinence, who failed conservative treatment, the sling technique described by Rehder et al. (ATOSS).
Results: Data was collected prospectively and outcome assessed by pad-usage. 14 patients underwent ATOSS. 10/14 managed their incontinence pre-operatively with pads, 4 patients required convenes. 13/14 were discharged the day following surgery. 3/14 (21%) of patients failed to micturate on day 1 post operatively, however all were catheter free at 10 days. No other post-operative complications were recorded. All patients with incontinence managed by pads pre-operatively were pad-free at 4 months. 2/14 of patients using a convene pre-operatively required = 1 pad per 24 hours. 2/14 achieved no improvement post-operatively and continued to use a convene.
Conclusions: ATOSS is an effective and safe procedure. Previous pelvic radiotherapy does not increase surgical risk. The degree of incontinence pre-operatively is an indicator of success.

P 83

Enterourethroplasty – a useful technique for the salvage of bulbo-membranous strictures

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Introduction: Occasionally salvage procedures for a devastating urethral problem are needed. This report describes the

use of tailored intestinal segments for the salvage of such patients.
Materials and Methods: Between 1996–2006, 11 patients were treated for otherwise unsalvageable strictures of the bulbo-membranous urethra by interposition of a tailored intestinal flap.

Of the 11 procedures an intestinal flap was mobilised from the ileum, greater curvature of the stomach, right colon or sigmoid colon. The flap was tailored to 26–30 F and sutured between the stump of the prostate and the distal bulbar or pendulous urethra.
Results: Postoperatively three patients have developed proximal anastomotic contractures, which were managed by interval dilatation. Two patients developed a stone in the gut segment: one of which was removed without difficulty and the other was removed traumatically, causing irreparable damage to the ileal urethra. The results of the other patients were otherwise satisfactory.
Conclusions: For an otherwise unsalvageable bulbo-membranous stricture or defect, a tailored flap from intestine (preferably sigmoid colon) gives satisfactory results. The complication rate is less than with scrotal tube funnels or tubularised free grafts of bladder mucosa or colonic mucosa given the lack of adequate support for a free graft in this situation.

P 84

Outcome of different management options for full-length anterior urethral strictures

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Introduction: Full-length anterior strictures challenge the urethral surgeon.
Materials and Methods: Over 5 years, 61 men with full-length strictures of various aetiologies were managed with 3 different surgical approaches taking into account aetiology and age of the patient, minimum follow-up of 1year. (Group1) 30/61 men underwent formation of perineal urethrostomy; (Group2) 20/61 underwent staged peno-bulbar urethroplasty, whereby the penile and bulbar urethra were marsupialised at 1st stage and closed in 3-layers at 2nd stage. A buccal mucosal graft(BMG) was placed distally when the glans cleft required reconstruction in BXO or Hypospadias; (Group3) 11/61 men underwent a hybrid 'staged/one-stage' procedure, whereby the bulbar urethra was augmented in one-stage with a long BMG graft but the penile urethra was staged as above.
Results: 7% (2/30) of Group1 failed with 2 (7%) adverse events; 30% (6/20) of Group2 failed with 5 (25%) adverse events; 18% (2/11) of Group3 failed with 1 wound infection.
Conclusions: Surgical reconstruction of full-length urethral stricture disease, irrespective of surgical technique, carries a high failure rate. BXO patients developed their recurrence in the marsupialised segment and multi-stage salvage surgery patients developed their recurrence at the peno-scrotal junction. Perineal urethrostomy is a more reliable management of full-length urethral strictures and not surprisingly more often used in elderly patients.

P 85

Porcine small intestinal submucosa (SIS) in the treatment of anterior urethral strictures

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Introduction: We evaluated porcine small intestinal submucosa (SIS) used in the treatment of anterior urethral strictures.
Patients and Methods: In total of 50 patients 45–73 old with anterior urethral stricture underwent urethroplasty using porcine SIS collagen based matrix for urethral reconstruction in 2003. Stricture was localized in bulbar urethra in 10 patients, in bulbopenile in 31 and in the distal penile urethra in 9 patients. All patients received four layered SIS patch graft in onlay fashion. A voiding history, IPSS, retrograde and antegrade urethrography, uroflowmetry and cystoscopy were performed preoperatively and postoperatively. Failure was defined as stricture confirmed on urethrogram.
Results: After a mean follow up period of 51, 9 months (range 42–58 months), the clinical, radiological and cosmetic findings were excellent in 34 (68%) of the fifty patients treated. Restricture developed in 1/10 (10,0%) bulbar stricture, 9/31 (29%) bulbopenile strictures and 6/9 (67%) penile. All patients with recurrences needed further therapy. No complications such as fistula, wound infection or UTI were observed.
Conclusions: Use of inert porcine SIS matrix appears to be beneficial for patients with bulbar and less with bulbopenile strictures. Results are comparable to skin flaps and mucosal grafts.

P 86

Pelvic fracture related injuries of the bladder neck and their management

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Introduction: Bladder-neck injuries are rare consequences of pelvic-fracture urinary tract trauma and are poorly reported.
Materials and Methods: Since 1998, 2/14 men with bladder-neck (BN) injuries following pelvic-fracture were referred for delayed primary bladder neck repair 7–9 days after injury, 12/14 presented 3 months – 5 years after injury. All injuries were at/close to the anterior midline, associated with lateral compression fractures. 5/12 were confined to the BN and 7/12 extended into the urethra. All patients had an associated cavity and overlapping pubic bone fragments involving the cavity/urethral rupture and underwent resection of the involved bone fragments, excision of the cavity, repair of BN and reconstruction of the urethra.
Results: When omental-wrap interposition was not possible, the cavity recurred; otherwise reconstruction was successful. Eight patients required subsequent implantation of an artificial urinary sphincter.
Conclusions: Traumatic BN rupture seems to occur at or close to the anterior midline of the prostatic urethra in relation to a crush injury as a consequence of overlapping pubic bones in a lateral compression fractures. Because of the BN sphincter mechanism, the bladder neck rupture is held open. These injuries never heal spontaneously and are always associated with a cavity and should therefore be closed early.

P 87

Reconstruction of Pelvic Fracture related Urethral Injuries (PFUI)

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Introduction: Recent publications suggest that PFUI can be dealt with by 3 technical steps and that by some sort of "gapometry" the exact procedure can be defined preoperatively. This presentation reviews our recent experience.

Patients and Methods: Between October 1996 and October 2006 we reconstructed 234 patients with PFUI: 186 first time repairs and 48 revisions after previous surgery.
Results: Of these, 8% required step 1, 48% steps 1/2 and 16% steps 1/2/3. In addition, 14% underwent urethral re-routing; 8% - abdomino-perineal reconstruction; 2% - bladder neck reconstruction; 2% - patch urethroplasty and 2% - entero-urethroplasty. Only 149/234 (64%) were dealt with by the 'three steps'.
Conclusions: (1) only a minority are distracted, hence the term PFUI. (2) preoperative "gapometry" was not helpful. (3) in 36% the procedure was more complicated that just mobilisation, development of the intercrural plane and inferior pubectomy. (4) restricture rates are 4–9% after primary repair and 11–16% after revision surgery according to complexity. (5) situations ("complex" problems) other than those readily dealt with by steps 1/2/3 are rarely reported. (86) most reports in the recent literature come from small series or amalgamations of small series and are misleading.

P 88

Urorectal Fistula Repair – A Simplified Approach

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Introduction: In the past, we advocated simple transperineal uro-rectal fistula (URF) repair with gracilis interposition after previous covering colostomy. More recently, we modified our approach.
Patients and Methods: Since October 2002 we have repaired urorectal fistulae in 43 patients. In 30/43 'simple' post-radical prostatectomy-URF, a transperineal repair was performed. After transperineal repair of the purely surgical fistulae an interposition flap has not been used. In 13/43, 'complex' URF (as result of radiotherapy/brachytherapy followed by salvage cryotherapy/HIFU), a salvage radical prostatectomy and omental interposition flap was used. Of the 43 patients, 29 had had colostomies before being referred to us for treatment. Otherwise we have not used a covering colostomy or an interposition flap in the last 14 patients.
Results: The urorectal fistula was cured in all patients. Subsequent sphincter weakness incontinence required further treatment in 2 patients mainly by implantation of an artificial urinary sphincter. A bladder neck contracture developed in one patient and is being managed by interval dilatation.
Conclusions: Post-surgical 'simple' URF can be managed without the need for trans-anorectal sphincter-splitting approaches or covering colostomy, and without the need for an interposition flap when the circumstances are appropriate and when the surgeon has sufficient experience of the surgical technique.

P 89

Total urethral reconstruction with the radial artery based forearm free flap

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Introduction: The long-term-results of total urethral reconstruction with the radial-artery-based-forearm-free-flap (RAFFF) are presented.
Methods: Between 2004–2008 a RAFFF-urethroplasty has been performed in 14 female-to-male-transsexuals. All patients had a previous pubic phalloplasty; 2 had a failed attempt of urethral reconstruction with labial flaps.

The RAFFF was raised from the non-dominant arm and tubularised around a 16ch catheter. Arterial, venous and nervous anastomoses were performed respectively between radial and epigastric artery, cephalic and saphenous vein, antebrachial and ileoinguinal nerves. The donor site was covered with a full-thickness-skin-graft.

A primary join-up of the neourethra with the native one was performed in one patient; in all other cases the join-up has been performed in 2 stages.
Results: After a median follow-up of 12.4 months (2–32), one patient has lost the flap due to acute arterial thrombosis (8.5%).

Fistulas and strictures at the level of the join-up site occurred respectively in 2 and 1 patients and required surgical correction.

No complications were reported at the donor-site level.

Overall, 13 patients void standing from the tip of the phallus and are delighted with functional and cosmetic result.
Conclusions: The RAFFF-urethroplasty is a reliable technique, guarantees excellent functional and cosmetic results and patients' satisfaction is consequently high.

P 90

Long term outcome of parastomal hernia repair in patients treated for benign urological disease

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Introduction: This study reviews the long-term outcome following parastomal hernia repair in patients treated for benign urological disease.
Patients and Methods: We examined case notes of 23 patients who had parastomal hernia repairs between 1998–2007. Indications for surgery, wound infection and recurrence rates were recorded.
Results: Eighteen females, mean age 62.8 years (41 to 84), and 5 males, mean age 63.6 years (55 to 70), were identified. Mean follow-up - 62 months (6 to 120).

- Indications for urinary diversion:
- intractable incontinence - 11 (48%),
- neuropathic bladder - 5 (22%),
- interstitial cystitis - 2 (1%).

Twenty patients had ileal conduits and 3 had Mitrofanoff procedures. Mean time to first hernia repair was 8.8 yrs (1 to 37). Simultaneous stomal revision was performed in 12 patients (52%). Complications recorded: wound infection - 5 patients (22%), recurrent hernia - 13 (57%) - mean time to first recurrence – 3.7 years (1 to 10), mean number of repairs per patient were 1.8 (1 to 5). Eventual success was achieved in 61%.
Conclusions: Parastomal hernia repairs have a significant complication and recurrence rate. Success can eventually be achieved in 60% of patients. Careful preoperative assessment and counselling is required.

BJUI
BJU INTERNATIONAL

Thursday 25 June, 1100–1230
PROSTATE CANCER
Chairmen: Mr Prokar Dasgupta & Professor Steve Langley

P 91

Prostate cancer specific survival and metastasis-free survival in screen detected and clinically detected prostate cancer

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To assess prostate cancer (Pca) screening's effect on Pca specific and metastasis-free survival. Between 1994 and 1999, a total of 21,210 men, aged 55–74 years, were screened every 4 years. Control population (CP) consisted of 120,785 men, aged 55–74 years, between 1995 and 1997 who were not screened. Men were followed up for Pca incidence, Pca metastasis and causes of death until 31 December 2006. All PSA tests, Pca incidence, disease extent and causes of death were available on an individual patient level. Median age both groups was 63 years at study entry ($p = 0.253$). Of the screened population (SP) 2,153 men (10.2% of total) were diagnosed with Pca with median baseline PSA 5.2 ng/ml. Of (CP) 4,933 men (4.1% of total, $p < 0.001$) were diagnosed with Pca with median baseline PSA of 20.5 ng/ml ($p < 0.001$). Pca specific mortality was significantly better in the SP after mean follow-up 13.1 years: LR 15.327 ($p < 0.001$). Metastasis-free survival was significantly different and favoured screening: LR 53.623 ($p < 0.001$). A significant Pca specific and metastasis free survival benefit was shown in the SP population after 13.1 years of observation. This relative small divergence may be due to screening and have to be confirmed by randomized control trials.

P 92

Patient and GP based support for NICE recommendations for follow-up of prostate cancer

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Introduction: NICE recently published guidance on prostate cancer (CaP) management suggesting patients with a stable PSA 2 years post-treatment or being monitored with watchful-waiting (WW), should be managed in primary care. This study examines the views of patients and GPs regarding this proposal.
Methods: Structured questionnaires were sent to GPs to determine their urological experience and ascertain their willingness to manage CaP patients long-term. Patients were also interviewed to ascertain their preferences regarding follow-up after diagnosis/treatment.
Results: Forty-eight per cent of 369 GPs responded, of whom 40% had urological experience (0.5% declared specialist interest). Of responders, 16% were happy to manage WW patients, increasing to 29% with MDT support. 14% were happy to manage patients on established treatment. 74 patients (mean 72.9 yrs) were interviewed (20.3% WW/active surveillance, 47.3% radically treated, 32.5% hormone-manipulated). 9.4% and 78.4% preferred follow-up in primary and secondary care respectively. 81% cited perceived expertise as the decisive factor. Current PSA, mode of transport and follow-up frequency did not influence preference.
Conclusions: The majority of GPs are not comfortable with the NICE guidelines on follow-up and most patients preferred secondary care surveillance. This suggests that the NICE proposals for long term GP-based follow-up are not supported by GPs or patients.

P 93

Active surveillance for low and intermediate risk prostate cancer. Is it safe to follow the 2008 NICE guidelines?

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Introduction: Recent NICE guidelines recommend offering active surveillance (AS) as the preferred management of D'Amico low risk (LR) prostate cancer (PC) and discussing AS as an option for intermediate risk (IR) disease. We studied histopathological reports of 314 radical prostatectomies performed in a UK cancer centre to assess the safety of these recommendations.
Methods: One hundred and fifty LR and 164 IR cases were included. Pathological features studied included Gleason score upgrading to = 7, pT3 upstaging, the presence of tumour multifocality/bilaterality and for the presence of clinically significant tumours (CST) (by Epstein's criteria, including tumour volume > 0.5 cc).
Results: LR group ($n = 150$): 115 (75%) and 123(82%) exhibited multifocal and bilateral disease respectively. 57 (38%) were upgraded while 29 (19%) had pT3 cancer. 93(62%) cases harboured at least one CST. IR group ($n = 164$): 126 (77%) and 143(87%) exhibited multifocal and bilateral disease respectively. 25(15%) were upgraded while 68(42%) had pT3 cancer. 131(80%) cases harboured at least one CST.
Conclusions: One-fifth of LR cases and two-fifths of IR cases had locally-advanced cancer, and many more exhibited aggressive features. Caution should be taken when recommending AS to the patients suitable for radical treatment. In the absence of large randomised trials, this NICE guideline appears unsafe.

P 94

Active Surveillance: The experience from a district general hospital

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Introduction: Prostate cancer is common, with 34,302 newly registered UK cases during 2005. Active surveillance (AS) aims to individualise management of early prostate cancer by treating only patients with significant cancers. There remains little patient outcome data on AS, despite its NICE guideline recommendation.
Methods: At Musgrove Park Hospital, Taunton we have offered AS to localised prostate cancer patients since 2002. We reviewed the notes of all 48 patients started on AS in 2002 and 2003 collecting demographic data, diagnostic method and tumour characteristics. The study endpoint was 01/01/2008.
Results: Mean age at diagnosis was 70.5 years, diagnosis method was Trans-Rectal Ultrasound guided biopsy (83%), Trans-Urethral Resection of the Prostate (15%) and clinical examination (2%). 83% of tumours were Gleason graded as 3 + 2 or 3 + 3, the remainder 3 + 4 or 4 + 3. Mean PSA level at diagnosis was 8.04. Overall outcomes were: radical prostatectomy (4%), radiotherapy (26%), brachytherapy (2%), hormone treatment (24%), and remaining on AS or being discharged to GP follow up (44%). Of patients discontinuing AS, patient preference accounted for 15%. The disease specific survival rate was 97.9%.
Conclusions: In our population AS was effective, with 44% needing no treatment, but patient preference was a significant reason for management change.

P 95

High intensity focused ultrasound for localised prostate cancer with three year follow-up and disappointing oncological outcomes

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Introduction: High intensity focused ultrasound (HIFU) is an emerging technology for the treatment of localised prostate cancer.
Methods: Following informed consent, 40 patients with localised prostate cancer underwent HIFU for primary (n = 31) and salvage (n = 12) therapy using a second generation Ablatherm™ device (EDAP, Lyon, France). Oncological failure was defined by biochemical failure, commencement of salvage therapy or the presence of cancer on post treatment biopsy. Biochemical failure was assessed using both the Phoenix definition (nadir + 2 ng/ml) and the current USA Food & Drug Administration (FDA) trial endpoint of a PSA = 0.5 ng/ml.
Results: Using the Phoenix definition of biochemical failure, 13 patients in the primary group (46.4%) and five patients in the salvage group (41.6%) failed HIFU treatment. Using the FDA trial endpoint of PSA = 0.5 ng/ml, 21 patients in the primary group (75%) and 8 patients in the salvage group (66.6%) failed treatment. There were two urethral strictures in the primary (7.1%) and one in the salvage treatment group (8.3%) There were two prostatorectal fistulae in the salvage HIFU group.
Conclusions: HIFU treatment in our unit has produced disappointing oncological outcomes and significant morbidity for the management of localised prostate cancer and we have discontinued its use.

P 96

Prostatic urethral length as a determinant of urinary morbidity and retention in brachytherapy for prostate cancer

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Introduction: To prospectively determine effect of prostatic urethral length on lower urinary tract symptoms (LUTS) measured by changes in the International Prostate Symptom Score (IPSS) and urinary retention after brachytherapy for organ-confined prostate cancer.
Patients and Methods: We prospectively measured prostatic urethral length on ultrasound during I125 brachytherapy at a single institution using the Bard Proseed technique. IPSS was recorded pre-treatment and at 9 and 18 months. Post-treatment urinary retention events were also noted. Data was analysed using linear and logistic regression.
Results: A total of 198 men were evaluated with a mean age of 62 years. The range of prostatic urethral length was 2.6 to 5.6 cm (mean 4.2 cm). Thirty-eight percent of men with lengths > 5 cm went into retention, compared with 12% with lengths of 4–5 cm. An increase in length by 1 cm increased the odds of urinary retention by a factor of 6 ($p < 0.001$). Changes in IPSS were also significant at both 9 and 18 months, with a rise of 3.2 points and 2.6 points respectively for every 1 cm increase in length ($p < 0.05$).
Conclusions: Prostatic urethral length is a useful tool for determining functional outcomes in brachytherapy for prostate cancer, and should be included in the pre-treatment assessment.

P 97

Laparoscopic radical prostatectomy for patients with Gleason 8–10 + /− PSA ≥20

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Introduction: High-risk prostate cancer (HiRPC) (PSA > 20 ng/ml + /−Gleason 8–10) is characterised by its higher rate of metastasis and cancer-related death and responds poorly to treatment monotherapy with 10-year survival rates for G8-10 of 45–67% (Lu-Yao, 1997). As a result, interest continues to grow in multi-modality approaches to HiRPC.
Patients and Methods: Of a total of 1159 patients who were accepted for laparoscopic radical prostatectomy (LRP) 71 had HiRPC. All patients were treated by extended pelvic lymphadenectomy and LRP with wide-excision of both neurovascular bundles.
Results: Mean operating time = 208 minutes; blood loss = 233 ml; post-op. hospital stay = 2.9 nights; complication rate = 2.8%; node count = 11.2; lymph node positivity = 7.1%; margin positivity = 21%; up-grading = 11.3%; down-grading = 46.5%; up-staging = 28.2%; down-staging = 1.4%. At a mean follow-up of 30.0 months 95.8% of patients were free of biochemical recurrence and 95.8% were continent.
Conclusions: The significant proportion of patients (46.5%) who had their tumour down-graded on final histology, the 95.8% BDFS and the 95.8% continence rates at 30 months should serve to encourage experienced urologists to offer radical prostatectomy to patients with HiRPC and negative staging.

P 98

"See No Touch" during robotic radical prostatectomy: positive margin rates are comparable to reported results of open series

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Introduction: Lack of haptic feedback has been criticized as being a disadvantage in ensuring adequate oncologic clearance during robotic-assisted laparoscopic prostatectomy (RALP), particularly in the posterolateral region during sparing of the neurovascular bundle. We postulate that improved optical magnification during RALP allows for better appreciation of the visual cues suggestive of tumor or extraprostatic extension, and this advantage mitigates against the lack of tactile feedback.
Materials and Methods: From January 2005 to August 2008, 1296 patients underwent RALP by a single surgeon. Histopathologic reports were reviewed to assess margin positivity rates and distribution.
Results: The positive surgical margin (PSM) rate was 9.65% overall, 6.5% for pT2 and 23.1% for pT3 disease. The posterolateral PSM rate was 2.4% overall, 1.52% for pT2 and 6.7% for pT3 disease. Of 125 patients with positive surgical margins, 46.4% occurred at the apex, 24.8% posterolaterally, 9.6% laterally, 9.6% anteriorly, 5.6% at the bladder neck, 1.6% at the base, and 2.4% had multifocal margin positivity.
Conclusions: Visual cues during robotic prostatectomy adequately compensate for the absence of tactile feedback in the hands of an experienced, high-volume robotic prostate cancer surgeon, resulting in surgical margin rates comparable to those in contemporary open series.

P 99

Androgen deprivation therapy for prostate cancer induces the metabolic syndrome: is it preventable?

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Introduction: There is a known association between ADT for prostate cancer and metabolic syndrome. This study investigates the effect of metformin and lifestyle changes on its development.
Patients and Methods: Forty patients due to receive an LHRH agonist were recruited to a prospective randomised pilot study. The control arm comprised 20 patients receiving ADT alone. The intervention arm ($n = 20$) received ADT with 6 months of metformin, a low glycaemic index diet and aerobic exercise programme.
Results: After 6 months a reduction in metabolic syndrome cases occurred in the intervention arm ($p = 0.042$), with an equal number seen in the controls. There was an increase in HDL in both arms, of greater significance in the intervention arm ($p = 0.008$) than the controls ($p = 0.015$). The table shows improvement in abdominal girth, weight, BMI, and systolic BP in the intervention arm, when measured as a % change. Biochemical markers of insulin resistance did not significantly differ.
Conclusions: ADT is widely used in prostate cancer, but metabolic complications may be responsible for increased cardiovascular mortality. The preventative role of metformin and lifestyle changes has been evaluated in this study, showing potential beneficial effects. Further work will ascertain whether overall survival can be improved by this approach.

Table. (P99.)

	Control Arm Mean % change between 0–6 months ± SD	Intervention Arm Mean % change between 0–6 months ± SD	p value
Abdominal Girth	2.15 ± 4.3	−0.58 ± 3.53	0.05
Weight	2.18 ± 3.63	−3.19 ± 3.82	0.0002
Body Mass Index	2.1 ± 3.58	−3.15 ± 3.73	0.0002
Body fat %	6.47 ± 20.6	−5.48 ± 14.95	0.077
Systolic blood pressure	1.77 ± 5.96	−5.96 ± 10.13	0.012

P 100

Prostate cancer 1999–2009: has anything changed?

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Introduction: Prostate cancer presentation and staging is constantly changing. Multiple factors drive this change, including PSA screening, reduction in waiting times and earlier treatment. Few data exist to indicate whether these changes over the past decade have impacted on prostate cancer survival. This study aimed to evaluate the changes to clinical presentation and stage migration over the past decade.
Materials and Methods: The BAUS datasets published on the BAUS website were interrogated to establish the changes in prostate cancer presentation and staging. Data from the literature were used to evaluate whether changes documented over the last decade could have contributed to this declining mortality.
Results: Between 1998 and 2007, patients presenting with T4 prostate cancer declined from 22% to 13%. Similarly, patients presenting with M + disease declined from 14.9% to 8.5%. Patients with PSA-detected tumours rose from 8.5% to 20%. The number of radical prostatectomies has increased 10-fold, while patients with locally advanced prostate cancer have remained fairly constant. Waiting times for investigation and treatment have declined significantly.
Conclusions: Stage migration alone cannot explain declining prostate cancer mortality rates. Earlier and more widespread use of hormone therapy in high-risk patients is the most likely explanation for this decline.

BJUI BJU INTERNATIONAL

Thursday 25 June, 1100–1230
GENERAL UROLOGY AND GOVERNANCE
Chairmen: Mr Nick George & Miss Rachel Kimber

P 101

Optimising the trial without catheter – does constipation matter?

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Introduction: Trials without catheter (TWOCs) are necessary yet stressful events with poorly predictable outcomes. Constipation is a risk factor for acute urinary retention (AUR) and is implicated in TWOC failure. Many urologists treat constipation before TWOC, thus delaying discharge. However, no evidence supporting this practice exists. This observational study sought to address this assumption and identify modifiable predictors of failure.
Patients and Methods: The characteristics of 157 men undergoing TWOC were recorded. Univariate and multivariate logistic regression identified predictive factors for TWOC outcome.
Results: Constipation for >24 hours did not affect outcome. Nor did inpatient or outpatient location. Univariate logistic regression suggested that elective cases ($p<0.001$), age <80 years ($p=0.001$), and catheter duration <3 days ($p=0.015$) were associated with TWOC success. Multivariate analysis showed only elective cases ($p=0.019$) and age <80 ($p=0.007$) were predictive of success, while laxative use ($p=0.019$) was predictive of failure.
Conclusions: Non-modifiable factors of age and admission status are predictors of TWOC outcome, while modifiable constipation is not, and laxatives have a paradoxical negative effect, perhaps due to prescription bias or wider autonomic impairments. We now no longer defer TWOC in constipated patients and where practicable offer a choice of TWOC location anticipating similar success rates.

P 102

Patients achieve excellent reassurance from a testicular clinic providing one-stop imaging

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Introduction: Testicular cancer is rare but anxiety about this diagnosis is common. We prospectively evaluated patient satisfaction and reassurance provided by a nurse-led one-stop testicular assessment clinic and compared it to that available in primary care.
Patients and Methods: One hundred patients reporting testicular symptoms attended the clinic and received a standardised clinical assessment, examination and scrotal ultrasound scan. At the end of the consultation patients completed a validated satisfaction, anxiety and reassurance questionnaire.
Results: Overall patients were moderately anxious about the diagnosis (mean anxiety score 5/10). The GP diagnosis was correct in 38% (3 possible testis cancers were benign). Patients were 163% & 174% more reassured by the nurse and scan respectively compared to their GP (t-test $p<0.001$). Men in the highest quartile for anxiety were significantly (t-test $p=0.03$) less likely to be reassured by their GP compared to men in the lowest anxiety quartile. Conversely the clinic was able to reassure these most anxious men to the same extent as the least anxious men.
Conclusions: These findings indicate that a specialist one stop testis clinic provides excellent reassurance which is superior to that available in primary care and should be widely available to this somewhat anxious group of patients.

P 103

Dis'torted' management of testicular torsion

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Introduction: Testicular Torsion (TT) is a common and yet litigious Urological emergency. The European Working Time Directive has resulted in non-specialist Surgical teams providing emergency urological cover in many hospitals. Our aim was to survey the current practice of operative management of TT in the UK.
Methodology: A postal/direct/phone survey was conducted with surgical/urological registrars responsible for the management of suspected TT.
Results: Two hundred registrars were surveyed from 43 hospitals (23 University Hospitals). 198 (99%) would perform bilateral orchidopexy in the setting of TT being found on exploration. If no pathology was found, 76 would perform B/L fixation, 35 ipsilateral-fixation and 89 no-fixation. 167 (83.5%) would perform a 3-point-fixation, 29 a dartos-pouch; of these, 15 would not perform suture-fixation of the pouch. The suture-materials of choice were Prolene (74.5%), Vicryl (16.5%), PDS (5%), Ethibond (3%) and Vicryl-Rapide (1%). The preference of scrotal incision was midline-raphe (86%), ipsilateral-transverse (10.5%) and ipsilateral-vertical (3.5%). Only 67% would routinely excise the appendix testis if found.
Conclusions: There is a significant variation in operative technique amongst surgeons responsible for the management of acute scrotal pain. Inappropriate management can lead to unacceptable testicular loss and exposure to litigation. BAUS should lead the way using available evidence-base and issue guidelines on the optimal operative management of TT.

P 104

The role of ultrasound in the urological surveillance of spinal cord injured patients

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Introduction: Ultrasound scan (USS) represents an accurate, non-invasive investigation for the surveillance of the urinary tract in spinal cord injured (SCI) patients. The current practice of follow-up of (SCI) patients recommends an annual KUB and USS. We report on the feasibility of increasing the time interval of USS in surveillance.
Methods: A retrospective analysis of the USS of 222 consecutive SCI patients between 1990–2000, within a Neuro-Urology specialist unit. Time of scan, frequency and upper tract dilatation were reported.
Results: Mean age 47.3 years (range 14–88). Mean follow up 10 years (range 8–18). Of the 222 patients included, 170 had upper motor neuron (UMN) SCI (C1- T12) and 52 had lower motor neuron (LMN) SCI (L1 and below). Two patients (4%) with LMN had hydronephrosis occurring in the first year. Twelve patients (7%) with UMN SCI (three during the first year and nine between 3–12 years post injury). Resolution on surveillance USS showed no hydronephrosis recurrence after standard treatment.
Conclusions: Our data suggests that surveillance imaging for the renal tract in stable SCI patients should be performed at the time of injury and then every two years in UMN lesions and every five years for LMN lesions.

P 105

The urology outreach team – bridging primary and secondary care

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Introduction: Recent NHS directives have emphasised the provision of more healthcare in the community, with a shift from secondary to primary care. Our department has provided a nurse-led urology outreach service since 2003, which covers a variety of emergency and elective services. We aim to present our data demonstrating the successful transition of services to the community with reduction in secondary care workload.
Methods: We analysed our data for the period of September 2007 to September 2008. All patient episodes were recorded prospectively by the outreach team.
Results: In this time there were 1726 patient episodes. This comprised 481 TWOCs, 839 elective and 406 emergency encounters. The staffing level was equivalent to 2.3 nurses. Ninety-five emergency admissions were prevented by outreach intervention. TURPs were discharged within 24 hours, with planned outreach TWOC.
Conclusions: The urology outreach service effectively provides a service 'closer to home' as the department of health recommends. From its initial brief of providing community TWOCs, its role has expanded to provide additional services such as catheter tuition, follow-up and emergency consultation. It has significantly reduced emergency and planned urological admissions, as well as reducing average LOS for elective surgery.

P 106

Benchmarking competency in DGH paediatric urology

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Introduction: A diminishing number of surgeons are performing paediatric urological surgery in large DGHs'. BAUS is currently engaged with the RCS and BAPS to resolve this progressive loss of subspecialist expertise; we have adopted a user-friendly method to facilitate training in this field.
Patients: In our centre we undertake approximately 200 paediatric urological groin cases per year (principally orchidopexy and PPV/hernia repair) with 3 SpR's rotating through the post every four months.
Methods: Modifying existing ISCP tools, DOPs were undertaken for each groin procedure performed by the SpR, and scored by the trainer, between 2 (unsatisfactory) and 4 (satisfactory) to objectively assess competency. 3 SpRs' were assessed over a period of 4 months.
Results: Competency was determined by 5 successive DOPs scores of 4. Case numbers over four months was 23–35, mean number of cases to achieve competency was 16 (range 10–18) patient age range (6 months to 14 years).
Conclusions: It is feasible and practical for a trainee to acquire appropriate experience in DGH paediatric urological procedures facilitated by ISCP assessment tools alongside a standard logbook. We recommend a minimum of 25 'groin-based' procedures as a satisfactory benchmark to achieve this.

P 107

Have the NICE guidelines altered our management of prostate cancer?

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The publication of the NICE prostate cancer (PC) guidelines in February 2008 raised controversy. The aim of this study was to assess the impact of these guidelines on our management particularly of early PC. We identified 3 cohorts of 50 patients diagnosed with PC in 2006, 2007 and 2008. Compliance with several key NICE recommendations was audited. Demographic details for all 3 cohorts were similar (age, PSA, Gleason score, percentage localised disease). For low risk disease, 94% were offered active surveillance (AS) in 2006, 95% in 2007, 100% in 2008. Of these 31% of patients in 2006 elected for AS, 68% in 2007, 87% in 2008. For intermediate risk disease the percentages offered AS were 86% in 2006, 100% in 2007, 88% in 2008. 29%, 36% and 38% of patients elected for AS respectively. The published NICE guidelines have led to extensive debate. We show that the publication has not altered the management of PC at our centre as many of the recommendations were already practised. There is an increase in the number of men electing for AS although this trend preceded the guidelines. The increased uptake of AS is limited to low risk disease suggesting better patient awareness.

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Out-of-hours duties of the urology registrar – a future with the european working time directive?

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Introduction: From August 2009 the EWTD limits a doctor in training to a 48 hour working week. This has raised questions in regards to compliant rotas and the provision of subspecialist surgical on-call.

We undertook a prospective audit of the out-of-hour on-call duties of Urology SpRs within our region, to determine the nature of cover required by either a consultant or general-surgical-led service in 2009.

Materials and Methods: Out-of-hours duties (17.00–08.00) were recorded with a pro-forma in hourly divisions, between September and November 2008. Duties were defined as: Telephone advice (T); In-patient review (R); In-patient procedure (P). Total on-call days were 75 of which 53 (73%) were covered by an SpR.

Results: Over 2 days, an SpR will handle on average: T: 3; R: 2; P: 1. The majority of duties fall before 23.00 at night, 78% (n = 97). However, 18% (n = 16) of all the duties undertaken occurred after 00.00. Of which ~1/4 required in-patient review. 72% (n = 13) of procedures were catheterisations.

Conclusions: Without SpR cover, a consultant, within our region, might expect to attend an additional 10 times, out-of hours, over a 53 day period. This raises issues of service delivery, patient safety and loss of emergency experience for trainees.

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Operative experience of urological trainees

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Introduction: Objectives to assess the current operative experience of (Calman) urological trainees and analyse changes over a five year period.

Materials and Methods: From 2004 to 2008, operative logbooks submitted to the SAC for the award of CCT were analysed. The number of cases performed was recorded according to the categories P (performed), S (supervised) or A (assisted) for 8 different operative procedures.

Results: One hundred and ninety-four logbooks were identified over the five year period. In 2008, the mean number of cases performed or supervised (P + S) was as follows; TURP: 189, (range 91–516); TURBT: 179 (77–382); PCNL: 14 (0–60); ureteroscopy:109 (30–326); open radical nephrectomy: 20 (2–49); laparoscopic nephrectomy: 6 (0–57); radical cystectomy: 10 (0–42); radical prostatectomy: 13 (0–43).

There has been a significant decline in numbers of TURPs and open radical nephrectomies since 2004; ($p = 0.024$ and $p < 0.0001$ respectively). For major open cases, the proportion in which the trainee was purely the assistant has increased since 2004 (Table 1).

Table 1. Cases performed as assistant only (P109).

	TURP	TURBT	URS	PCNL	Radical Prostatectomy	Radical Cystectomy	Open Nephrectomy
Proportion cases as assistant only [A/(P + S + A)]	2%	1%	5%	44%	72%	64%	46%
Significant increase in past 5 yrs?	No	No	No	No	p = 0.029	p = 0.020	p = 0.001

Conclusions: This data provides a snapshot of the current surgical exposure of (Calman) trainees. There is significant variability between trainees, and a recent decline in numbers of TURP and open nephrectomy. Trainees currently are usually the assistant for several major open procedures.

P 110

The GP urologist: fact or fiction?

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Introduction: As NHS plans aim to deliver more primary care based patient services e.g Polyclinics, we wished to determine how often basic urological investigations/ interventions were being performed by a group of local general practitioners (GPs) and whether they were prepared to take on more basic urological investigations/procedures in the community.

Patients and Methods: One hundred and twenty postal questionnaires were sent to GPs in the North-West Thames region. Questions covered the point of referral to a urologist, whether GPs perform or interpret urological investigations/procedures and whether they would like further training in these areas.

Results: 85/120 questionnaires were returned. 75 were correctly completed. Only 1 GP had a specific interest in urology.

Table 1. Summary of results from responses to GP questionnaire (P110).

Pathology	Erectile dysfunction	OAB, UTI, Cystitis	Benign prostate problems	Vasectomy counselling	Female incontinence	Haematuria
(%) of GPs that primarily investigate/manage in community	37/75 49%	34/75 45%	32/75 43%	21/75 28%	12/75 16%	2/75 3%

Procedures	DRE	Flexible cystoscopy	Neonatal circumcision	Flow rates and residual	Vasectomy	Minor inguino scrotal surgery
Procedures performed by GPs (%)	61/75 81%	5/75 7%	5/75 7%	3/75 4%	2/75 3%	2/75 3%

	Flow rates & residuals	Neonatal circumcision	Vasectomy	Flexible cystoscopy	Minor inguino scrotal procedures
(%) of GPs wishing to learn procedures	30/75 40%	21/75 28%	21/75 28%	12/75 16%	12/75 16%

Conclusions: This survey highlights only a minority of GPs investigate or start treatment for basic urological conditions and an even smaller number perform basic urological procedures. However up to a third are keen to learn basic procedures. If our small survey is representative of GPs practice nationwide hospital urologists may be required to support the development and expansion of urological services in the community until a proper infrastructure is in place for GPs to take on this responsibility independently.

