Unmoderated Posters: Oncology – Bladder

UP-13

Novel Measurement of Obesity Using Visceral Adipose Tissue on Preoperative CT Scan for Urothelial Bladder Cancer and Correlating Outcomes after Radical Cystectomy

Bhatt, Jaimin[1]; Tse, Donald[2]; Bhindi, Bimal[2]; Hermanns, Thomas[2]; Hamilton, Robert[2]; Fleshner, Neil[2]; Finelli, Antonio[2]; Jewett, Michael[2]; Zlotta, Alexandre[2]; Kulkarni, Girish[2]
[1]University of Toronto, University Health Network, Princess Margaret Hospital, Toronto, ON, Canada; [2]University of Toronto, University Health Network, Toronto, ON, Canada

Introduction: Urothelial cancer of the bladder (UCB) is among the most lethal of urological cancers. Obesity, routinely measured as BMI >30 is associated with increased all cancer mortality in large population studies. Recent metabolic studies describe measuring area of visceral adipose tissue (VAT) from a single CT image instead. We sought to apply this novel technique in our patients with UCB treated with radical cystectomy (RC) and correlate this with outcomes.

Methods: For all RC patients with preop CT scan, VAT and subcutaneous adipose tissue (SAT) were measured from single axial CT images at level of the umbilicus, using validated technique and correlated with BMI. Non-obese and obese groups were defined using cut-off values at either VAT of 150cm^2, 200 cm^2, or a BMI of 30. The length of stay was compared between groups using Student's t-test. Overall survival and cancer-specific survival were analysed using Kaplan-Meier curves and compared between groups using Cox proportional hazards model.

Results: A total of 203 cases were evaluated, mean age 69 years, male to female 3:1. VAT + SAT is strongly correlated with BMI (Pearson r=0.85). There was no significant difference in length of stay between non-obese and obese groups. There was no significant difference in overall mortality or cancer-specific mortality at 5 years when comparing VAT 150cm^2 (p=0.94 and 0.72) or 200 cm^2 (p=0.54 and 0.93), and BMI 30 (p=0.16 and 0.66).

Conclusions: This is the first time VAT is used for assessing outcomes in UCB treated by RC. Two other studies have shown opposite outcomes; one showed worse outcomes with obesity, while no difference in other. Both used BMI which has its inherent limitations. Our study shows no difference in oncological outcomes or LOS using VAT on preoperative CT scans. We feel this novel tool also has a role to play in predicting perioperative complication outcomes following RC, as well as survival outcomes in other oncological treatments.

UP-14

Effect of Contrast Media on Urinary Cytopathology Specimens

Metcalfe, Michael; Raven, Peter; Fazli, Ladan; So, Alan; Bidnur, Samir
University of British Columbia, Vancouver, BC, Canada

Introduction and Objectives: Both contrast media and cytopathology are used concomitantly during the evaluation of hematuria, abnormal upper tract filing defects or for surveillance post-diagnosis or urothelial carcinoma. The accuracy of urine cytology from the upper tracts has traditionally been poor. Both technical and histopathological characteristics may play a role in the poor results from upper tract urinary specimens. Instrumentation may play a significant role and this has been shown. Contrast media may play a role in upper tract surveillance and its effect on cytology is relatively unknown.

Methods: Three human cell lines were obtained from ATCCR tumour cell panels. The cell lines include SV-HUC, a benign human epithelial cell line as the control, group A (ATCC SV-HUC). UC-3 minimally aggressive, low grade human urothelial cancer cell as group B (ATCC CRL-1749). And, RT-2 an aggressive high-grade urothelial cancer cell line as group C (ATCC HTB-2). Each cell line was reconstituted into 1 cc of each of the nine experimental solutions: 1) water, 2) saline, 3) human urine, 4) Conray™ 100% (iothalamate meglumine 60%, monobasic sodium 12.5%), 5) Conray™ 50%, human urine 50%, 6) Conray 10%/ human urine 90%, 7) Ominpaque™ 100% (iohexol 70%), 8) Omnipaque™ 90%/Urine 10%, 9) Omnipaque™ 10%/Urine 90%. Each cell line was exposed to each of the solutions for 10 seconds, 1 minute and 5 minutes. Once exposure was complete 1cc of 97%methonol, 3% acetone solution was used to preserve the cells and they were stored at 4C. They were then analysed by H&E staining by a single pathologist with subspecialty training in cytopathology.

Results: There was no cytological differences seen when cells of the same cell line were exposed to a variance of contrast mediums at for any of the exposure time. Cells exposed to water for greater than 10 seconds had a higher rate of cell lysis.

Conclusions: Contrast media has no effect on urinary cytology for an exposure of up to 5 minutes.

UP-15

Measuring Systemic Immune-response to Intravesical BCG for Superficial Bladder Cancer Using Commercially Available Immuknow® Assay: Correlation with Outcomes and Lower Urinary Tract Symptoms

Baker, Ryan
University of Oklahoma Health Science Center, Oklahoma City, OK, United States

Introduction: Bacillus Calmette-Guerin (BCG) therapy is the main immunotherapeutic agent for the treatment and prophylaxis of non- muscle invasive bladder cancer (NMIBC). However, 20 - 40% of patients fail this treatment, and 5-7% discontinue due to intolerable cystitis symptoms. There remains a need for a non-invasive test that can reliably predict a patient's response to BCG therapy so that more aggressive/alternative treatment options can be offered to non-responders. We examine the utility of the commercially available Immuknow® assay which measures CD4+ T Cell immune response levels, to predict response rate and symptomatology of patients receiving BCG induction therapy.

Methods: Serial follow-up of 22 male patients with NMIBC (Ta, T1, or Tis) who underwent transurethral bladder tumour resection followed by BCG administration for the first time, with Immuknow® assay prior to each intravesical instillation. Follow-up Cystoscopy & cytology after induction therapy were used to classify patients as responders, non-responders, or inconclusive. Patients were classified as symptomatic or asymptomatic according the presence/absence of Lower urinary tract symptoms.

Results: Statistically significant rise was found in ImmuKnow® levels when comparing the differences between each week of treatment ($F(4, 73)=4.76$, $p=0.0018$). Largest increase was seen between the third and fourth BCG treatment (p=0.076). 64% patients were classified as responders, 9% non-responders, and 27% data was incomplete. There was no statistically significant difference in average ImmuKnow® levels between responders and non-responders (p=0.455), or symptomatic and asymptomatic patients.

Conclusions: A significant increases in Immuknow assay is seen between the third and fourth weeks of BCG induction therapy, a finding that corroborates similar rise in urinary cytokines IL-2 and IFN-γ suggesting that a strong T cell-mediated response. Bigger sample size and longer follow-up using these 2 parameters concurrently is needed.

UP-16

The Efficacy and Safety of Mitomycin-C Hyperthermia in the Treatment of High Risk Non-muscle Invasive Bladder Cancer in a Single Regional Centre

Das, Gary[1]; Ayres, Ben[2]; Corbishley, Cathy[2]; Bailey, Mike[2]; Perry, Matthew[2]; Lynch, Mark[1]; Nair, Raj[2]; Pai, Aakash[2]; Issa, Rami[2]
[1]Croydon University Hospital, Croydon, London, United Kingdom; [2]St George's Hospital, Tooting, London, United Kingdom

Introduction and Objectives: Intravesical BCG therapy is standard treatment after transurethral resection of high risk non-muscle invasive bladder cancer (HR NMIBC). However, up to 40% of patients do not respond or are intolerant or unsuitable for BCG. In these patients, radical cystectomy is the curative treatment of choice. However, a significant proportion of these patients are unfit or unwilling to undergo radical cystectomy. In these patients, mitomycin-C hyperthermia (MMC-HT) is a viable treatment option. We report our seven year experience of MMC-HT.

Methods: 100 patients with HR NMIBC were treated with MMC-HT between June 2006 and August 2013. Three patients did not complete induction due to side effects. One patient developed clinical metastases during the first two weeks of induction. 96 patients completed induction and had a cystoscopy and biopsy at 3 months. Of these 96, 84 had failed BCG or were intolerant to it. Patients were given an induction regimen with weekly treatments for 6-8 weeks with MMC-HT with Synergo® system SB-TS 101 (temperature between 41 and 44°C). Patients were assessed with 3 monthly cystoscopy and biopsy and urine cytology. Data including response at 3 months, progression, survival and side effects at each session were prospectively collected.

Results: 72% of patients (69/96) had complete response at 3 months, with 10% having partial response (10/96) and 18% (17/96) had recurrence. Median follow-up was 34 months (3 to 88 months). Overall 5-year survival was 61.9%. Five year disease specific survival was 85.2%. Progression free 5-year survival was 46.9%. Twenty patients had radical cystectomy. Eighteen patients had organ-confined disease and 2 patients had T3 disease at histology.

Conclusions: MMC-HT has comparable five year survival to radical cystectomy in HR NMIBC after BCG failure. It is well tolerated and effective. Cystectomy is still a potentially a curative option for those fit patients who fail MMC-HT.

UP-17

Comparative Effectiveness of Radical Cystectomy versus Bladder-sparing Treatment for Muscle-invasive Urothelial Carcinoma: A Population-based Report

Popa, Ioana[1]; Trudeau, Vincent[1]; Gandaglia, Giorgio[2]; Schiffmann, Jonas[3]; Azizi, Mounsif[1]; Hanna, Nawar[1]; Trinh, Quoc-Dien[4]; Sun, Maxine[5]; Karakiewicz, Pierre I.[1]
[1]Centre Hospitalier de l'Université de Montréal, Montreal, QC, Canada; [2]Department of Urology, Vita-Salute San Raffaele University, Milan, Italy; [3]Martini-Clinic, Prostate Cancer Center Hamburg-Eppendorf, Hamburg, Germany; [4]Division of Urologic Surgery, Department of Surgical Oncology, Dana-Farber Cancer Institute, Boston, MA, United States; [5]Cancer Prognostics and Health Outcomes Unit, Centre Hospitalier de l'Université de Montréal, Montreal, QC, Canada

Background: Radical cystectomy (RC) represents the standard of care for patients with muscle-invasive urothelial carcinoma of the urinary bladder (UCUB). Alternative organ-conserving treatments such as chemotherapy and/or radiotherapy have gained interest. We sought to compare survival outcomes of patients according to treatment modalities, in a stage-for-stage analysis.

Methods: We relied on the Surveillance, Epidemiology, and End Results Medicare-linked database to identify 12950 patients diagnosed with T2--T4a N0/x M0 UCUB between years 1992 and 2009. Treatment types include RC (n=5207), chemotherapy/radiation (n=2669), and surveillance (n=5074). Following instrumental variable analysis, Cox- and competing-risks regression analyses were performed for prediction of overall survival (OS) and cancer-specific mortality (CSM), respectively. All analyses were stratified according to disease stage (T2, T3, T4a).

Results: After adjusting for potential confounders, OS was more favorable for RC relative to chemotherapy/radiation (hazard ratio [HR]: 1.57, 95% confidence interval [CI]: 1.02--2.40) or surveillance (HR: 1.82, 95% CI: 1.20--2.78) in patients with T2 UCUB. For the same stage, CSM rates were lower in the surgery group compared to chemotherapy/radiation (HR: 2.05, 95% CI: 1.14--3.67) or surveillance (HR: 1.95, 95% CI: 1.09--3.48). When analyses focused on individuals with more advanced disease (T3--T4a), no statistically significant difference was observed between chemotherapy/radiation relative to RC for both OS and CSM.

Conclusions: In the current retrospective population-based cohort, RC was associated with improved survival outcomes relative to its alternative treatment counterparts. However, this effect was only observable in patients with T2 disease. Conversely, no difference between chemotherapy/radiation vs. surgery was noted in patients with more advanced disease stage.