

Syllabus

JK Wyatt Urology Residents Research Day

**Friday, May 17, 2019
Kings College
London, Ontario**





Remembering...

Dr. John (Jack) Kenneth Wyatt

Jack Wyatt completed his undergraduate and medical school training at Western. During his university days he excelled in sports and was captain of the Western football team. His medical school classmates described him as the class prankster.

After completion of residency training Dr. Wyatt began his urological career in 1960 at Victoria Hospital, practicing general urology with a special interest in cancer and reconstructive surgery. He later went on to serve as Residency Program Director and Division Chair, and aided the building of the Western Urology division into a strong clinical and academic program.

Dr. Wyatt is fondly remembered by alumni for his care in their well being as residents, and his sharp clinical acumen. He was also a great storyteller with a razor-sharp wit and dry sense of humor. He is remembered by former patients for his common sense approach, easy-going nature and empathy.

During his career Dr. Wyatt was actively involved in both the Northeastern Section of the American Urological Association and Canadian Urological Association. He served as CUA President in 1984.

Dr. Jack Wyatt passed away in 2004 after a long and distinguished urological career. We are indebted to his many contributions to Urology in London and beyond. His legacy is celebrated through our annual Research Day.

Western University

Jack Wyatt Urology Residents' Research Day

2019

RESIDENTS:

PGY5

Justin Kwong
Nahid Punjani
Wen Yan Xie

PGY4

Harmenjit Brar
Roderick Clark

PGY3

Jeffrey Law
Samir Sami

PGY2

Ernest Chan
Heather Morris
Nahid Punjani

PGY1

Michael Pignanelli
Noah Stern

FELLOWS

Jennifer Bjazevic — EndoUrology
Tarek El-Ghazaly — EndoUrology

Jeffrey Campbell — Prosthetics/
Reconstructive Urology

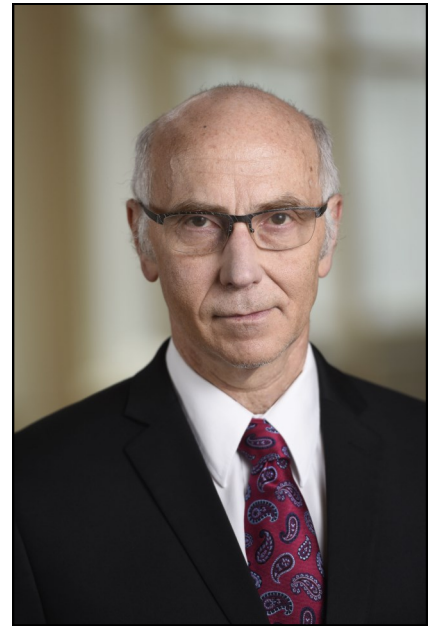
Max Levine — Transplant
Moaath Mandruah — Transplant

Khalil Hetou—UroOncology
Shiva Nair — UroOncology

GUEST PROFESSOR 2019

Dr. Douglas A. Husmann

Mayo Clinic, Rochester, Minnesota



Douglas Husmann, MD is the Anson L Clark, Professor of Urology, and former chair of the Department of Urology at the Mayo Clinic, Rochester Minnesota. He received a B.S. degree with distinction from the University of Nebraska, Lincoln, and the M.D. degree with honors from the University of Nebraska Medical Center. To complete a three-year obligation to the Public Health Services, he was attached to the United States Coast Guard, as a general surgery intern and resident at the United States Public Health Service Hospital at the Presidio in San Francisco, California and the Indian Health Service, Claremore, Oklahoma. He trained in urology at the University of Texas Southwestern in Dallas, Texas, in Pediatric Urology at the Hospital for Sick Children in Toronto, Ontario and completed an American Urologic Association (AUA) Scholarship in Endocrinology at the University of Texas Southwestern in Dallas, Texas. Working with Drs. Gene Wilson and Mike McPhaul, he helped develop the first antibodies to the androgen receptor protein and pioneered the immunohistologic techniques for the use of these antibodies in embryologic and malignant tissues, resulting in numerous advances in the field of androgen receptor physiology.

Dr. Husmann's clinical focus includes the treatment and repair of traumatic injuries and congenital malformations. His unique set of surgical skills in the realm of both pediatric and reconstructive urology helped him become a pioneer in and aid in the establishment of the field of transitional urology

He has published over 200 peer review papers, invited articles and book chapters and has been awarded 17 competitive grants from governmental and industry sources. Dr. Husmann has served on the editorial committees of the Section of Pediatric Urology of the Journal of Urology and the Journal of Pediatric Urology, as the Chair of the Pediatric Section of the AUA Core Curriculum Committee, the secretary and president of the Society for Pediatric Urology. He has served on the Written Examination Committee for the AUA/ABU, both as a member, a senior consultant for pediatric urology, head of the Examination Committee for the Sub-specialty of Pediatric Urology and eventually as the Chair for the AUA/ABU Examination Committee. He is currently a trustee for the American Board of Urology.

Throughout his training and career, Dr. Husmann has been the recipient of several awards. Some of these include: multiple military citations during his service to the US Coast Guard, Best Reviewer for Journal of Urology-Pediatric Section; Best Presentation at the Annual Convention for European Society for Urology; Numerous Best Annual Presentations and Publication Awards from the American Urologic Association, along with multiple Clinical and Basic Science Research Awards from both the American Urologic Association and the American Academy of Pediatrics. He was recognized by the Minnesota Urologic Association for his lifetime contributions and innovations to Urology receiving the David C Utz Award in 2018. He is an active participant in resident teaching and is an eight-time recipient of the Mayo Clinic Teacher of the Year award. Dr. Husmann was awarded the National Teacher of the Year Award for Urology, by the American Urologic Association in 2018.



Western University

Jack Wyatt Urology Residents' Research Day

This program was supported in part by educational grants from the following:

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JK Wyatt Urology Residents Research Day

Friday, May 17, 2019
King's College
London, Ontario

AGENDA

7:00-8:00 Registration and Continental Breakfast

8:00-8:15 Welcome and Introductions: Dr. H. Razvi and Dr. A. Sener

SESSION I Endourology/Minimally Invasive Surgery: Moderator Dr. S. Pautler

8:15-8:30 J. Kwong: The Impact of Reducing Dietary Sodium in Hypercalciuric Stone Formers

8:30 - 8:45 K. Hetou: A Randomized Controlled Trial of a Modified Cystoscopy Technique to Decrease Patients' Pain and Anxiety

8:45 - 9:00 J. Bjazevic: Defining the Relationship Between Urinary Infection and Urolithiasis: A Novel Role for Osteopontin and Zinc Transport

9:00 - 9:15 M. Pignanelli: Mechanical Properties of a Novel Foley Catheter Adapter in an ex vivo Model of Traumatic Accidental Catheter Removal

9:15 - 9:30 S. Samir: Outcomes of Ablation Therapy for Small Renal Masses from a Single Centre

9:30 - 10:00 Refreshment/Health Break

SESSION II Oncology: Moderator Dr. N. Power

10:00 - 10:15 H. Morris: Retrospective Analysis of Bladder Sparing Treatment with Trimodal Therapy in Organ Confined Muscle Invasive Bladder Cancer

10:15 - 10:30 T. El Ghazaly: Outpatient Blockade and Operative Outcomes in Pheochromocytoma: Western's 10 Year Experience [Pilot Phase]

10:30 - 10:45 R. Clark: Testis Cancer Survivorship in Canada: A Population Level Matched Cohort Study

10:45 - 11:00 S. Nair: Salvage Cryotherapy versus Salvage Radical Prostatectomy for Radiorecurrent Prostate Cancer: Long-term Oncologic Outcomes

11:00 - 12:00 **Guest Professor: Dr. Douglas Husmann:**

Neurogenic Bladder and the Lessons Learned: What Do I Really Need To Know And Do For Follow-Up

12:00 - 1:00 LUNCH

SESSION III Pediatrics and Surgical Education: Moderator Dr. P. Wang

1:00 - 1:15 E. Chan: Identifying systems delays in the assessment, diagnosis and operative management of testicular torsion in a single payer healthcare system: potential applications for scrotal POCUS

1:15 - 1:30 L. Stringer: Point of Care Ultrasound (POCUS) for the Diagnosis of Testicular Torsion: A Resident Education and Quality Improvement Initiative

1:30 - 1:45 W. Xie: Reflective Learning in Training Medical Students to Tie Surgical Knots

1:45 - 2:30 **Guest Professor: Dr. Douglas Husmann:**
Predicting the Success of the Urology Resident Applicant

2:30 - 3:00 Refreshment/Health Break

SESSION V Functional Urology: Moderator Dr. B. Welk

3:00 - 3:15 N. Punjani: Men's Health in Canada: A National Survey of Urologists

3:15 - 3:30 J. Campbell: The Utilization of Benign Prostatic Hyperplasia and Bladder-related Medications After Transurethral Prostatectomy

3:30 - 3:45 J. Law: Urethral Strictures: A Review of Patient Outcomes

SESSION VI Transplantation: Moderator Dr. A. Sener

3:45 - 4:00 H. Brar: Delayed Graft Function Does Not Affect Graft Outcomes in Donation After Cardiac Death Kidney Transplantation

4:00 - 4:15 M. Levine: Prospective Assessment of the Need for Mannitol During Renal Transplantation

4:15 - 4:30 Wrap Up and Evaluations

*Note: Guidelines = 15 minute presentations = 10 minute presentation, 5 minute Q & A
30 minute presentations = 20 minute presentation, 10 minute Q & A
45 minute presentations = 30 minute presentation, 15 minute Q & A

This event is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification program of The Royal College of Physicians and Surgeons of Canada and approved by Continuing Professional Development, Schulich School of Medicine & Dentistry, Western University (7.75 hours). Each participant should claim only those hours of credit that he/she actually spent participating in the educational program.

This year's program is intended to provide participants with information on:

1. Incorporating evidence-based medicine into resident education and research
2. The management of neurogenic bladder patients with emphasis on transitional care from childhood to adulthood
3. Optimizing resident selection, training and career success
4. To review the results of clinical and basic science research projects of the training staff from Western University in the following subspecialty areas:
 - a. Oncology
 - b. Endourology
 - c. Transplantation
 - d. Andrology
 - e. Urinary voiding dysfunction
 - f. Pediatric urology



THE IMPACT OF REDUCING DIETARY SODIUM IN HYPERCALCIURIC CALCIUM-STONE FORMERS

Kwong J, Bjazevic j, Al-Athel A, Hales A, Nott L, Razvi H

Introduction:

Urinary stone disease is an increasingly prevalent condition, associated with significant health care cost and patient morbidity. Diet plays an important role in the pathogenesis of kidney stones and goal specific dietary advice based on metabolic assessment has been shown to be effective in reducing stone recurrence. Among calcium stone formers, elevated urinary sodium (Na)

related to excessive dietary intake is associated with an increase in stone risk. The objective of our study was to assess the impact of dietary counselling on the normalization of urinary Na and hypercalciuria in calcium-stone formers.

Methods:

We performed a retrospective analysis of a prospectively collected metabolic stone clinic database from September 2001 to July 2018. Calcium-stone formers with concomitant hypercalciuria and elevated urine Na on the their initial 24-HUC were identified. Our exclusion criteria included patients with no follow-up and incomplete 24-HUCs. Patients were specifically counselled by a registered dietician to limit their intake of dietary Na to <2g/day in addition to receiving general dietary advice aimed at stone prevention. We examined the effectiveness of dietary counselling on the treatment of elevated urinary Na and hypercalciuria on follow-up 24-HUCs. Preliminary data was analysed using descriptive statistics.

Results:

Analysis of preliminary data included 894 metabolic evaluations from 759 patients. Median age was 51 (14-85), 56.1% were male and mean BMI was 29 (16-78). Stone composition was most commonly calcium oxalate (75.5%). The most common urine abnormalities were low urine volume (56.4%), hypocitraturia (24.1%), hyperoxaluria (23.9%), and hypercalciuria (23.0%). We identified 66 calcium stone formers with concomitant hypercalciuria and high urine Na at initial evaluation. The majority of patients (53.0%) resolved their hypercalciuria with improvement of their urinary Na following dietary counselling compared to a minority of patients (22.7%) who had persistent hypercalciuria following normalization of their urinary Na. 16 patients (24.2%) failed to improve their urinary Na on follow-up 24-HUC. As we are continuing to collect and review data the current results are preliminary and subject to change.

Conclusion:

Elevated urinary Na is common in stone formers and is frequently associated with hypercalciuria. Detailed dietary counseling from a registered dietician regarding Na intake may be effective in normalizing both elevated urinary Na and Ca levels in calcium-stone formers. This may obviate the need for pharmacotherapy for the treatment of hypercalciuria in some patients.

A RANDOMIZED CONTROLLED TRIAL OF A MODIFIED CYSTOSCOPY TECHNIQUE TO DECREASE PATIENT'S PAIN AND ANXIETY

Hetou K, Li Gan AM, Izawa J, Chin JL, Power NE



Introduction & Objectives:

Pain, anxiety and embarrassment are well documented feelings in patients undergoing ambulatory diagnostic cystoscopy. Peak-end theory suggests that humans' perception of any experience depends mainly on the peak and end of that experience regardless of its duration. This theory has been utilized in many applications to improve perception of different experiences, but it has never been studied at the office based urological setting. In this study, we explored utilizing Peak-end theory in improving pain perception in patients undergoing diagnostic cystoscopy. We hypothesized that if we created a less unpleasant ending of the cystoscopy procedure by leaving the scope for 2 minutes without any manipulation at the end of the procedure, this will improve patient's pain and anxiety perception after cystoscopy.

Materials & Methods:

We conducted a randomized clinical trial for patients undergoing an ambulatory flexible diagnostic cystoscopy for the first time. Males to females as well as arm-allocation ratios were 1:1. Control arm received a standard cystoscopy. Cystoscopies that included endourological interventions were excluded. In the intervention arm the cystoscope was left in the bladder for additional 2 minutes without further manipulation before scope removal. Pain and anxiety scores after cystoscopy were assessed using Visual Analogue Scale (VAS).

Results:

We present the results of 54 patients out of 61 patients recruited so far after exclusion of 7 patients. Baseline characteristics were balanced between the two arms. Mean VAS scores were lower in the intervention arm but not statistically significant (17.2 mm vs. 12.0 P=0.30). VAS scores were also lower in the intervention arm in the females' subgroup (8.1 vs. 9.6) (P=0.73) and in the males' subgroup (16.1 vs 23.2) (P=0.36). Post-cystoscopy anxiety scores were lower in the intervention arm (1.1 vs. 2.3) (P= 0.024). In gender stratified subgroup analysis, anxiety scores were significantly lower only in the males subgroup (0.96 vs 3.4) (P=0.013). In females subgroup, intervention arm showed lower scores but this was not statistically significant (0.92 vs. 1.0) (P=0.90).

Conclusions:

Our study represents the first assessment of Peak-end theory in the office based urological setting. Utilizing the tenets of the Peak-end theory, by making the end-phase of an unpleasant procedure less unpleasant, in modifying an office based urological procedure like diagnostic cystoscopy showed a potential improvement in post-procedure pain and anxiety perception scores especially in males.



DEFINING THE RELATIONSHIP BETWEEN URINARY INFECTION AND UROLITHIASIS: A NOVEL ROLE FOR OSTEOPONTIN AND ZINC TRANSPORT

Bjazevic J, Al K, Gorla J, Razvi H, Burton J

The formation of calcium-based stone disease may be impacted by both urinary bacteria and antibiotics. Prior epidemiological studies have demonstrated a strong association between a history of both culture-proven urinary tract infections and prior antibiotic treatment, with the development of stone disease. However, the nature of the relationship between urinary bacteria and stone disease, as well as the potential mechanisms involved, have yet to be elucidated. Osteopontin (OPN) which is a known potent inhibitor of calcium oxalate (CaOx) urolithiasis and zinc (Zn) which is involved as an early nidus for the mineralization process of urinary stones; have both also been shown to be involved in bacterial pathogenesis. We aimed to further investigate the potential effect of a non-urease producing bacteria, and treatment with antibiotics, OPN, and Zn on the formation of CaOx stones utilizing a *Drosophila melanogaster* (DM) fly model, and the adherence of CaOx crystals to renal epithelial cells.

DM flies were treated with a combination of a non-urease producing strain of *Escherichia coli* UTI89 and 0.1% sodium oxalate food for the duration of the 7-day assay (n=30 per group). Treatment with ciprofloxacin (0.2 mg/mL) or trimethoprim-sulfamethoxazole (TMP-SMX, 30/10 mg/mL) occurred on day 5-7 of the assay at sub-minimum inhibitory concentrations. Inoculation with UTI89 was confirmed by culturing pulverized flies on lysogeny broth agar plates on days 1-5 post treatment exposure. Stone burden was assessed with a survival curve analysis and birefringent microscopy of dissected Malpighian tubules. Crystal adherence assay was performed using MDCK renal epithelial cells grown to 90% confluence on cell culture plates. Cells were exposed to UTI89 for 20 mins at 37C (10^3 CFU), and then incubated with CaOx crystal suspension (0.5mg/mL) in artificial urine with or without the addition of ciprofloxacin (0.2 mg/mL), TMP-SMX (30/10 mg/mL), OPN (0.1 mg/mL), or zinc chloride (500 mg/mL) for an additional 20 minutes at 37C. Unattached crystals were washed free with culture media. Pixel intensity of adherent CaOx crystals under birefringent microscopy was quantified with MATLAB (2018).

UTI89 was cultured at a minimum concentration of 3×10^3 CFU/fly for up to three days post exposure in treated flies. There was a trend towards decreased survival in oxalate food treated flies for days 15-35; however, UTI89 treatment did not affect fly survival. Treatment with UTI89 ($p=0.005$), ciprofloxacin ($p<0.001$), and TMP-SMX ($p=0.003$) resulted in increased CaOx stone formation in DM flies. CaOx crystal adherence was also increased with UTI89 ($p=0.036$) and ciprofloxacin ($p<0.001$) but not TMP-SMX exposure. No difference in stone formation or crystal adherence was observed with the combination of UTI89 and either ciprofloxacin or TMP-SMX treatment. OPN and Zn were noted to have opposite effects, with OPN increasing and Zn decreasing crystal adherence ($p<0.001$). This trend was consistent following UTI89 exposure, with OPN attenuating and Zn enhancing the effects of UTI89 on CaOx adherence ($p<0.001$).

Our findings further suggest that exposure to both a non-urease producing *E. coli* and the antibiotics ciprofloxacin and SMP-TMX may impact both CaOx stone formation in a DM urolithiasis model, and crystal adherence to renal epithelial cells. In addition, both OPN and Zn may be involved in this process with opposing effects.

MECHANICAL PROPERTIES OF A NOVEL FOLEY CATHETER ADAPTER IN AN EX VIVO MODEL OF TRAUMATIC ACCIDENTAL CATHETER REMOVAL

Pignanelli M, Leschyna M, Power A, Power N



Introduction:

Traumatic accidental urinary catheter removal (TACR) with an inflated balloon is morbid and without any effective preventative strategies. TACR results in hematuria, pain and can disrupt newly constructed surgical anastomosis if present at time of removal. Furthermore, TACR prolongs catheter indwelling time, prolongs hospital stay and often requires urologic consultation. Cadaveric models have suggested TACR may occur at forces as low as 50N or ~11.2 lb of force. Current strategies to prevent TACR include delirium monitoring and use of decoy catheters which are seldom used. We invented a cost-effective medical device that is easy to apply to current catheters designed to cut catheters if suddenly placed under traction. Once cut, the balloon deflates and can be removed safely without trauma.

Hypothesis and methods:

Our purpose is to validate our device's consistency and reproducibility in cutting Foley catheters under tension In an *ex-vivo* pelvic model intended to practice urinary catheterization. Devices were 3D printed and attached directly to the distal end of a urethral catheter. The same device was used for all trials.

We hypothesize our device will lead to disconnection of catheters from the model urinary system before reaching a force required to cause TACR. We tested three lubricated 14 F silicone-elastomer catheters with 10 mL retention balloons, three 14 F silicone catheters with 10 mL retention balloons, and three 24 F latex catheters with 30 mL retention balloons with and without our device. Force was be applied distal to the device on an a fixed dynamometer over 5 seconds. We described dimensions of the novel device, peak force and stretch prior to catheter removal.

Results:

Device weight 0.25kg per unit, diameter 5cm, height 1cm. Cost of a single unit printed was \$1.25 CAD. Peak force under tension was significantly less for all catheters tested with the device attached compared to control. Peak force required for catheter failure was greater for elastomer than silicone catheters. Catheter stretch and recoil was significantly different when device was applied compared to control. No balloon ruptures were observed. Time to complete balloon deflation was 10 seconds from discontinuity of balloon and not significantly different between catheter types.

Conclusion:

The novel adaptor reliably disconnects both elastomer at extremes of size and materials reproducibly. This occurs at much lower thresholds compared to standard catheterized conditions ex vivo. Once the catheter is cut at a predictable location, the catheter balloon deflates and can be removed safely. Further studies are required to determine whether this adaptor can be used to reduce TACR in a clinical setting.



OUTCOMES OF ABLATION THERAPY FOR SMALL RENAL MASSES FROM A SINGLE CENTRE

Sami S. Nair S, Saimalov L, Hetou K, Pautler SE, Mujoomdar A, Chin J

Introduction:

The prevalence of imaging has led to an increase in the incidence of small renal masses (SRMs). SRMs presumed to be malignant are most commonly treated with a partial nephrectomy. Non-invasive ablative techniques are increasingly used in patients (pts) who are poor surgical candidates or due to pts' preference.

This study describes functional and oncological outcomes of ablation therapy for SRMs at our center.

Methods:

166 patients who underwent ablation therapy for SRM at LHSC between 2011 and 2017 were retrospectively reviewed. Ablation therapy included radiofrequency ablation (RFA), cryoablation (CRA) and microwave ablation (MWA). Pts with renal lesions ≤ 4 cm with recorded follow-up (FU) to 12 months (mo) were included. Pts with simultaneous multiple renal lesions, known metastatic diseases or ablations for recurrences were excluded. Oncological and functional outcomes were assessed.

Results:

Median FU of 25 mo (IQR 13-41). 70% were males and 30% females. Mean age was 68.2 yrs (SD=10.6) with a mean BMI of 30.7 (SD=7.9). 8.5% had solitary kidney. Median Charlson comorbidity index was 5 (IQR 4-6). Mean tumor diameter was 2.6 cm (SD=0.8). 62.9%, 33.1% and 4.0% of pts with low, intermediate, high RENAL Nephrometry scores. 112 pts underwent RFA, 47 pts underwent CRA and 7 underwent MWA. Biopsy showed clear cell histology (63.4 %), Papillary (21.7%), Chromophobe (6.9%) and Oncocytoma (6.1%). There was no difference in sCr post and pre ablation (112.3 vs. 100.2, $p=0.13$). 81.9 % had complete radiographic response, 10% needed repeated ablation for residual disease. 11.3% had local recurrences (RFA 8 vs. CRA 8 vs. MWA 2. $p=0.089$). 2 pts died of progression and meta-stasis. 6 pts had Clavien I, 3 pts had Clavien II and 4 pts had Clavien III complications (1 urine leak, 2 ureteral injuries, and 1 pneumothorax).

Conclusions:

Ablation therapy, with different available modalities at our institution is a viable option with low risk profile and low recurrence rates. Comparative analysis with partial nephrectomy is currently underway.

RETROSPECTIVE ANALYSIS OF BLADDER SPARING TREATMENT WITH TRIMODAL THERAPY IN ORGAN CONFINED MUSCLE INVASIVE BLADDER CANCER

Morris H, Hetou K, Kim H, Haider M, Izawa J

Introduction:

Muscle invasive bladder cancer (MIBC) has traditionally been treated with radical cystectomy. Trimodal therapy (TMT) is a bladder sparing regimen consisting of transurethral resection, with subsequent chemotherapy and radiation therapy. Previous studies that have reported on success rates with TMT often use very rigorous follow up protocols with the intention for salvage cystectomy at any sign of recurrence. Although these studies have shown acceptable outcomes of TMT with this approach, it can be difficult to adhere to such protocols in certain institutions. Our institution has been using TMT as a treatment option for patients with MIBC with follow up and imaging regimens often at the discretion of the treating physician. We herein present a retrospective analysis of patients who underwent TMT at our institution.



Methods:

We performed a retrospective analysis of patients with localized MIBC who underwent chemo-radiation after TURBT with curative intent at London Health Sciences Centre between 2001 and 2017. Patients with clinical and/or pathological T3 /T4 tumors were excluded or patients with positive clinical lymph nodes or distant metastasis at the time of diagnosis were excluded. We examined overall survival and recurrence rates in all patients, and also performed subgroup analysis for those patients who had concurrent carcinoma in situ (CIS).

Results:

88 patients were identified with mean follow up of 26 months (SD=22.6). 13 patients had positive lymphovascular invasion, and 10 patients had concomitant CIS at the time of diagnosis. 28 chose TMT over radical cystectomy, and 60 were considered poor surgical candidates, and therefore treated with TMT. Follow up studies were at the discretion of the treating physician.

In our cohort, mean overall survival (OS) was 26 months. 51.8 % of our cohort survived at the end of follow-up in 2017; 41% survived without evidence of disease and 10.8% survived with evidence of disease. 32.5 % died of MIBC and 15.7% died due to other causes. Our mean recurrence-free survival was 17 months. 61 had no recurrence, 13 had recurrence in the bladder or urethra, 2 had nodal recurrence and 12 developed distant metastasis. Concomitant CIS at the time of diagnosis was associated with a 5.04 increase in relative risk of distant metastasis ($P=0.033$); however, there was no significant difference in OS amongst the two groups ($p=0.35$). 3 patients underwent salvage radical cystectomy, 2 with final pathology showing T4 disease, and 1 showing T1 disease.

Conclusions:

Trimodal therapy at our institution resulted in an OS of 52%, which is comparable to highly regimented TMT surveillance protocols with higher salvage cystectomy rates. Concomitant CIS appeared to be an adverse prognostic factor in this cohort, further supporting that TMT may not be an optimal strategy in these patients.



OUTPATIENT BLOCKADE AND OPERATIVE OUTCOMES IN PHEOCHROMOCYTOMA: WESTERN'S 10 YEAR EXPERIENCE [PILOT PHASE]

El-Ghazaly T, Istl A Van Uum S, Gray D, Pautler S

Introduction:

Pre-operative blockade therapy is recommended for all hypertensive pheochromocytoma patients planned for surgical resection. Its role, however, has been controversial in normotensive patients, with its impact on peri-surgical outcomes being unclear. Moreover, the specifics in regards to the duration of blockade, the agents used and dose escalation are not well established. In this study, we aim to describe

Western University's experience with pre-operative blockade for patients with pheochromocytoma under-going surgical resection, and examine any correlation with peri-surgical outcomes.

Methods:

A retrospective chart review was conducted for all adrenalectomies performed for pheochromocytoma between January 2006 through December 2016 from all surgical services at Western University. Data parameters examined included patient demographics, presentation, comorbidities, urine and plasma marker levels, imaging data, alpha and beta blockade agents, onset, duration, and escalation. Perioperative data included vitals, episodes of hemodynamic instability, intraoperative agents used, fluid requirements and intraoperative findings. Postoperative parameters examined included disposition, vitals throughout stay, length of stay, agents used, complications and readmissions.

Results: 98 patients were identified for inclusion in this study. Of these patients, 10 were selected for the pilot study. One patient was excluded due to the procedure being limited to an adrenal biopsy. Doxazosin was the primary alpha adrenergic blockade agent of choice for 55% of patients, with Prazosin used in 33% and Terazosin used in 11% of patients. Phenoxybenzamine was used as a secondary alpha adrenergic blockade agent in 33% of patients. Beta adrenergic blockade was accomplished using Propranolol in 66% of patients, with the rest using Labetalol, Bisoprolol and Metoprolol (11% each). Secondary agents were used in 33% of patients (Nifedipine, Telmisartan, Labetalol; 11% each). Mean time from diagnosis to surgical excision was 84 days. 11% of patients had surgery postponed to the following day due to inadequate blood pressure control. 66% of adrenalectomies were performed laparoscopically. Mean operative time was 214 minutes during which a mean of 2 (range 1-6) episodes of hemodynamic instability occurred, with a mean duration of 13 minutes per episode. Vasopressin was used intraoperatively in 33% of patients, Levophed in 66%, Phenylephrine in 55%, Epinephrine in 33%, Sodium Nitroprusside in 66%, Magnesium Sulphate in 33%, as well as a beta blocker in 55% of patients (Labetalol 33%, Esmolol 22%). Patient disposition was dictated pre-operatively, with 44% spending a mean duration of 1 day in the ICU. Total length of stay was 5.3 days, during which 33% of patients experienced hypertensive episodes. 78% of patients were taken off all their blood pressure medications upon discharge and no patients were admitted over the following 90 days. Statistical analysis will be completed upon inclusion of all 98 patients in the study.

Conclusion: Our preliminary results show that while preoperative alpha- and beta-adrenergic blockade will not eliminate the risk of suboptimal control of blood pressure preoperatively, our experience reveals excellent intra- and post-operative outcomes with the vast majority of patients not experiencing hypertensive episodes, or requiring blood pressure control upon discharge.

TESTIS CANCER SURVIVORSHIP IN CANADA: A POPULATION LEVEL MATCHED COHORT STUDY

Clark R, Ly T, Haan M, Power N

Introduction:

The discovery of cisplatin based chemotherapy and rationalization of multimodal therapies have revolutionized the treatment of testis cancer. Cohorts who received these revolutionary treatments are now reaching the middle and later stages of their lives. The early (< 5-year) and long term (~10 year) sequelae of treatment and survivorship have been well defined, but the very long-term (> 10-year) mortality risks are still a topic of debate. The objective of our study was to compare the cause of death for individuals identified with testicular cancer to those without testicular cancer in Canada.

Methods:

We conducted a population level, retrospective matched cohort study using microlevel data from Statistics Canada. Individuals were included as exposed if they had a diagnosis of testis cancer (ICD-9: 186.0 or 186.9) between 1969 to 2010. Our main outcome was cause death between 1991 to 2011 as determined by ICD codes. Exposed individuals were matched with those not diagnosed with testis cancer by 1991. Demographic characteristics were compared using Chi-squared or T-tests. Cox proportion hazards models were generated. Forward selection hazard ratios explored the interaction between covariates and the main effect.

Results:

We identified 2,678,410 individuals (1950 exposed and 2,676,460 unexposed) who met our inclusion criteria (median age: 44 years, IQR 25-63). The mean duration of follow-up was 19.6 years. There were numerous demographic differences between exposed and unexposed individuals. The majority of individuals with testicular cancer had seminoma histology (n=1170 (74.1%)). The risk of death from non-testis cancer was increased for both seminoma (HR: 7.39 95% CI: 4.53-12.067 p<0.01) and non-seminoma (HR: 7.03 95% CI: 4.58-10.78 p<0.01) histology. Individuals with non-seminoma testis cancer were significant more likely to die of cardiovascular disease during the study period (HR: 4.46 95% CI: 2.10-9.43 p<0.01) while individuals with seminoma were not at increased risk (HR: 2.34 95% CI: 0.99-5.49 p<0.01). Exploratory analysis with forward regression modelling will be discussed.

Conclusion:

Testicular cancer survivorship is associated with an increased risk of death from other malignancies. Non-seminoma survivorship is associated with an increased risk of death from cardiovascular disease.

Key Words: Testicular neoplasm, Survivorship, Secondary Neoplasm





SALVAGE CRYOTHERAPY VERSUS SALVAGE RADICAL PROSTATECTOMY FOR RADIORECURRENT PROSTATE CANCER: LONG-TERM ONCOLOGIC OUTCOMES

Nair SM, Lyon TD, Dewar MJ, Rangel Latuche LJ, Abed H, Hetou K, Karnes RJ, Chin JL, Boorjian SA

Introduction:

Men who experience prostate cancer recurrence after radiotherapy may be candidates for local salvage therapy. Salvage radical prostatectomy (sRP) and salvage cryotherapy (sCryo) represent

two such local treatment approaches. Herein, we evaluated comparative long-term outcomes with these strategies using data from large single-center cohorts.

Materials and Methods:

Men undergoing salvage treatment for localized radiorecurrent prostate cancer at Mayo Clinic (sRP) and London Health Sciences Centre (sCryo) between 1988 and 2016 were identified. Prospectively recorded data on preoperative characteristics and oncological outcomes were analyzed. Survival was estimated using the Kaplan-Meier method. Multivariable analyses were performed to evaluate the associations of clinicopathologic features and treatment modality with outcomes.

Results:

A total of 251 men underwent sRP and 187 were treated with sCryo. Men undergoing sCryo were older than those undergoing sRP (median 71 vs 67 yrs, $p < 0.0001$). Pre-salvage therapy PSA values were higher in the sCryo cohort (median 4.9 vs 3.8, $p < 0.0005$). Median follow-up was 105 (IQR 100.3) and 118 months (IQR 136.6) following sCryo and sRP, respectively, during which time 272 men (133 sCryo, 139 sRP) experienced biochemical recurrence (BCR; PSA > 0.4 ng/ml), 108 men (38 sCryo, 70 sRP men) developed metastases, and 247 men (131 sCryo, 116 sRP) died, including 89 men (39 sCryo, 50 sRP) who died of prostate cancer. Ten-year BCR-free survival was higher following surgery (44.8% vs 31.9%, $p = 0.001$) while metastasis-free survival was greater in sCryo (83% vs 73%, $p = 0.02$). Nevertheless, no significant differences were noted for 10-year cancer-specific (75.5% vs 82.5%, $p = 0.06$) or overall survival (sCryo 68.8% vs sRP 65.2%, $p = 0.39$). On multivariable analysis, higher pre-salvage PSA (HR: 1.33; 95% CI 1.10-1.61, $p = 0.003$), higher GS (HR: 1.64, 95% CI 1.30-2.10, $p < 0.0001$), and treatment with sCryo (HR 2.57, 95% CI 1.4-4.72, $p = 0.002$) were associated with an increased risk of death from prostate cancer. Older patient age (HR 1.04; 95% CI 1.01-1.07; $p = 0.004$) and higher Gleason score (HR 1.22; 95% CI 1.03-1.45; $p = 0.02$) but not treatment modality ($p = 0.2$) were independently associated with an increased risk of all-cause mortality.

Conclusions:

Given the potential for durable long-term survival, sRP and sCryo represent viable options for select men with radiorecurrent localized prostate cancer. Careful patient selection with regard to morbidity profiles remains critical in the decision-making process of salvage therapy.

IDENTIFYING SYSTEMS DELAYS IN THE ASSESSMENT, DIAGNOSIS AND OPERATIVE MANAGEMENT OF TESTICULAR TORSION IN A SINGLE PAYER HEALTHCARE SYSTEM: POTENTIAL APPLICATIONS FOR SCROTAL POCUS

Chan EP, Wang PZT, Myslik F, Chen H, Dave S



Introduction:

Testicular torsion (TT) is a common pediatric urologic emergency. Management of TT is time-sensitive, and often confirmed on scrotal doppler ultrasound (DUS). Acquiring DUS, however, can result in delays in the management of TT, affecting testicular salvage rates. The objective of this study is to identify delays in the assessment and diagnosis for patients presenting with TT to a Canadian academic hospital using patient flow analysis.

Study Design:

A retrospective review was performed for patients presenting to our emergency department (ED) who received a scrotal DUS to rule out possible TT between 2012 to 2017 (Figure 1.). Our primary outcome measured cycle-time measurements (median time) between different points along the clinical flow pathway for a patient with suspected TT. The secondary outcome assessed diagnostic sensitivity, specificity, positive and negative predictive values of standard scrotal DUS components (doppler flow, arterial waveform, heterogeneous echotexture).

Results:

A total of 609 patients presented with an acute scrotum warranting a scrotal DUS to rule out TT, of which 46 underwent scrotal exploration. Testicular salvage rate was 82.6% in our series (38 testes were salvaged, 8 underwent orchiectomy). Median time from onset of symptoms to presentation to the ED for patients with possible TT was 4 hours. Following triage, a median of 79.8 minutes was required for ED physician assessment and an additional 48 minutes for scrotal DUS to be performed (Figure 1). Absence of doppler flow on scrotal DUS had a 97.4% PPV for diagnosing TT confirmed during scrotal exploration.

Conclusion:

Patient flow delays to surgical intervention for patients with TT represents a preventable cause of orchiectomy in young men. This study identifies intervention points in patient-care flow pathways where delays to surgical intervention can be up to 2 hours. Our findings support the need for further studies into the optimization of patient flow and management protocols to reduce delays in the diagnosis and management of TT. Proposed strategies include the implementation of standardized clinical pathways for acute scrotum, point of care ultrasound (POCUS) as a diagnostic adjunct, and public health initiatives.



POINT OF CARE ULTRASOUND (POCUS) FOR THE DIAGNOSIS OF TESTICULAR TORSION: A RESIDENT EDUCATION AND QUALITY IMPROVEMENT INITIATIVE

Stringer L, Chan EP, Myslik f, Jiang A, Cocco S, Brahm G, Razvi H, Dave S, Wang PZT

Introduction:

Scrotal doppler ultrasound (DUS) is an adjunct for the diagnosis of testicular torsion (TT) when clinical assessment is equivocal. Our group identified that acquiring a DUS results in a 48-minute delay. POCUS may be used to negate this delay. The purpose of this study was to develop and evaluate a scrotal POCUS curriculum for Urology and emergency medicine (EM) residents.

Methods:

Experts from urology, EM and radiology collaborated in The Delphi method to design a practical and didactic curriculum for scrotal POCUS.

The study followed a pre-post design. The OASUS scale was used to evaluate for competency in scrotal POCUS skills. Residents were also asked to rate their comfort and confidence with scrotal POCUS before and after the curriculum.

Results:

Twenty-four urology (n=12) and EM (n=12) residents participated in a scrotal POCUS curriculum. Pre-post testing showed significant improvements in knowledge (6.3 versus 8.0, $p < .001$) amongst the residents. Residents were more comfortable (pre 0.6 versus post 3.6, $p < .001$) and confident (pre 1.0 versus post 2.1, $p < .001$) utilizing scrotal POCUS to assess for TT after the curriculum (5-point Likert scale). Lastly, 23 out of the 24 residents were rated as competent at performing scrotal POCUS.

Conclusion:

Our scrotal POCUS curriculum was effective and acceptable to both Urology and EM residents. This skill may potentially reduce delays in diagnosing TT and improve testicular salvage rates.

REFLECTIVE LEARNING IN TRAINING MEDICAL STUDENTS TO TIE SURGICAL KNOTS

Xie WY, Nair S, Chahine S, Shatzer J, Wang PZT



Introduction:

Acquisition of psychomotor skills is an essential component of surgical training, but with decreasing operative exposure due to work-hour limitations, self-regulated learning has gained a greater role in residency training. Self-regulated learning requires individuals to be able to evaluate their own performance in order to make changes for improvement, but this may be impacted by a novice learner's inability to recognize his/her deficiencies. Video reflection may improve self-assessment and may be useful for improving the acquisition of basic psychomotor skills with self-regulated learning. The objective of this study is to assess the performance and self-assessment abilities of medical students learning knot tying using a self-regulated approach, with or without video reflection.

Methods:

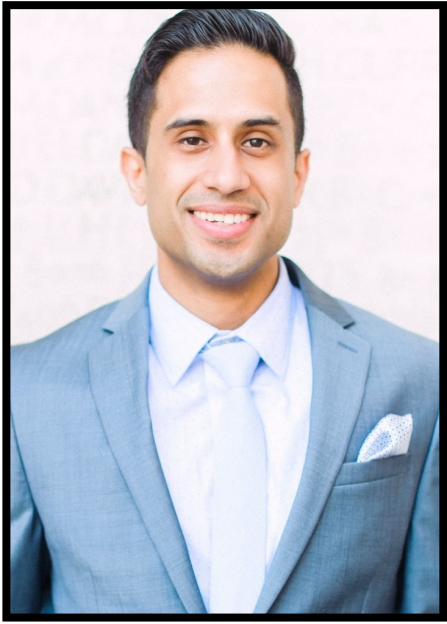
First- and second-year medical school students were recruited for this randomized, single-blinded controlled trial. Senior urology residents were recruited as expert controls. All medical students viewed an instructional video prior to completing a pre-test assessment of their knot-tying skills. Both groups were assessed using a modified Objective Structured Assessment of Technical Skills (OSATS) tool. "Self-regulated" participants practiced for an hour under the guidance of experts. "Video-reflection" participants received a reflective guide, which consisted of five questions prompting self-assessment of their knot-tying skills, as well as a copy of their own pre-test assessment video. Repeat assessments were done after 2 weeks of practice and a delayed assessment was done after 4 more weeks where participants were not practice the skills. Primary end-point include changes in OSATS score before and after the intervention, and differences in OSATS scores between the groups. Secondary endpoint was students' accuracy in self-assessing their knot tying skills. Continuous variable comparisons were performed using the Student t-test and analysis of variance (ANOVA). Intraclass correlation coefficient was used to assess interrater reliability.

Results:

A total of 31 medical students were enrolled in the study. The groups were similar in baseline characteristics although a significant proportion (~50%) have had previous experience with knot tying. Interclass correlation coefficient across blinded evaluators varied between moderate and good (Interclass correlation (ICC)=0.638-0.847), depending on the task. At baseline, the mean total OSATS score of the expert control group was significantly higher than both experimental groups ($p<0.001$). A significant increase was seen during post-test assessment in mean total OSATS score for both intervention groups from baseline but there was no significant difference in mean score between the two groups ($p=0.338$). Self-assessment of knot tying abilities were accurate for both experimental groups at baseline. However, at the post-test period the accuracy was poor (ICC=0.361) for the self-regulated group, while remaining moderately (ICC=0.685) accurate for the reflection group.

Conclusion:

The use of video reflection has allowed medical students with minimal previous experience in knot tying to acquire and maintain competency without the need for expert feedback. Although this study has not demonstrated superiority of video-reflection as a technique for learning knot-tying, the potential of video-reflection in acquiring skills without expert feedback warrants further investigations.



MEN'S HEALTH IN CANADA: A NATIONAL SURVEY OF UROLOGISTS

Punjani N, Di Pierdomenico A, Goldenberg L, Brock G, Flannigan R

Introduction and Objective:

Men's health issues may be associated with significant morbidity and mortality, and traditionally Urologists have been the gate-keepers to men's healthcare. The scope of Urologists is variable, and therefore we aimed to survey Urologists nationwide on both current practices, and to identify and address deficiencies to develop future educational strategies.

Methods:

In 2018, members of the Canadian Urologic Association (CUA) were surveyed electronically regarding demographics factors (age, location of practice and type of practice), current men's health exposure (erectile dysfunction, sexual dysfunction, testosterone therapy, andropause, infertility, male pelvic issues, voiding dysfunction, cancer, cardiovascular disease, obesity, metabolic syndrome, lifestyle, mental health, addiction and trauma) and interest in men's health education (conferences, seminars, workshops). All respondents with complete data were included. Data was reviewed both qualitatively and quantitatively.

Results:

A total of 79 respondents were included in the study. The majority were aged 30-69 (n=68, 86.1%) and more than half lived in communities <1 million people (n=49, 62.0%). The majority of urologists see issues related to voiding dysfunction (n=74, 94.7%), prostate (n=71, 89.9%) and erectile dysfunction (n=73, 92.4%), with a minority seeing issues related to metabolic syndrome (n=10, 12.7%), mental health (n=7, 8.9%) and addiction (n=5, 6.3%). We found that academic urologists, those in urban centers and those with outpatient practices are more interested in learning about non-urology specific men's health issues (metabolic syndrome, healthy lifestyle, mental health and addiction). Most urologists are interested and motivated by both professional interest (n=59, 74.7%) and impact to their practice (n=57, 72.2%), and are interested learning by didactic lectures (n=62, 78.5%), case scenarios (n=56, 70.9%) and workshops (n=43, 54.4%).

Conclusion:

The scope of men's health is evolving to include both urology specific presentations as well as general health considerations such as metabolic syndrome, and psychiatric presentations. The majority of Canadian Urologists are motivated to learn more about this array of topics in men's health, and therefore directed programmatic implementation of Men's Health education is warranted to Urologists as well as other healthcare workers.

THE UTILIZATION OF BENIGN PROSTATIC HYPERPLASIA AND BLADDER-RELATED MEDICATIONS AFTER A TRANSURETHRAL PROSTATECTOMY

Campbell J, Reid J, Ordon M, Welk B



Objective:

There is strong evidence to support medical management of men with lower urinary tract symptoms (LUTS) due to benign prostatic hyperplasia (BPH); however, there is a paucity of evidence to support the use of medications after a transurethral resection of the prostate (TURP). We aim to determine how often prostate specific and bladder specific medications are used following a TURP.

Methods:

This study utilized several linked, routinely collected datasets from the province of Ontario, Canada. We identified men older than 66 years who underwent their first TURP between April 2003 and March 2016. Our primary outcome was the probability of using at least 30 days of either prostate-specific alpha blockers (AB), 5-alpha reductase inhibitors (5ARI), or anticholinergics/beta-3 agonists (AC/B3) after TURP. Men were observed for utilization of the medication of interest from 90 days after TURP until censoring or March 2017.

Results:

We identified 58,038 men (median age 75), with a median follow-up of 4.9 years. In the 6 months prior to their TURP, AB, 5ARIs or AC/B3 were used by 62%, 32%, and 6% respectively. Following a 90-day washout period after TURP, these medications were used by 27%, 20%, and 15% of men respectively. The cumulative probability of using these medications within the first 10 years after TURP was 38%, 28%, and 20% respectively. Primary care physicians prescribed the majority of AB, while urologists prescribed the majority of the AC/B3. The median time to first use was approximately 1 year, and the median duration of total use was >1 year for both AB and 5ARIs. Among men on AC/B3 prior to TURP, 46% used them after TURP; in multivariate cox regression analysis age ≥ 75 , diabetes, preoperative use of AC/B3, and no preoperative urinary retention predicted postoperative utilization of AC/B3 medications.

Conclusions:

There is considerable use of AB and 5ARIs despite a lack of evidence for using these medications after a TURP. Given the well-characterized placebo response in BPH patients, this practice should be properly evaluated for clinical efficacy. Approximately 1 in 5 men will use AC/B3 post-TURP, presumably for overactive bladder symptoms.



FEMALE URETHRAL STRICTURES: A REVIEW OF PATIENT OUTCOMES

Law J. McKibbon M, Welk B

Objectives:

Female urethral strictures are rare and treatment with dilation is associated with high recurrence rates. Due to the limited number of reports, there is little data on the outcomes of female urethroplasty. A recent systematic review identified only 221 patients reported among 16 case reports. We report our experience with reconstructive surgery for the management of female urethral stricture disease.

Methods:

We identified consecutive patients who underwent transvaginal reconstruction of a true urethral stricture by a single surgeon over a 7 year period. We created a data collection sheet, and ethics approval was obtained for this retrospective case series.

Results:

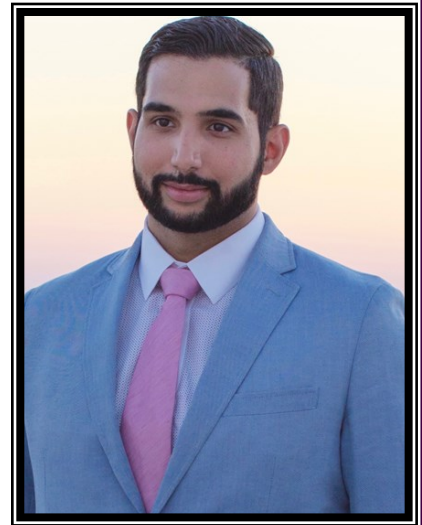
All patients with urethral stricture were diagnosed by cystoscopy +/- urodynamics. All patients had undergone urethral dilation as prior intervention. All patients underwent vaginal flap urethroplasty. Location was distal in 6 and mid/proximal/pan-urethral in 1 patient each. The mean age of women at OR was 54.7 years (range: 35 – 78). Success was defined as the lack of need for further intervention, and appropriate uroflow/postvoid residual parameters. Nine patients were successful, one patient required secondary treatment in the form of buccal graft urethroplasty. Mean follow up was 20.6 months (range: 5 – 37). Four patients developed mild postoperative stress urinary incontinence, and they did not wish to undergo invasive treatment for this. There were no Clavien III or greater postoperative complications.

Conclusions:

Female urethral reconstruction with vaginal flap urethroplasty represents a feasible, safe, and durable surgical method. Women should be offered urethroplasty as a definitive management option rather than repeated urethral dilations. Prospective evaluation of continence outcomes would be a useful addition to the literature.

DELAYED GRAFT FUNCTION DOES NOT AFFECT GRAFT OUTCOMES IN DONATION AFTER CARDIAC DEATH KIDNEY TRANSPLANTATION

Brar H, Lee D, Singh H, Levine M, Mandurah M, Rim C, Sener A, Luke P



Introduction:

Donation after cardiac death (DCD) has been associated with higher rates of delayed graft function (DGF) when compared to donation after brain death (DBD). DGF, on the other hand has been associated with inferior transplant outcomes in DBD transplants. We examine the impact of DGF in the setting of DCD on transplant outcomes.

Methods:

Between July 2006 and January 2019, we retrospectively analyzed 201 single DCD transplants. DGF was defined as the requirement for dialysis within the first 7 days of transplantation. Assessment of donor and recipient demographics including sensitization, and immunotherapy was performed. Kaplan-Meier analysis was performed to assess the impact of DGF on overall graft and patient survival. Outcome variables such as Creatinine Clearance (CrCl), readmission rate and rejection were compared between groups using the Student t-test and the Pearson chi-square test.

Results:

Overall, 58% of DCD renal transplants experienced DGF. The presence of DGF did not affect graft survival or patient survival after a mean of 5.4 years (1-12 years). Even when we assessed expanded criteria DCD transplants, DGF did not have an impact upon graft survival ($p=0.55$). Although the presence of DGF affected CrCl at 1 month ($p=0.0001$, 95% confidence interval 14.5–30.8), and 3 months ($p=0.003$, 95% confidence interval 4.5–21.7), 1-year CrCl was not different in the group with DGF vs. no DGF ($p=0.65$). Although DGF increased the duration of admission, during transplantation, it did not affect re-admission rates ($X^2=1.04$, $p=0.31$).

Conclusion:

In the setting of DCD renal transplantation, DGF had no impact on graft or patient survival. This study highlights the fact that DGF may not be as concerning for inferior long term allograft outcomes in DCD transplants as once believed.



PROSPECTIVE ASSESSMENT OF THE NEED FOR MANNITOL DURING RENAL TRANSPLANTATION

Levine MA, Lee DW, Luke P, Sener A

Introduction and Objective:

During renal transplantation, mannitol has been utilized to minimize cellular swelling, scavenge free radicals, and promote diuresis. However, it has been suggested to promote hyperkalemia in the early postop period. The overall benefit of mannitol in the clinical setting is unclear, and its use has been variable between surgeons and institutions. The purpose of this study is to examine the rates of delayed graft function (DGF), and post-operative hyperkalemia in kidney transplant recipients when mannitol was administered intraoperatively vs an alternative diuretic (furosemide).

Methods:

An analysis of all kidney transplant recipients performed by two surgeons at our institution from Mar 1, 2018 – Dec 31, 2018 was performed. At the start of this period, one surgeon provided furosemide (F) and the other continued routine mannitol (M) administration (0.50 g/kg). Data was extracted from a prospectively maintained database. Descriptive statistics characterized our two groups and comparisons were made using t-test and Chi-square where appropriate.

Results:

Ninety-nine patients received a kidney transplant in the study period, with 46 in the F group. The M group did not significantly differ from the F group with respect to mean age (52 vs 47, $p = 0.12$), body mass index (BMI) (27.4 vs 28.5, $p = 0.25$), anastomosis time (41min vs 43min, $p = 0.41$). DGF rates were not significantly different (20% vs 11%, $p = 0.24$). Furthermore, donor profiles did not differ between the M and F groups (donation after cardiac death (DCD) – 17% vs 24%; neurologic determination of death (NDD) – 49% vs 26%; living donor (LD) – 34% vs 50%; $p = 0.06$). Potassium levels did not differ between the groups in the pre or post op period and the 1 month creatinine levels were not different between groups. Cold ischemic time was the only variable that statistically differed between the groups (505min vs 363min, $p = 0.03$).

Conclusions:

The administration of mannitol vs an alternative diuretic during kidney transplant surgery did not influence DGF rates, potassium levels or renal function at 1 month. The interpretation of results is limited by the non-randomized design. Further study is warranted to better define the role and utility of intraoperative diuretics during renal transplant.

PAST RESIDENTS' DAY GUEST PROFESSORS 1984 – 2018

2018	Dr. Bernie H. Bochner	2001	Dr. Shlomo Raz
2017	Dr. Arthur L. Burnett	2000	Dr. Donald Lamm
2016	Dr. Philipp Dahm	1999	CUA in London, no Residents' Day
2015	Dr. E. Ann Gormley	1998	Dr. Patrick Walsh
2014	Dr. Joel B. Nelson	1997	Dr. Joseph Oesterling
2013	Dr. Stephen Nakada	1996	Dr. Michael Marberger
2012	Dr. Lawrence Klotz	1995	Dr. E. Darracott Vaughan
2011	Dr. Gerald Andriole	1994	Dr. Martin Resnick
2010	Dr. John Michael Fitzpatrick	1993	Dr. Andrew Novick
2009	Dr. Antoine Khoury	1992	Dr. Howard Winfield
2008	Dr. Margaret Pearle	1991	Dr. Moneer Hanna
2007	Dr. Martin Gleave	1990	Dr. Drogo Montague
2006	Dr. Leonard Zinman	1989	Dr. Ralph Clayman
2005	Dr. Joseph A. Smith Jr.	1988	Dr. Gerald Sufrin
2004	Dr. Anthony Atala	1987	Dr. Alvaro Morales
2003	Dr. Peter T. Scardino	1986	Dr. J. Edson Pontes
2002	Dr. Inderbir Gill	1985	Dr. Alan Perlmutter

NOTES