

Abstracts for the East of England Meeting
Thursday 19th Jan 2017

10.40-11.30

Abstracts 1-4

12.00-1pm

Abstracts 5-9

2-3.40 pm

Abstracts 10-17

1: Evaluating The Role Of Diagnostic Flexible Cystoscopy In Women Referred With Lower Urinary Tract Symptoms And Recurrent Urinary Tract Infections

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Background: The role of flexible cystoscopy in the investigation of female patients with either lower urinary tract symptoms or recurrent urinary tract infections remains debated. The European Association of Urology 2015 guidelines on urinary tract infections specifically states that cystoscopy is not routinely recommended in the evaluation of women with recurrent urinary tract infections (level of evidence 1b, grade B) however should be performed without delay in atypical cases. Anecdotally however, many women do undergo a flexible cystoscopy as part of their diagnostic work up. In this retrospective analysis, we aimed to evaluate the diagnostic outcomes of women referred to our service who underwent a flexible cystoscopy for either of the above diagnosis.

Methods: Clinic records for women referred to our One Stop clinic from 1st January 2016 onwards were reviewed electronically. Those included were referred with either lower urinary tract symptoms or a history of recurrent urinary tract infections (either suspected or proven) and underwent a flexible cystoscopy during their assessment. We excluded any patient referred with a history of visible or persisting non-visible haematuria, those under the age of 18 and those who underwent a flexible cystoscopy to evaluate for tape erosion.

Results: The first 50 women who fulfilled the above criteria were evaluated. Of these, 25 were referred with recurrent urinary tract infections, 16 with lower urinary tract symptoms and nine with both. The majority of patients (38) had a normal flexible cystoscopy. Of the other 12, seven were reported to have tight urethras of which two went on to have urethral dilatations. One had debris within the bladder but management was not altered, and four had abnormal areas or redness and went on to have cystoscopy under anaesthesia. Of these, only one was found to have a confirmed transitional cell carcinoma of the bladder, although this patient was noted during her evaluation to have persisting non-visible haematuria and pyuria on urine cultures.

Conclusion: The diagnostic yield in this cohort of patients is low. The primary abnormal finding reported was that of a tight urethra however the clinical significance of this during a cystoscopy under local anaesthetic is unclear, and it did not alter the management in the majority of patients. The one case of cancer identified although referred as recurrent urine infections did have persisting non-visible haematuria and pyuria on urine cultures, which a flexible cystoscopy would have been mandated in. Based on this small study, routine flexible cystoscopy cannot be supported during the investigation of these patients, however we hope to evaluate a larger cohort of patients to aid us to risk stratify this further.

2: Performance characteristics of Multi-parametric MRI at a district general hospital using transperineal template mapping biopsy as a reference standard

Alberto Coscione, Edwin Chau, Neophytos Petrides, Jolanta McKenzie, Zaid Aldin, Jaspal Viridi, Veeru Kasivisvanathan, Hiten Patel, Manit Arya

Introduction: Multiparametric magnetic resonance imaging (mpMRI) ± biopsy has been put forward as a viable alternative to TRUS-biopsies and can be used to target suspicious areas within the prostate. MRI has not been thoroughly evaluated outside expert tertiary centres or trial settings and skepticism exists as to whether performance can be maintained outside these centres.

Method: 105 men in a district general hospital received pre-biopsy mpMRI and transperineal template mapping (TPM) ± cognitively registered targeted biopsy. Primary outcome was mpMRI performance using TPM as a reference standard. Disease status for mpMRI and TPM was assigned at hemigland level. MRI definition for clinically significant disease was PI-RADS score ≥ 3 and on histology was maximum cancer core length ≥ 6 mm or Gleason grade $\geq 4+3$ (UCL definition 1). Secondly, performance of MRI-targeted biopsy was evaluated.

Results: Median patient age was 69 (IQR 62-76). Median prostate specific antigen level was 7ng/ml (IQR 5-10). mpMRI sensitivity was 67%, specificity was 61%, PPV was 42% and NPV was 81%. 14 of the 25 men with declared target zones on transperineal biopsy had significant cancer and only 1 patient with significant disease would have been missed in a targeted-only approach.

Conclusion: mpMRI performs favourably when compared to TRUS-biopsies. An mpMRI-guided diagnostic pathway can play an important role in prostate cancer as long as appropriate training and quality control are ensured.

3: Should Testicular Cancer be Managed in Specialist Clinics?

E Lee, B Thomas

Background

Testicular cancer represents 1% of all male cancers with peak incidence in the third and fourth decades of life. Cure rates are high. Centralisation into supra-network teams started in 2002 and we are part of the East Anglia and East London Supra-network. Guidelines were published in 2014 and this audit was designed to assess our compliance with these guidelines.

Materials and Methods:

This was a retrospective audit of patients undergoing radical orchidectomy in 2015 at Addenbrooke's Hospital. Exclusion criteria were non-GP 2-week wait referrals and prior history of testicular cancer. The electronic patients records were reviewed. Audit standards were based on the London Cancer Guidelines for Management of Testicular Cancer published in June 2014 with regards to referral and treatment times, diagnostic tests and counselling regarding fertility and cosmesis options.

Results:

17 men met the inclusion criteria. All men presented with testicular swelling or mass. The median age was 32 years (16-82 years). 16 men were diagnosed with testicular cancer.

The mean time from referral to clinic appointment was 8 days (2-14 days). All men had an ultrasound scan. Two men required repeat ultrasounds. All tumour markers (AFP, HCG and LDH) were done in 15 men. Pre-operative chest x-ray was only performed in 6 men. Seven men had a staging CT scan pre-operatively.

Testicular prosthesis was offered to 12 men, of which a third had a prosthesis inserted. Cryopreservation was offered to 14 men. Only eight men were seen by a Specialist Nurse, and 13 men were given written information on surgery. Seven men underwent orchidectomy within 14 days of referral (median time 16 days). Seven men had abnormal tumour markers pre-operatively, but only one had them repeated within a week post-operatively. All patients with testicular cancer had a staging CT scan and were discussed at the SMDT, but only 4 men within 14 days of orchidectomy and only 2 men were seen by Oncology within 3 weeks of orchidectomy. Eight men had follow up in the Urology Clinic, 3 within 3 weeks of orchidectomy

Conclusions:

Whilst all men are seen within 2 weeks of referral, there are significant delays in definitive treatment and ongoing follow up. There are also significant inconsistencies in compliance with guidelines regarding diagnostic tests. This raises the issue of whether the management of testicular cancer requires specialised clinics and pathways.

4: The changing patterns of antimicrobial resistance in E. coli urine and blood isolates in the community and nosocomial populations of East Suffolk, 2009 – 2016.

Authors

T.J. Johnston, K. Wadhwa, A. Brendall, P. Hall, A. Hawizy, M. Habib, S. Kapoor, G. Yardy, R.D. Brierly, G. Banerjee

Background/Aims

An increase in E. coli antibiotic resistance (AR) has been identified worldwide with the UK government announcing a new strategy to combat AR. This study investigates the antibiotic resistance patterns for E. coli isolates from urine and blood in a community and hospital-based population over an eight-year period.

Patients and Methods

A retrospective analysis of all E. coli urine and blood isolates processed by Ipswich Hospital Microbiology Department between January 2009 and September 2016 was performed. The origins of the urine samples were further stratified into three groups: community; nosocomial; and urology patient-specific urinary tract infections. Susceptibility and resistance data for common antibiotics used to treat E. coli urinary tract infections (UTIs) and bacteraemias were examined to identify significant trends using the Cochran-Armitage two tailed trend test.

Results

A total of 143 247 urine specimens were culture positive ($>10^4$ cfu/ml) across the eight-year period, of which 90,597 (63.2%) grew E. coli. There were significant trends of increasing resistance across the study period for trimethoprim (29.3% to 34.8%, $P < 0.0001$); nitrofurantoin (1.5% to 2.9%, $P < 0.0001$); ciprofloxacin (7.1% to 8.3%, $P = 0.009$); and gentamicin (6.5% to 16.5%, $P < 0.0001$). There was no evidence of change in the resistance pattern for cephalexin (5.1% to 5.9%, $P = 0.57$). There was a sharp rise in the AR rate for co-amoxiclav (2.8% to 15.7%, $P < 0.0001$) between 2009 and 2011 which subsequently decreased to a stable rate (7-8%). The Urology patient-population had higher overall AR rates for trimethoprim (33.9%), nitrofurantoin (6.7%) and ciprofloxacin (9.5%) compared to the other groups.

There were 1037 E. coli bacteraemias from 2009 to 2016. There was a dramatic increase in the AR rate over the study period for co-amoxiclav (5.8 to 39.8%, $P < 0.0001$) and tazocin (2% to 17%, $P < 0.0001$). The AR rate also increased over time for amoxicillin (54.8% to 56.8%, $P = 0.06$), ciprofloxacin (9.7% to 13.6%, $P = 0.1$) and gentamicin (5.8% to 9.1%, $P = 0.13$) but did not reach statistical significance. Ertapenem resistance remains very low at 0.2% overall.

Conclusion

E. coli resistance rates has increased significantly across urine and blood isolates over the last eight-years. Trimethoprim is no longer a suitable empirical treatment for uncomplicated UTIs whereas nitrofurantoin AR rates remain low. The dramatic rise in AR rates for E. coli bacteraemia is of paramount concern with co-amoxiclav no longer being a suitable empirical therapy in our population. The increasing rates in tazocin, ciprofloxacin and gentamicin are also alarming. Prudent antibiotic prescribing and engagement with local Antibiotic Stewardship programs is an essential step towards addressing this growing threat to health.

5: An Audit of Diagnostic Ureteroscopy

Gordon E, Pearlman E, Jose P, Wilson G

Introduction

Some patients presenting with loin pain present a diagnostic challenge. A convincing history of loin pain does not always correlate with a positive finding on CT and yet the symptoms persist. We performed an audit of local practice to establish the outcomes of diagnostic ureteroscopies (URS) for stone, stricture, upper tract TCC and pain. The outcomes of patients investigated for loin pain in absence of positive findings on CT was of particular interest.

Methods

All ureteroscopies coded as diagnostic (OPCS code M30.9) performed between 2011 and 2015 in the West Suffolk Hospital were identified and the electronic records reviewed. 147 cases were identified, 60% (89) male to 40% (58) female. The records were reviewed to assess the presence and modality of pre-operative imaging, the reason for the URS (stone, stricture, upper tract TCC or pain) and the findings of the URS.

Results

Pre-operative imaging was performed in 96% of cases. 121 patients (82.3%) had a CT scan, 5 (3.4%) had ultrasound imaging only and 15 (10.2%) had both CT and USS. Investigations were for stone in 93 patients (63.3%); 60% of which (56/93) were negative for stone. Upper tract TCC was investigated in 33 patients (22.4%); 73% were negative for diagnosis or recurrence (24/33). 6% were incomplete studies (2/33) due to anatomical restriction, and 21% (7/33) were positive for diagnosis or recurrence. Stricture was investigated in 7 patients (4.8%), with 2 PUJ obstructions, 1 RPF, 1 stricture and 1 extra-renal pelvis identified. 2 patients had no pathology identified. Pain was the major symptom in 14 patients (9.5%), all of which were negative for pathology and all of which had had no pathology identified on CT. 79% (11/14) were performed on females, 21% (3/14) on males.

Conclusions

Diagnostic ureteroscopy for loin pain should not be performed in the absence of positive findings on CT. Where significant delay occurs between CT imaging and ureteroscopy, repeat imaging should be considered.

6: Impact of Nephrectomy Centralisation on Long-term Survival

RCJ Hsu^{1,2}, M Barclay³, G Lyratzopoulos^{3,4}, VJ Gnanapragasam^{1,2}, JN Armitage²
Cambridge

INTRODUCTION

Impacts of nephrectomy centralisation on long-term renal cancer survival have been poorly evaluated. We performed a population-based study examining the relationship between hospital and surgeon nephrectomy volumes and patient survival.

METHODS

Hospital Episode Statistics (HES) and Cancer Registry were extracted for adult renal cancer nephrectomies in England in 2000 and 2008. Only patients without missing HES data were included with subgroup analyses of patients with complete tumour stage data. We examined 5-year all-cause mortality using Cox proportional hazard models.

Volumes were categorised using three methods: 1) four groups with approximately equal patient numbers 2) hospital/surgeon volume quartiles 3) four groups with arbitrary volume cut-offs.

RESULTS

5,417 patients were identified with median follow-up of 7.8 years.

In the crude model, higher hospital volumes had significantly reduced mortality risks (Table 1). However, after adjusting for covariates, decreased mortality was only observed in volume category 2 and not for higher volume hospitals. Similar results were maintained regardless of the hospital volume definition.

For surgeon volumes, the crude model showed significantly improved survival in higher volume categories (Table 1). This was however not observed after adjusting for covariates. Similar results were noted regardless of the surgeon volume definition.

Table 1: Risks of mortality compared to baseline in three different models. Volumes were defined by dividing groups into equal patient numbers. Cases per year are denoted in parentheses.

Volume Category	Unadjusted Model (n=5,417)			Adjusted Model excluding Tumour Stage (n=5,417)			Adjusted Model including Tumour Stage (n=1,383)		
	HR	95% CI	p-Value	HR	95% CI	p-Value	HR	95% CI	p-Value
Hospital Volume									
2 (15-25)	0.86	0.76-0.97	0.02	0.77	0.65-0.92	<0.01	0.55	0.34-0.90	0.02
3 (26-41)	0.78	0.69-0.89	<0.01	0.95	0.79-1.16	0.63	1.25	0.81-1.91	0.31
4 (>41)	0.72	0.63-0.82	<0.01	1.02	0.75-1.41	0.88	0.99	0.70-1.40	0.95
Surgeon Volume									
2 (6-9)	0.94	0.83-1.06	0.33	1.02	0.90-1.15	0.73	0.82	0.64-1.05	0.11
3 (10-15)	0.75	0.66-0.85	<0.01	0.94	0.82-1.07	0.32	0.85	0.65-1.11	0.23
4 (>15)	0.77	0.68-0.88	<0.01	1.06	0.93-1.21	0.38	1.02	0.81-1.30	0.84

CONCLUSION

Positive hospital and surgeon volume-outcome relationships in long-term nephrectomy survival were not observed. Service reconfiguration may be required to optimise patient outcomes and experience.

7: Multi-regional whole genome sequencing of renal cell carcinoma reveals novel driver mutations and recurrent re-arrangements that time key events in cancer development

Mitchell T, Turajlic S, Farmery H, Martincorena I, Tarpey P, Angelopoulos N, renal TRACERx consortium, Wedge D, Lynch A, Swanton C, Campbell P.

This abstract will not be circulated.

8: Mutant DNA in Urine and Plasma Predicts Recurrence in Muscle Invasive Bladder Cancer

KM Patel^{1,2#}, KE van der Vos^{3#}, CG Smith^{1#}, FC Mouliere¹, D Tsui¹, J Morris¹, D Chandrananda¹, F Marass¹, D van den Broek⁴, DE Neal^{1,5}, VJ Gnanapragasam², T Forshe^{1,6}, BW van Rhijn⁷, CE Massie¹, N Rosenfeld^{1*}, MS van der Heijden^{3,8*}.

This abstract will not be circulated

9: Sulphate Accumulation in Prostate (SAP): A pre-biopsy window-of-opportunity trial to measure sulphate levels in human prostate after broccoli consumption

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Background: Epidemiological studies suggest a negative association between prostate cancer and dietary intake of cruciferous vegetables. These vegetables have a characteristic sulphur metabolism that allows them to deliver sulforaphane (SF), a hydrolysis product of glucoraphanin, and other specialised metabolites including S-methyl cysteine sulfoxide (SMCSO). Cultivars of broccoli, known as Beneforte®, have been specially bred on the Norwich Research Park to increase expression of these bioactive sulphur-containing compounds, potentially enhancing their anti-cancer activity.

We hypothesise that a high-dose broccoli diet influences sulphur metabolism within the prostate, leading to an accumulation of inorganic sulphate.

Materials and Methods:

SAP is a two-arm un-blinded study (clinicaltrials.gov ID: NCT02821728) based on power calculations from ongoing clinical trials at the IFR. 18 men were recruited from the waiting list for a trans-perineal template biopsy of the prostate at the NNUH and randomized to either no intervention or a minimum of 4 weeks of a high-broccoli diet (3 x 300g Beneforte® broccoli and stilton soups per week). Volunteers completed a baseline health questionnaire and validated Cruciferous Vegetable Food Frequency Questionnaire (CVFFQ). Samples were collected following the study period, including biopsies of benign prostate and pelvic adipose tissue, blood and urine.

Results:

At the time of abstract submission, prostate, adipose and urine from each volunteer are undergoing global metabolomic analyses by US company Metabolon® (results expected December 2016). Independent sulphate quantification will also be performed using a novel, highly-sensitive LC-MS/MS method developed at IFR. Two cores of prostate will be used for gene expression analysis by next-generation RNA sequencing, and all remaining tissue will be stored at -80°C in the Norwich Biorepository for further targeted analysis. Genotyping from whole blood samples will provide an explanatory variable in the analysis of effects seen from the study diet.

Conclusions:

Results from this short-term, high-dose broccoli intervention will provide further mechanistic insight into the *in vivo* modulation of prostate metabolism by cruciferous vegetables.

10: Protocol driven oral dissolution therapy for radiolucent stones- the next steps

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Background: Stone dissolution therapy is an option for the management of radiolucent stones. We present our experience of using oral sodium bicarbonate as dissolution therapy over a 22 month period with a proposal for next steps.

Method: A nurse led protocol for oral dissolution therapy was set up in November 2014. Data was collected prospectively. A total of 20 patients with radiolucent stones were identified and stone density was measured in Hounsfield units (HU) using non-contrast CT KUB. Oral bicarbonate was given initially at 1g three times a day, increasing to 2g five times a day dependent on urinary pH. Patients monitored their own urinary pH daily with the Urology Advanced Nurse Practitioner checking compliance at week 1 and 3. At the end of the 6 weeks, a non-contrast CT KUB was evaluated at the Stone MDT to check response to treatment.

Results: Mean age of the patient was 70 years (37-88) with mean stone size of 8mm (2-23mm). The most common stone location was in the left lower pole. 95% of patients tolerated the treatment; one patient had to discontinue due to gastrointestinal disturbances. Eight patients (40%) had complete dissolution, two (10%) had partial response (one patient had fragments being deemed too small for lithotripsy and was discharged; one patient underwent ureteroscopy). 10 (50%) had no response and went on for further treatment (50% receiving lithotripsy and 40% having ureteroscopy; 1 patient had both lithotripsy followed by ureteroscopy). Four patients opted to trial the oral dissolution therapy until 3 months. One of these patients gained complete dissolution after 3 months of treatment.

The HU average was 464 (116-1285). Interestingly, all patients with complete dissolution had HU of less than 605. Hyperuricaemia was not predictive of dissolution success. Two patients had encrusted ureteric stents and underwent therapy successfully with complete dissolution.

Conclusion: This project shows that stone dissolution therapy is effective when there is careful case selection. Stones with a lower HU have higher dissolution success rates. For encrusted stents, oral sodium bicarbonate therapy can be an effective and safe first line option. The length of treatment of six weeks appears to be satisfactory as most stones would have dissolved by this treatment point if they were going to respond.

Our nurse led protocol and assessment of suitable cases could be modelled in other departments to offer patients this cost effective, non-surgical option, which is particularly relevant for those patients with multiple co-morbidities or high anaesthetic risk.

11: Estrogen receptor beta modulates androgen receptor-driven prostate carcinogenesis and may present a future therapeutic target.

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Introduction

Estrogen receptor beta (ER β) is a putative tumour suppressor, which interacts with androgen receptor (AR) to influence the development and progression of prostate cancer (PC). However, the mechanisms of these effects, and the details of the relationship between ER β and AR are not well characterised. ER β is an attractive therapeutic target, as selective estrogen receptor modulators are already approved for clinical use. Here we investigated ER β to further understand its relationship with AR, and establish whether it could be targeted for treatment in early stage disease.

Methods

A published gene expression dataset (CamCaP) was interrogated for correlation between ER β expression and clinical outcome. A PC cell line treated with silencing RNA (siRNA) to AR and a prostate tissue microarray (TMA) of radical prostatectomy (RP) specimens from men who received LHRH antagonist (Degarelix) prior to surgery was examined to investigate the relationship between AR activity and ER β expression *in vitro* and *in vivo*. The relationship between ER β and AR was further studied using a cell line model with inducible ER β expression, treated with androgen (R1881) and/or ER β -selective estrogen (3 β -adiol). The effects of these treatments on cell proliferation, gene expression (RNA-sequencing) and DNA-binding (ChIP-sequencing) were tested.

Results

Significant variability in ER β (ANOVA $p = 0.04$) expression was noted across the CamCaP prognostic groups. Greater ER β gene expression was associated with favourable prognosis. siRNA to AR in LNCaP cells resulted in upregulation of ER β expression ($p = 0.03$). Similarly, patients treated with degarelix prior to RP showed a trend towards increased ER β expression compared to controls, suggesting that ER β is downregulated by AR. Using the inducible LNCaP-ER β cell line, we found that ER β activated by 3 β -adiol in the presence of androgen-stimulated AR resulted in inhibition of cell proliferation and downregulation of androgen-regulated genes, suggesting that active ER β is antagonistic to AR, when both proteins are co-expressed. We identified a set of DNA-binding sites shared by ER β and AR, suggesting that antagonism occurs through competition for DNA binding sites.

Conclusions

ER β is a tumour-suppressor gene, expression of which is decreased with upregulation of AR activity in early PC. Maintained ER β expression in PC is associated with better prognosis. Treating PC with ER β -selective agent may inhibit growth through downregulation of AR-target genes and antagonism of AR DNA binding sites. In future, it may be feasible to administer an ER β -selective compound to men on active surveillance to slow the rate of disease progression.

12: An audit of on the day theatre cancellations in Urology at Ipswich Hospital NHS trust

Authors: Miss Felicity Reeves SpR Urology, Dr Husay Janebdar CT2 Urology, Miss Sona Kapoor Consultant Urologist Ipswich hospital NHS Trust

Background: On the day theatre cancellations are costly owing to poor theatre utilisation with theatre and staff time. A half day sessions can cost £2000. Penalty fines are issued if a new date cannot be secured within 28 from cancellation. Increasing demands with limited resources in recent years have been a constant challenge to manage with significant impact on NHS waiting lists. NHS England data demonstrate an increase in cancelled operations over the last quarter compared to previous [1]. This was a recognised trend in Ipswich and perceived mainly due to increasing bed pressures.

Some cancellations are avoidable and in order to improve efficiency and service provision, an audit of reasons for theatre cancellations was performed to explore areas of potential change in practice to limit on the day cancellations. Guidance from the NHS Institute for innovation and improvement was followed to support root cause analysis of cancellations [2].

Materials and methods: A retrospective audit of urology patient cancellation on the day of surgery was performed over a six month period from 12.4.16 – 28.10.16 at Ipswich hospital. Ethical approval was not required. Data collection included the urology theatre waiting list electronic records, review of ORMIS electronic theatre records and electronic patient records. Reasons for cancellations were divided in to seven categories (earlier complications, no bed, list overbooked, inadequate preparation by hospital, theatre staff shortage, no ITU bed and lack of theatre equipment).

Results: Over the six month period on the day cancellations increased month on month from April 2016 (n=2) to October 2016 (n=16). The commonest reason for on the day cancellation was earlier complications on the list (34%), followed by no bed (28%), list overbooked (14%), inadequate preparation (10%), staff shortage (9%), no ITU bed (2%) then lack of theatre equipment (2%). Bed unavailability had increased month on month and it made little difference whether cases were day case or inpatient stays. A physical bed space is required to recover patient. Highest numbers of cancellations were on Mondays.

Conclusions: The main modifiable cancellations were related to inadequate hospital preparation from inadequately completed waiting list forms by urological staff leading to unidentified patient factors or lack of equipment. This was fed back to Urology team at local audit meeting. It has been reinforced to fill the booking form providing not only patient factors but also the required equipment for the procedure, to help the booking and theatre team to identify specific requirements for each case. Individual consultants to take responsibility of reviewing and supervising booking team to generate adequately prepared theatre list to improved theatre utilization and minimize cancellation. With these changes implemented with immediate effect, we plan to re-audit in 6 months' time and re-presented at the Ipswich Urology local audit meeting.

References:

[1] Ref: <https://www.england.nhs.uk/statistics/2016/11/11/nhs-cancelled-elective-operations-quarter-ending-30-september-2016/> last accessed 30/11/16

[2]http://webarchive.nationalarchives.gov.uk/20121108101915/http://www.institute.nhs.uk/quality_and_service_improvement_tools/quality_and_service_improvement_tools/cancelled_operations.html last accessed 30/11/16

13: Acute Ureteric Colic Practice: A snapshot audit from a single centre

B Pullar, OJ Wiseman

Background

Patients presenting with suspected renal colic represent a significant proportion of a urologist's emergency workload. In recent years, CT KUB has become the investigation of choice for patients with suspected renal colic. This study forms part of the national snapshot audit into current UK practice in patients presenting to A&E with suspected renal colic. It aims to assess the use of CT as well as initial and subsequent management including interventions needed.

Methods

All emergency CT KUBs performed for suspected renal colic were reviewed for the one-month period of June 2015 at Addenbrooke's Hospital, Cambridge. The medical records of all patients presenting with renal colic were then reviewed including patient demographics, CT results and stone characteristics. Records were also reviewed for follow up and whether subsequent interventions were needed at intervals of 6 weeks, 6 and 12 months after initial presentation.

Results

A total of 45 emergency CTs were performed for suspected renal colic in this one-month period. 27 were for male patients and 18 for female. The age range was 23-81y (mean 46y). All patients presented with loin pain except one who presented with groin pain. CT KUB showed a stone in 23/45 (51%), revealed an alternate diagnosis in 2/45 (pericardial effusion & cholecystitis) and was totally normal in 20/45.

Non-visible haematuria (NVH) was present in 22/45 patients and in 17/23 with a proven stone. 5/20 patients who had no evidence of NVH on urine dipstick had a proven stone on CT. Of those patients with a stone on CT, 5/23 were in the kidney and 17/23 were in the ureter (1 proximal ureter, 1 mid ureter and 15 distal ureter). 5/23 were admitted, the remainder were sent home from A&E; 6 were given MET. 1 patient underwent inpatient ESWL. No other interventions were performed in the remaining admitted patients.

12/23 patients were subsequently stone free at their follow up appointment. The remainder required either ESWL, ureteroscopy and laser fragmentation or pursued conservative management. The average time to follow up was 4 weeks for ureteric stones (range 2-10 weeks). There were no readmissions over the follow up period. A basic stone profile was performed in 16/23 patients and abnormal 5 patients (1 hypercalcaemia / 4 hyperuricaemia).

Conclusions

The pick up rate for CT KUB (51%) in our institution in patients with suspected renal colic is in keeping with published data. Timing of follow up is appropriate and categorised according to stone position. This study will contribute to the ongoing multicentre study assessing current UK practice in the assessment and management of patient presenting to A&E with suspected renal colic.

14: Review of 150 Scrotal Explorations; Are we Getting the Acute Paediatric Scrotum Right?

N Suleyman, T Stonier, S Undre

Background: The need for prompt surgical intervention in testicular torsion marks paediatric scrotal pain a urological emergency. The two most important determinants for early salvage of the testis are the time between onset of symptoms and detorsion, and the degree of cord twisting. It is not easy to determine the cause of an acute scrotum based on history and physical examination alone. Doppler ultrasound has been recommended by the European Association of Urology (EAU) as a highly effective imaging tool to evaluate the acute scrotum. However, they also recommend that intervention should not be delayed. We retrospectively evaluated 150 scrotal explorations to identify causes of delay. As part of our analysis we determined how many of these patients had pre-operative Doppler USS and whether this changed management. We compared outcomes with data from the EAU guideline.

Materials and Methods: We identified all patients undergoing scrotal exploration between January 2011 and January 2015 from hospital surgical records. Electronic patient records were reviewed and the following demographic and clinical data was collected; age, presenting symptom(s), duration of symptom(s), prior attendance at their GP, ultrasound findings (if performed), postoperative diagnosis, histology (if applicable) and outcome at follow-up were obtained. Elective cases were excluded as were those performed for a post-operative complication. Data was analysed using Microsoft Excel.

Results: 150 patients underwent scrotal exploration. Of our patients 23.8% had a testicular torsion, 22.3% had epididymitis, 25.9% had a torsed testicular appendix and 22.4% had another diagnosis (varicocele, hydrocele, oedema, cyst) or no diagnosis was recorded after exploration. Of those with torsion, patients who were found to have a viable testes presented at a median of 4 hours, compared to those who underwent orchidectomy who had a presenting time of a median of 48 hours. The total median time delay was 16 hours if the patient presented first to the Emergency Department (ED), compared to 24 hours if the patient presented to their GP. Mean time between being added to the emergency list and anaesthetic start time of 75 minutes for a salvaged testes, compared to 113 for patients who underwent orchidectomy. 16 (11.1%) patients had a pre-op ultrasound (US). The mean time from presentation in ED to undergoing US was 2hrs19mins. The mean time for US reporting was 1 hour. Mean time from addition to theatre list and anaesthetic start 2hr34mins in patients who had a pre-op ultrasound compared to 1hr26mins in those who went straight to theatre.

Conclusions:

We would recommend that GPs refer any patients wanting clinic appointment for testicular pain to the ED. We have shown that a pre-operative ultrasound adds delay and potentially morbidity to patients with an acute scrotum and should not be requested routinely. A programme of education for both clinicians and the general public may help reduce delay to exploration and detorsion.

15: Low Risk Non-Muscle Invasive Bladder Cancer: Recurrence And Progression Rates Up To 16 Years Follow Up: Are The New NICE Guidelines Appropriate?

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Background: New N.I.C.E. guidelines recommend patients with low-risk non-muscle invasive bladder cancer who have no recurrence within 12 months of diagnosis be discharged to primary care. The aim of this study was to determine long-term recurrence and progression rates of patients in our local population with low risk non-muscle invasive bladder cancer.

Materials and Methods: A retrospective audit was conducted of all patients with a newly diagnosed urothelial carcinoma between 2000 and 2004. Demographic information, biopsy pathology, mortality (and cancer specific mortality), recurrence, time to recurrence and progression rates were recorded. Data about smoking rates and Mitomycin C usage were not available.

Results: Data from 188 patients was included in the study of whom 56 had “Low Risk” bladder cancer as per new N.I.C.E. guidelines. In these Low Risk patients, median age at diagnosis was 74 (IQR 21), with a male predominance (43 (76.8%)). Twenty nine patients had Grade 1 urothelial carcinoma (52%) and 27 Grade 2 (48%). Thirteen patients had recurrent bladder cancer (23%), of whom eight had more than one recurrence (57%) in the time frame of the study. Median time to recurrence was 19 months (IQR 33 months). Two patients had apparent progression. Patient One had a missing biopsy, indicating early recurrence, at 3 months therefore should have not been categorised as “Low Risk”. Patient two had a solitary high-grade pTa tumour found incidentally, 10 years after initial diagnosis. In our cohort, 21/56 patients were alive (37.5%), 28/56 had died (50% - none from bladder cancer) and mortality was unknown in 17/56 (30%) with a median age at death of 84 (IQR 11) at up to 16 years follow up.

Conclusions: With the limitations of lack of information about smoking rates and mitomycin C usage in our population, low risk non-muscle invasive bladder cancer has a recurrence rate of 25% but minimal progression rates at 16 years follow up. This is consistent with the published EORTC guidelines. Further data collection on smoking status and Mitomycin C usage in the cohort is ongoing.

16: Novel three-dimensional bone ‘mapping’ software can help assess progression of osseous prostate cancer metastases from routine CT

D. Thurtle, G. Treece, T. Barrett & V. Gnanapragasam

Background

Bone scintigraphy (BS) in the serial assessment of prostatic bone metastases is flawed due to ‘flare’ effects and low specificity. PET techniques show promise, but are not widely available. There is a need for non-invasive methods of assessing bone metastases.

Stradwin is a new software-tool developed in our institution which has unique facilities to assess bone properties from 3D medical data. Using model-fitting techniques, the software has been shown to accurately assess sub-millimetre cortices from CT. We investigated this technology in the assessment of trabecular bone, specifically assessing prostatic osseous metastases over time.

Material and Methods

Routine staging CTs of 20 men with advanced prostate cancer were processed using Stradwin. 3D-rendered 'bone-maps' of the imaged axial skeleton were produced, with trabecular bone attenuation coefficients 'mapped' to bone surfaces.

Correlation between bone-maps, CT and BS was assessed using a novel validation tool. In a sub-cohort of 9 men who had undergone serial CTs, interval disease response or progression was evaluated using Response Evaluation Criteria in Solid Tumour (RECIST) outcomes. Assessments were made independently from bone-maps against a gold-standard CT and BS in combination. All interpretation was performed by a consultant radiologist blinded to patient or imaging information.

Results

CTs contained a mean(\pm SD) 281(\pm 53) images whereas single 3D-rendered bone-maps were produced for each case (eg Figure 1). Accordingly, bone-maps took significantly less time (mean(\pm SD) 93.6s(\pm 29.5)) to interpret than CT bone windows (217.3s(\pm 63.1)) ($P < 0.001$).

Initial bone-mapping, without adjustment, demonstrated sensitivity and specificity for suspicious areas on CT of 70.7% and 72.8% respectively.

However, when we tracked change over time using RECIST criteria, concordance between bone-maps and CT/BS was 100% amongst men undergoing serial scans. 77.8% of serial cases were reported to have progression using both CT/BS and bone maps, with the remainder demonstrating stable disease.

Conclusion

We demonstrate proof-of-concept for the use of Stradwin to non-invasively assess prostatic bone metastases. Using a simple post-processing step, CT data can be transformed into easily-interpreted single image 3D-overviews of osseous disease burden. The technique shows particular promise for comparisons of disease over time.

Bone-maps may also prove useful discussion-aides or adjuncts for CT interpretation. With software adjustments we anticipate improvements to a fully automated, standardised processing protocol that enables quantitative estimates of skeletal involvement

17: Mortality following the finding of abnormal histology at HoLEP

Durrant J, Aho T.

Background

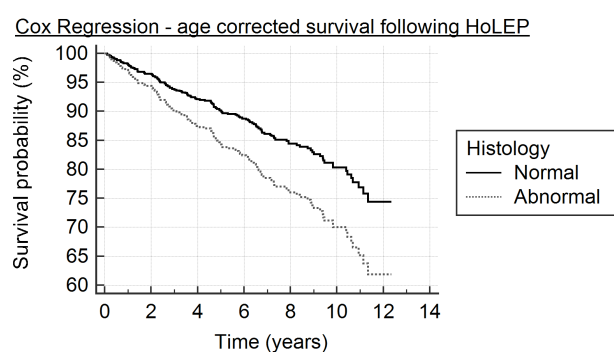
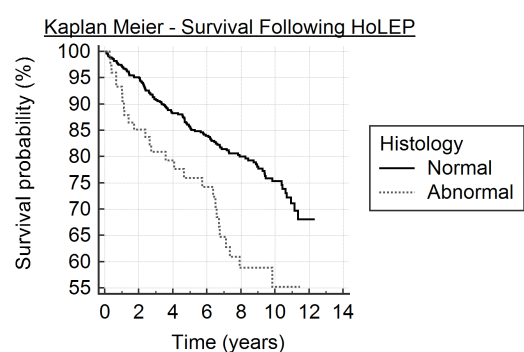
Recent data from the ProtecT study has reaffirmed that men diagnosed with prostate cancer from a raised PSA have a 99% prostate cancer-specific survival over a 10 year follow-up period regardless of assigned treatmentⁱ. Previous studies have shown that urinary retention as a co-morbidity is a predictor of mortalityⁱⁱ and men with prostate cancer suffer higher levels of early morbidity following TURPⁱⁱⁱ. We examine whether the co-morbidity of non-benign histology found at Holmium Laser Enucleation of the Prostate (HoLEP) has an effect on patient survival.

Materials & Methods

A retrospective analysis of a prospective HoLEP database was carried out. HoLEP histology, clinic follow-up data and all-cause mortality was reviewed for each patient.

Results

Between July 2004 and November 2013 a total of 985 HoLEP procedures were carried out. Adequate follow-up data was available for 633 patients. The median length of follow-up was 7.41 years (range 0.28 - 12.3 years). 12.3% (n=78) had histology of cancer, HGPIN or atypia. The mean age in the normal histology group was 70.7yrs, the mean age in the abnormal histology group was 74.7 (p=0.0001). There were 146 all-cause mortalities during follow-up. Survival was examined using a Kaplan Meier analysis and Cox proportional hazards regression (factoring age differences between groups). There is a significant difference between the survival curves in the Cox regression with respect to the histology (p=0.002).



Conclusion

In the context of HoLEP, the finding of abnormal histology is associated with decreased survival probability (relative risk = 1.63). There are likely to be other contributing variables, but this result highlights the need for continued medical review in this group of patients.

ⁱ N Engl J Med 2016; 375: 1415–24

ⁱⁱ BMJ 2007; 335: 1199

ⁱⁱⁱ Br J Urol 1994; 74: 559-565