Welcome to our review of the 114th American Urological Association (AUA) Annual Meeting, held in Chicago, Illinois in May. This meeting is the largest gathering of urologists in the world, providing unparalleled access to groundbreaking research, new guidelines and the latest advances in urologic medicine. Research presented at this meeting translates to knowledge that positively impacts clinical practice. For this review, I have chosen 10 presentations that particularly caught my attention.

We hope you find this review stimulating reading and look forward to your feedback.

Kind Regards,

Associate Professor Nathan Lawrentschuk
nathan.lawrentschuk@researchreview.com.au

Scrotal ultrasound reduces unnecessary scrotal exploration in blunt scrotal trauma

Authors: Yura E et al.

Summary: Data retrieved from the National Trauma Data Bank (NTDB; 2014-16) was used to examine the role of scrotal ultrasound in the management of blunt scrotal trauma. Among 821 blunt scrotal trauma cases, preoperative scrotal ultrasound occurred in 141 (17.2%) cases. All those without scrotal ultrasound underwent scrotal exploration, whereas only 27.7% of those with preoperative ultrasound required surgical exploration (p < 0.001) and these patients were more likely to require orchietomy (35.9% vs 15.4% of those without scrotal ultrasound; OR 3.07; CI 1.51–6.02; p = 0.002). Use of preoperative ultrasound also prevented unnecessary surgery, with a negative exploration performed in 33.5% versus 65.4% of those without scrotal ultrasound (OR 0.26; 95% CI 0.13–0.51; p < 0.001).

Comment: A common sense approach to scrotal exploration – do ultrasound first. It is doubtful in our region that exploration would occur without imaging, but what this tells us is that it is important in screening for more serious injuries over examination. Perhaps it is worthwhile getting a urosonographer in after hours, or are we at the same juncture of a possible torsion where the mantra of explore first realms? The wider question of evacuating a haematocoele and thus speeding up recovery is not answered by this study and remains a slight area of contention, favouring surgery the larger the injury and collection.

Reference: J Urol. 2019;201(Suppl 4):Abstract MP04-05

Intravesical botulinum toxin A injections in patients on antithrombotic therapy

Authors: Mensah E et al.

Summary: This multicentre retrospective review (2016-18) examined the number of significant bleeding events after intravesical onabotulinum toxin-A (Botox®) injection for idiopathic and neurogenic detrusor overactivity in 63 patients receiving concurrent anticoagulant/antiplatelet therapy. Overall, 1 of 114 (0.88%) injections resulted in post-injection haematuria, requiring overnight catheterisation with spontaneous resolution. This event occurred in a patient receiving rivaroxaban after Botox® 300 U injected at 20 sites, after previous prostate radiotherapy and self-catheterisation.

Comment: When to cease anticoagulants is becoming an increasing topic of consideration with balancing of thrombotic events versus haemorrhagic events being challenged in many realms. This study appears to support the safe use of botulinum toxin where patients are forced to remain on anticoagulants. Common sense should apply, whereby lower-risk patients may have the anticoagulants ceased but in higher-risk patients the benefits of ceasing may be outweighed by the greater risk of an event, given the low haemorrhage rate in this trial.


Abbreviations used in this review:

BPH = benign prostatic hyperplasia; DRE = digital rectal exam; GFR = glomerular filtration rate; HoLEP = holmium laser enucleation of the prostate; HR = hazard ratio; LUTS = lower urinary tract symptoms; MRI = magnetic resonance imaging; OR = odds ratio; PSA = prostate-specific antigen; RCC = renal cell carcinoma; TURP = transurethral resection of prostate.

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Integrated, real-time digital stone measurement in ureteroscopic stone procedures: A workflow feasibility study

Authors: Koo K et al.

Summary: This study assesses the feasibility of integrating novel software that can accurately measure small stone fragments during ureteroscopic stone management into operating room workflow based on simulations with a ureteroscopic training model of the kidney and ureter. Twenty symmetric or asymmetric stone fragments ranging from 3.2 to 10.3 mm (mean 7.1 mm), with a variety of shapes (50% pyramidal, 30% oval and 20% cuboid) and a surface contour of either rough (50%) or smooth (50%) were included. Mean conventional retrieval (ureteroscope navigated from the ureteropelvic junction to a stone in a superior pole calyx and retrieved with a basket) completion time was 16.5 seconds versus a mean completion time of 38.8 seconds when real-time measurement of the stone was included (additional procedure time averaged 22.2 sec). Challenging planar alignment of the ureteroscope and basket tip, necessary for accurate calculation using the software, contributed to the variation in procedure times.

Comment: A fascinating glimpse at where virtual technology could go into the future. One could see this type of approach being used beyond stones in say a BPH laser case to quantify energy changes in real-time based on visual feedback. Thus modulating near important structures as an example. The same could apply to stones to avoid damage to papillae or the urethra. The great tragedy is our medical software for records remains so archaic, yet they can do this?

Reference: J Urol. 2019;201(Suppl 4):Abstract PD08-12

Comparison of incidental prostate cancer detection between HoLEP and bipolar TURP

Authors: Dong W et al.

Summary: This retrospective analysis of data from patients with LUTS secondary to BPH undergoing HoLEP (n = 292, mean age 66 years) or TURP (n = 312; mean age 65 years) was conducted to identify the rate of incidental prostate cancer detection. The median preoperative total PSA was 3.7 ng/mL versus 3.3 ng/mL for HoLEP versus bipolar TURP recipients, while the median preoperative prostate volume was 64.0 versus 58.0 cc (p = 0.02) and the mean percentage tissue removed was 69.5% versus 51.2% (p < 0.001), respectively. Incidental prostate cancer was detected in 12.3% versus 6.1% of specimens (p = 0.01). Multivariate logistic regression suggested the procedure (OR 1.46: 95% CI 1.24-1.65; p = 0.04) and PSA density (PSA divided by prostate volume; OR 2.13; 95% CI 1.09-4.18; p = 0.028) independently predicted incidental prostate cancer.

Comment: One of the weaknesses of some laser approaches in treating BPH is a lack of histological specimen. The obvious way around it is to do a biopsy before treating if there are enough red flags (DRE, PSA rate of change [PSA velocity], MRI, family history etc.). So is getting a good specimen at the time of BPH treatment that relevant? It is fairly rare that seriously incidental cancers are found, but they do exist. So once this has been considered, is HoLEP better than TURP at getting a specimen that can diagnose prostate cancer? Well, yes it seems. Intuitively this makes sense as more tissue is provided. So for the HoLEP enthusiasts, another slight advantage maybe? Or really, as discussed, does it matter? A biopsy may be done after a TURP if required. The debate will continue.

Reference: J Urol. 2019;201(Suppl 4):Abstract P10-06

3-year outcomes of sexual function after water vapour thermal therapy (Rezūm®) and medical therapy for treatment of lower urinary tract symptoms due to benign prostatic hyperplasia (LUTS/BPH)

Authors: Mahon J et al.

Summary: This analysis of 3-year follow-up data from the Medical Therapy of Prostatic Symptoms (MTOPS) trial examined the effects on sexual function of a one-time water vapour thermal therapy (Rezūm®; n = 86) procedure versus continuous daily drug monotherapy with doxazosin (n = 301), finasteride (n = 319) or a combination of both agents (n = 310) in sexually active participants. Item Response Theory modelling indicated significant discrimination between sexual function domains evaluated using the International Index of Erectile Function and Brief Male Sexual Function Inventory questionnaires. Sexual desire, erectile function and ejaculatory function declined with continued therapy with both finasteride and combination therapy, and sexual desire and erectile function declined with doxazosin (p < 0.004). There were no mean negative changes in sexual function during the 3 years post Rezūm® treatment.

Comment: As the steam machine starts to cook its way into BPH practice we need to know the data. This is one of the first papers to demonstrate that a surgical procedure may actually have fewer side effects than medical therapy. The story may be starting to emerge that surgery can deliver better results with some technologies and fewer side effects than medical therapies with others. If only we could marry the two perfectly!


Bio-engineering of a novel Bluetooth telemetrically controlled artificial urinary sphincter

Authors: Gousse AE et al.

Summary: This report details development of a Bluetooth controlled artificial urinary sphincter, which has been implanted in six animals and with additional full device replacement in three animals. Bench tests and phase I, Ila and Iib animal implants have demonstrated tissue compatibility and an absence of urethral trauma or erosion over periods >1 year.

Comment: The evolution of “wearable technologies” has been a little slow into urology and modifications such as Bluetooth have been sluggish into devices. This paper demonstrates what may and can happen. Will it help or just be another part that can malfunction or run out of battery and will the price increase be worth it? If it makes the technology easier to use and more accessible then it will have been a success. One of the frustrations of modern medicine is how slow at times even simpler innovations seem to take, like decent and flexible and seamless smartphone software/apps for medical records and results. As such, quantum leaps outside of day-to-day functions are great, but why can’t they fix the other more pressing issues.

Reference: J Urol. 2019;201(Suppl 4):Abstract PD08-04

Independent commentary by Associate Professor Nathan Lawrentschuk.

Nathan has appointments at the University of Melbourne, Department of Surgery as an Associate Professor and consultant uro-oncologist, and at the Department of Surgical Oncology at Peter MacCallum Cancer Centre and the Olivia Newton-John Cancer and Wellness Centre, Austin Hospital as a senior clinical researcher. He is the newly appointed Director of the EJ Whitten Prostate Cancer Research Centre at the Ewprth Hospital, Melbourne. Nathan has written over 400 peer-reviewed full journal article publications and 10 book chapters and reviews for over 30 scientific journals. Nathan is the BJUJ USANZ supplement Editor and is on the editorial board of Nature Reviews Urology. He is also previous Vice-Chairman of WUOF (World Urolologic Oncology Foundation) and remains active in many international meetings.
PBS Information: Zoladex 10.8mg. Restricted benefit for locally advanced (equivalent to stage C) or metastatic (equivalent to stage D) carcinoma of the prostate.


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Renal hypothermia during partial nephrectomy: A randomized controlled trial

Authors: Breau R et al.

Summary: This trial, involving patients at six academic tertiary care hospitals, aimed to determine the effectiveness and safety of renal hypothermia during partial nephrectomy. A total of 184 patients aged ≥18 years were randomised to either hypothermia or no hypothermia during open partial nephrectomy and 161 (79 hypothermia, 82 no hypothermia) were alive at follow up. There was no significant difference between the hypothermia and no hypothermia groups in GFR at 1 year post-surgery (primary outcome); 89.0 versus 85.0 mL/min/1.73 m² (mean difference 6.5; 95% CI -0.4 to 17.4); overall GFR decrease -9.0 mL/min/1.73 m² versus -8.0 mL/min/1.73 m² (mean difference 0.2 mL/min/1.73 m²; 95% CI -5.4 to 5.7).

Comment: So renal ischaemia is no longer a cool topic - a really interesting study whereby we now have Level 1 evidence that hypothermia potentially can be abandoned. One criticism of hypothermia is you need to have the kidney cooled for 10 mins down to 15 degrees Celsius. We can assume this was standardised in the trial and if it was then we truly do not need to be concerned to cool for more complex cases.


Abstract

Renal mass biopsy vs. biopsy of masses in other organs: Why is it different only for the kidney

Authors: Jefferson F et al.

Summary: These authors reviewed meta-analyses, systematic reviews, and clinical studies in order to compare the efficacy and safety of renal mass biopsy to biopsy of a mass in other major solid organ systems, in an aim to determine why the kidney is an outlier for pre-treatment biopsy. Data regarding sensitivity, specificity, diagnostic accuracy, and complication rates were extracted from 10 studies involving needle biopsy (17,303 breast, 10,383 lung, 4,766 pancreas, 4,746 thyroid, 6,995 prostate, and 2,867 renal masses). Needle biopsy of a small renal mass showed a sensitivity and specificity of 99% or better, and a complication rate of 48%-99% and 96%-100%, respectively, while corresponding percentages for needle biopsy in the other organs ranged from 48%-99% and 96%-100%, respectively. The diagnostic accuracy (i.e., concordance with surgical pathology) of small renal mass biopsy was 96% and this was equal to or better than biopsy results in the other solid organs. Furthermore, less than 1% of complications with renal mass biopsy were Clavien grade ≥3 and the total complication rate for this type of biopsy was 8% (complication rates in other organs ranged from <1% [thyroid] to 50% [prostate]).

Comment: Renal biopsy has not been universally adopted worldwide and of course there are some situations where biopsy is not necessary – or possible. If we focus on the small renal mass, this paper challenges the belief that renal biopsy performs worse than other solid organs hence contributing to such biopsies not being universally done. It appears this is not the case and in fact it performs pretty well. So, when will it become universal? Possibly not until we can discuss that at the next multidisciplinary meeting.


Abstract

Tumour seeding in the tract of percutaneous renal tumour biopsy. A report of seven cases from a UK tertiary referral centre

Authors: Macklin P et al.

Summary: These authors histologically examined the renal tumour biopsy tract of 196 percutaneous biopsies in resection specimens from patients with proven renal cell cancer (RCC). They identified seven cases in whom renal tumour biopsy tract seeding was evident on histological examination of the subsequent resection specimen (six papillary RCCs and one clear cell RCC). The presence of tumour in the perinephric fat upstaged the tumour to T3a in six cases and two patients subsequently developed local tumour recurrence within the renal bed at a site consistent with the biopsy tract.

Comment: Tumour seeding from renal biopsy remains a concern despite better double-sheathed needles protecting from contamination. However, translating a seeding into a recurrence has been a longer straw for many – were they just like a small positive margin and do they get swallowed up by the immune system? This paper suggests not and perhaps our only defence is to meticulously remove the perinephric fat around where the biopsy was taken – and label it – and ask our pathological colleagues to look for them – easier said than done! Or just avoid biopsy unless necessary?

Reference: J Urol. 2019;201(Suppl 4):Abstract PD07-10

Abstract

Selecting ideal intermediate risk patients for active surveillance: A look at adverse pathology after radical prostatectomy for Gleason score 3+4 on targeted biopsy

Authors: Bloom JB et al.

Summary: These authors aimed to determine the rate of adverse pathology of 121 patients with Gleason Score (GS) 3+4 prostate cancer on targeted biopsy and any associated imaging, biopsy, or clinical factors in their retrospective review involving patients who elected radical prostatectomy. All of the patients had undergone MRI and systematic biopsy. Adverse pathology was identified in 30 (24.8%) patients; 22 had extraprostatic extension, 11 had GS > 3+4, three had seminal vesicle invasion, and two had lymph node-positive disease. Age (HR 1.13 95% CI 1.03-1.23, p = 0.01) and the highest percentage of targeted core positive for prostate cancer (HR 11.9 95% CI 1.45-98.05, p = 0.02) were found to be factors associated with adverse pathology upon multivariable logistic regression analysis.

Comment: Selecting patients with low volume Gleason 3+4 (Grade Group 3) cancer can be a delicate balance. This study helps. Interestingly a quarter of men had adverse pathology at surgery. They affirmed that it is the percentage of biopsy positive in the targeted region that predict for adverse features at radical prostatectomy. They did not focus in percentage or mm of Gleason pattern 4 which would have been very useful. Perhaps in the final paper we will see those results.

Reference: J Urol. 2019;201(Suppl 4):Abstract PD45-05

Abstract

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