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MP-07.01
Province-wide Outcomes of Radical Cystectomy and Use of Adjuvant Chemotherapy in the Elderly

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Introduction and Objective: Urothelial carcinoma of the bladder (UCB) occurs most commonly in the elderly. Radical cystectomy (RC), with or without adjuvant chemotherapy (ACT), is a standard but morbid procedure for muscle-invasive disease. We sought to assess the outcomes of RC in elderly patients, and to assess the use and utility of ACT in these patients.
Methods: All patients with UCB undergoing RC for muscle-invasive disease in Ontario from 1994-2008 were identified using the Ontario Cancer Registry. Pathology reports were reviewed. Treatment and survival data were linked to the study database. Patients were classified using the following age groups: <70, 70-74, 75-79 and ≥80. Multivariate analysis was used to identify predictors of ACT use, and the Cox proportional hazards model was used to assess the effectiveness of ACT.
Results: We identified 2738 patients: age <70=1286, 70-74=617, 75-79=497, ≥80=338. Lymph node dissection was carried out less frequently in elderly patients (age <70=74%, 70-74=67%, 75-79=67%, ≥80=57%, $p<0.0001$). 30-day (1%, 2%, 3%, 6%, $p<0.0001$) and 90-day (5%, 9%, 11%, 15%, $p<0.0001$) mortality increased substantially with age. Overall (OS) and cancer-specific survival (CSS) at 5 years across the age groups was 36%, 28%, 21%, 21% ($p<0.001$) and 38%, 31%, 30%, 30% ($p<0.001$) respectively. ACT was used less frequently in elderly patients (30%, 15%, 9%, 3%, $p<0.0001$). The odds ratio for receiving ACT for patients aged ≥80 vs. 70-74 was 0.16 [95%CI 0.08-0.32]. ACT was associated with improved OS (HR 0.70 [0.59-0.84] for age <70 and HR 0.64[0.52-0.79] for ≥70) and CSS (HR 0.71 [0.58-0.86] for age <70 and HR 0.73 [0.58-0.92] for ≥70) across all age groups.
Conclusions: Cystectomy for muscle-invasive UCB is associated with significantly higher postoperative mortality in the elderly. Lymph node dissection and use of ACT is lower in older patients, despite a substantial survival benefit across all age groups among those receiving ACT.

MP-07.02
Contributing Factors to Gender Disparities in Bladder Cancer Outcomes in Canada

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Introduction: Bladder cancer (BC) is the 5th leading cause of cancer and the most expensive to treat on a per-patient basis. Tthough bladder cancer is more common in men, observed outcomes for women are often worse. We sought to identify the influence of clinicopathologic factors on gender specific outcomes in a contemporary cohort of bladder cancer patients treated at Princess Margaret Hospital.
Methods: Eligible patients for analysis were men and women who had received systemic chemotherapy for histologically confirmed urothelial cancer between January 2006 and July 2011. Key variables included: presenting symptoms, age at diagnosis, Eastern Cooperative Oncology Group (ECOG) performance status, organ function, smoking history, exposures to potential carcinogens, treatment, disease recurrence and death. Genders specific differences were analyzed by chi square, T test and multivariate Cox regression analyses. Survival was analyzed by Kaplan Meier curves.
Results: A total of 149 males and 40 females were evaluated with an approximate 3:1 men to women ratio. Baseline characteristics for both gender groups were similar. No significant differences were identified for smoking rates, histology, renal function, ECOG, or the presence of visceral disease. Women had poorer survival outcomes than men, for overall and stage specific outcomes. Presenting symptoms were different between men and women ($p=0.019$). Women presented more frequently with nonspecific symptoms. We also found that standard chemotherapy was used less common in women than in males. This could not be explained on the basis of factors traditionally considered prohibitive for standard chemotherapy.
Conclusion: An important new findings from our study is the lower frequency with which standard first line chemotherapy is used in women. Our work is the first to evaluate Canadian bladder cancer patients for gender specific clinicopathologic characteristics and is an important area for future research.

MP-07.03
Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography for Preoperative Staging and Postoperative Follow Up of Urothelial Carcinoma

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Introduction and Objectives: The treatment and prognosis of bladder cancer depends on lymph node involvement in addition to other factors, but the accuracy of conventional imaging modalities for the prediction of nodal involvement or even detection of recurrence in early stage is limited. This study retrospectively investigated the value of 18F-fluorodeoxyglucose positron emission tomography/computed tomography (PET/CT) in the staging and follow-up of urothelial carcinoma in comparison to contrast-enhanced computed tomography (CT).
Methods: We reviewed 148 files of urothelial carcinoma patients. Of these, 134 had initial and 80 had follow-up PET/CT scans while 103 patients had initial and 82 had follow-up CT scans. Initial CT and PET/CT results were correlated with histopathology data (grade, stage and lymph node status). Follow-up CT and PET/CT results were confirmed by repeated imaging studies.
Results: The sensitivity for detecting lymph node metastasis before surgery was 43.39% vs. 43.58% while the specificity was 100% vs. 95.23% for PET/CT scan vs. CT scan, respectively. PET/CT scan had higher specificity in detecting recurrence (97.87% vs. 90.19%) with higher positive predictive value (96.97% vs. 85.7%). There was a significant association between recurrence discovered by PET/CT scan and the nodal status as 86.7% of patients who developed recurrence had positive lymph node whereas 13.3% had negative lymph node at surgery ($p<0.0001$, chi square). In addition, stage status at surgery was significantly associated with PET/CT scan discovered recurrence as 86.7% of patients who developed recurrence were ≥pT3 while 13.3% were ≤pT2 ($p<0.005$, chi square).
Conclusions: PET/CT scan is not inferior to CT scan in detecting positive lymph nodes before surgery of urothelial cancers while it is superior to CT scan in detecting recurrence after surgery.

MP-07.04

Immediate Post-TURBT Intravesical Chemotherapy Prevents Non-muscle-invasive Bladder Cancer Recurrences: An Updated Meta-analysis on 2,548 Patients and Quality of Evidence Review

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Introduction: Non-muscle-invasive bladder cancer (NMIBC) commonly recurs, requiring invasive and costly transurethral resection (TURBT). A meta-analysis published in 2004 demonstrated that intravesical (IVe) chemotherapy following TURBT reduces recurrences. Although recently updated clinical guidelines endorse this practice, its uptake has been modest. Our primary objectives were: 1) to investigate whether immediate postoperative IVe chemotherapy prolongs recurrence free interval (RFI) and early recurrences (ER) in light of new trial data and 2) to explore the quality of evidence supporting its use.

Methods: A systematic literature review of randomized controlled trials published before March 2013 was performed with Medline, Embase, and Cochrane databases. We included trials examining NMIBC recurrence for adults receiving IVe chemotherapy immediately following TURBT. RFI was estimated by hazard ratio (HR) and ER were estimated by absolute risk reduction (ARR) within one year of TURBT. Outcomes were synthesized using random-effects models. Quality of evidence for each outcome was evaluated using the GRADE approach.

Results: Thirteen articles were included with 2,548 patients represented. IVe chemotherapy prolonged RFI by 38% (HR 0.62, 95% CI: 0.50-0.77, $p<0.0001$) and ER were 12% less likely in the intervention population (ARR 0.12, 95% CI: -0.18 to -0.06, $p<0.0001$). There was high risk of bias present in 12/13 studies. Quality of evidence for RFI was "very low" and for ER was "low."

Conclusions: IVe chemotherapy reduces RFI and ER of NMIBC when administered immediately after TURBT. Due to high-risk of bias and low evidence quality, well-designed RCTs addressing these questions are still warranted.

MP-07.05

Identification of Age Cut-offs for Prediction for Postoperative Outcomes After Radical Cystectomy for Non-metastatic Bladder Cancer

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Introduction and Objectives: Increasing age may result in higher rates of adverse events following radical cystectomy. We sought to test the effect of increasing age and to identify an age cut-off for which significantly worse postoperative adverse events can be expected following cystectomy.

Material and Methods: Overall, a weighted sample of 85051 patients who underwent radical cystectomy for non-metastatic bladder cancer were abstracted within the Nationwide Inpatient Sample between years 1998 and 2009. In the first step, generalized linear regression models were performed for prediction of intraoperative complications, postoperative complications, blood transfusions, prolonged length of stay and in-hospital mortality to test the relationship between increasing age and postoperative morbidity during hospitalization. In the second step, patient age at surgery was modeled using a cubic spline transformation with the objective of identifying a cutoff according to the aforementioned endpoints. All models adjusted for gender, race, Charlson comorbidity index, year of surgery, annual hospital volume, hospital teaching status, hospital region, and hospital location.

Results: Average age was 68 years old (median: 70 years, interquartile range: 62-76 years). The overall rates of intraoperative complications, postoperative complications, blood transfusions, prolonged length of stay, and in-hospital mortality were 3.3%, 33.1%, 27.3%, 41.6%, and 2.3%, respectively. In multivariable analyses, increasing age resulted in significantly higher rates of postoperative adverse events (odds ratio: 1.01-1.07, all $p\leq0.02$). In cubic splines analyses, the following age cut-offs were associated with higher rates of intraoperative complications, postoperative complications, blood transfusions, prolonged length of stay, and in-hospital mortality: 72, 70, 68, 64, and 62 years old.

Conclusions: Increasing age is associated with detrimentally higher rates of postoperative adverse events following radical cystectomy during hospitalization. For the identified age cut-offs, although some complications are unavoidable, a heightened care may be given to such patients undergoing a radical cystectomy.

MP-07.06

Prostate Cancer Microparticles: A Novel Blood Based Prognosticator of Metastasis

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Introduction and Objectives: Due to the hematogenous nature of metastatic prostate cancer (PCa), both tumour cells and tumour cell fragments can be detected and enumerated in patient plasmas. The presence of plasma-borne tumour cell fragments, also known as microparticles, is thought to correlate with the magnitude of primary and metastatic tumour burden. In this prospective study, we assess the ability of the metastasis-specific 1A5 mAb to detect prostate cancer microparticles (PCMPs) in patient plasma as a means to distinguish indolent cancer from high-risk metastatic cancer.

Methods: Patients were recruited into two different cohorts; localized PCa and metastatic PCa (N=40 in total). Blood was collected for: 1) CTC enumeration by the CellSearch instrument, and 2) PCMP enumeration by flow cytometry. To identify the PCMP population in flow cytometry, fluorophore conjugated antibodies specific for the extracellular domain of PSMA (anti-PSMA mouse IgG-RPE) and the metastasis-specific 1A5 antibody (1A5 mouse IgG-FITC) were used to stain 20 uL of plasma. Counting beads (1.0 um) were used to determine the gating parameters for identification and analysis of 1A5+PCMPs.

Results: We found statistically significant differences between both groups, in particular, metastatic PCa patients exhibit a greater proportion of PCMPs that bind the 1A5 mAb, as well as higher absolute counts of 1A5-PSMA-positive events and total PSMA-positive events ($p<0.05$). Furthermore, within the localized PCa group, we identified a subpopulation of patients that exhibited high counts of 1A5+PSMA-positive events. Clinical follow-up to determine if these are localized PCa patients at risk for progressing onto metastatic disease is currently underway. CTC enumeration was not a useful parameter for distinguishing localized vs. metastatic patients.

Conclusions: Enumeration of prostate cancer microparticles may provide a clinical mean to distinguish indolent from high risk or metastatic PCa.

MP-07.07

Estimated Drug Costs of Metastatic Castration Resistant Prostate Cancer in Canada

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Introduction and Objectives: Prostate cancer (PCa) is the most common cancer and the 3rd leading cause of cancer mortality in Canadian men. Men dying of prostate cancer do so after failing castration. The management of this disease phase is complex and the associated drug treatments potentially costly. The objective of this study was to estimate the cost of drug treatments of metastatic castration-resistant prostate cancer (mCRPC), in the context of the latest evidence-based approach.

Methods: Two Markov models with Monte-Carlo microsimulations were developed in order to simulate the management of the disease and to estimate the cost of drug treatments in mCRPC, as per Quebec's public health system, and the latest drug developments. The models include additional lines of treatment after docetaxel (i.e. abiraterone and cabazitaxel). The drug exposure and survival were based on clinical trial results and clinical practice guidelines found in literature review. All costs were assigned in Canadian dollars ($). Only direct drug costs were estimated.

Results: The mean cost of mCRPC drug treatments over an average period of 27.6 months was estimated at $36,207 (95% Confidence Interval: $35,679 to $36,816) per patient. Over the mCRPC period, the luteinizing hormone releasing hormone agonists (LH-RH) prescribed to maintain castrate testosterone accounted for 28% of the total medication cost, whereas denosumab prescribed to decrease bone-related events accounted for 41%, respectively. When patients receive cabazitaxel in sequence after abiraterone and docetaxel, the mCRPC medications cost increases by 43%.

Conclusion: Our study estimates the direct drug costs associated with mCRPC treatments in the Canadian health system. The total cost of medications for the treatment of each annual cohort of 4,100 mCRPC patients is estimated at $148.5 million. Other emerging therapies may become part of the spectrum of mCRPC treatment in the near future, and potentially add to the costs.

MP-07.08

Patient and Tumour Characteristics to Predict Growth of Small Renal Masses: A Prospective Analysis from the Renal Cell Carcinoma Consortium of Canada

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Introduction and Objectives: Most small renal masses (SRMs) are diagnosed incidentally and have a low malignant potential. As more elderly and infirm patients are diagnosed with SRM's there is an increased interest in Active Surveillance (AS) with delayed intervention. Patient and tumour characteristics relating to aggressive disease has not been well studied. The purpose of this prospective study was to determine predictors of growth of SRMs treated with AS.

Methods: A prospective phase 2 clinical trial with treatment delayed until progression was conducted in 8 institutions in Canada from 2004 to 2009. All patients underwent AS for presumed Renal Cell Carcinoma based on diagnostic imaging. Patient and tumour characteristics were evaluated to determine predictors of growth of SRM's by measuring rates of change in growth (on imaging) over time. Patient characteristics, age and symptoms at diagnosis and tumour characteristics, consistency (solid vs. cystic) and maximum diameter at diagnosis were used to develop a predictive model of tumour growth using binary recursive partitioning analysis.

Results: With a median follow-up of 20 months, 207 renal masses in 169 patients were followed prospectively, with a median of 5 imaging studies/mass. The mean age of the patients was 73 years and the majority (91%), were detected incidentally. The median diameter of the SRMs was 2.15cm, while the median growth rate was 0.12 cm/year. Age, symptoms at diagnosis, tumour consistency and maximum diameter of the renal mass were not predictors of growth.

Conclusions: Slow growth rates and low malignant potential of SRMs have led to AS as an option in the elderly and infirm population. In a large prospective cohort of T1a renal masses managed with AS, we have shown that rate of growth cannot be predicted using patient and tumour characteristics at diagnosis such as age, symptoms, tumour consistency and maximum diameter of the mass.

MP-07.09

First Line Treatment for Low-volume Nodal Disease in Testicular Seminoma: Radiation or Chemotherapy?

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Introduction and Objectives: Radiation therapy (RT) has been standard management in seminoma patients with limited (<5 cm) retroperitoneal adenopathy, both in relapsed stage I surveillance and stage IIA/B resulting in relapse free rates of around 90%. The success of multi-agent chemotherapy (CT) for salvage at relapse has meant that increasingly it is now being recommended as primary treatment. However, this means that the vast majority of patients may be unnecessarily exposed to CT-associated toxicity. We examined this issue in patients managed at our institution.

Methods: A total of 106 patients were identified from a prospectively maintained institutional database. Patient charts were retrospectively reviewed. All patients were treated between 1995 and 2010 with either relapsed Stage I on surveillance (n= 59) or Stage IIA/B at diagnosis (n=47). Median age was 37 years (range 24-83). Of the total 106 patients, 58 had nodal disease of <2 cm (57 treated with RT, 1 with CT), and 48 had disease 2-5 cm (30 treated with RT, 18 with CT). RT was the recommended treatment approach wherever appropriate. Patients treated with RT received 25 Gy in 20 fractions to para-aortic and pelvic nodes with 10 Gy boost to gross disease. We identified the reasons for chemotherapy use and these included multiple enlarged nodes with largest node at least 3cm (n=5), solitary enlarged node at least 4cm (n=5), disease proximity to renal hilum (n=4), inflammatory bowel disease (n=3), unusual site of relapse in the pelvis (n=1) and patient choice (n=1). EP chemotherapy (4 cycles) was used in 17 patients and 2 received BEP (3 cycles).

Results: At a median time of 73 months (Range 1-186 mo). The 5-year overall and relapse-free survival was 100% and 91%. Of 58 patients who had lymphadenopathy <2 cm in size, 5 patients (initially treated with RT) relapsed. Forty eight patients had lymphadenopathy between 2-5cm, and 4 of these relapsed (3/30 treated with RT, 1/18 treated with CT). Acute toxicity (CTCAE v4 >grade 1) was not observed in any RT patient. In CT patients, 7 developed G3/4 neutropenia, 2 had grade 3 anemia, 2 had grade 3 diarrhea, and 1 patient grade 3 weight loss. Patients who relapsed were subsequently salvaged with chemotherapy, and no patients required surgery.

Conclusions: Selective use of RT in patients with low-volume nodal disease achieves excellent results with minimal toxicity. Multimodality therapy was required in 6% of patients. Thus retroperitoneal RT should be strongly considered as the treatment of choice in the majority of these patients.

MP-07.10

Are Multiple Biopsies Associated with an Increased Risk of Severe Complications: A Retrospective Observational Analysis

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Introduction: In the context of the rising consideration of active surveillance, multiple prostate biopsies (PBx) have become more frequent. However, bacterial resistance to conventional antibiotic prophylaxis at PBx has become increasingly common. We sought to evaluate the rate of severe complications according to the number of PBx.

Methods: A total of 41,425 men who had ≥1 PBx for prostate cancer detection between years 1988 and 2005 within the Surveillance, Epidemiology, and End Results (SEER) Medicare-linked database were abstracted. For the purpose of the analyses, patients with ≥cT2 or metastatic disease were excluded. Number of PBx was examined as a continuous variable, and ranged from 1 to 5. Post-PBx severe complications were coded as the occurrence of endocarditis, sepsis, and/or shock ≤30 days after each PBx. Univariable and multivariable logistic regression analyses were performed for prediction of severe complications according to number of PBx. Covariates consisted of patient age at PBx, race, SEER registry, baseline comorbidities, treatment type (radical prostatectomy, radiotherapy, prostatectomy and radiotherapy, other), Gleason score, metropolitan areas, and year of diagnosis.

Results: The rate of severe complications was 1.7, 2.9, 3.6, 3.8, and 4.0% after the 1st, 2nd, 3rd, 4th, and 5th PBx, respectively. The proportion of patients with ≥2 PBx increased over time from 26% in 1988 to 48% in 2005 (p<0.001). In multivariable analyses, the odds of experiencing a severe complication increased by 17% for each additional PBx (p<0.001). When PBx was modeled as a categorical variable, patients with 2, 3, 4, and 5 PBx were 43, 64, 69, and 72% more likely to experience severe complications relative to their 1 PBx-counterparts, respectively (all p<0.001).

Conclusions: The current results showed that multiple PBx is associated with increased rate of severe complications. Efforts should be made to minimize the potential harms associated with multiple PBx.

MP-07.11

Cardiovascular Disease and Prostate Cancer: A Competing-risk Analysis

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Introduction: Cardiovascular death represents the primary competing-cause mortality in patients with clinically localized prostate cancer (PCa) who are treated with curative treatment modalities. Our objective was to determine the risk cardiovascular disease (CVD)-specific mortality (CVDSM) according to baseline CVD status amongst recipients of radical prostatectomy (RP) or brachytherapy (BT).

Methods: US Surveillance, Epidemiology, and End Results (SEER)-Medicare-linked cohort of 26014 men treated with RP and 16233 individuals treated with BT between years 1992 and 2005. Stratifying variable comprised of age (65-70, 71-75, ≥76), baseline CVD status (no CVD, CVD but no history of CVD-specific intervention, history of CVD-specific intervention), PCa-risk classification (high, low/intermediate), and treatment type (RP, BT). The main outcome measures were ten-year CVDSM, CSM, and OCM rates. Poisson regression analyses within a propensity-based matched cohort were produced.

Results: Post-RP 10-year CVDSM rates ranged between 2.3-4.8% in men without baseline CVD vs. 3.5-13.6% in men with baseline CVD but without any history of CVD-related intervention vs. 4.3-18.5% in men with baseline CVD and history of CVD-related intervention. For respectively the same groups, the rates of post-BT CVDSM ranged from 2.2-8.1% vs. 5.8-11.7% vs. 6.9-14.1%. Post-treatment CVDSM rates were not different between treatment modalities and disease risk classifications, (all p>0.05). Finally, older individuals (≥76 years) across all risk strata with an underlying CVD or a CVD-related intervention at/prior to PCa diagnosis had higher rates of CVDSM than CSM.

Conclusions: Presence of baseline CVD and its severity are key determinants of CVDSM after RP or BT. A rigorous assessment and consideration of baseline CVD status is essential for prediction of post-treatment CVDSM.

MP-07.12

PSA Density of the Transition Zone and PSA Velocity as Predictors for Progression in Patients on Active Surveillance for Prostate Cancer

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Introduction and Objectives: Active surveillance (AS) is offered to men with low-grade, low-volume prostate cancer (PCa). Predicting whether a tumour will progress is difficult and error prone and thus, new effective predictors are needed. There is concern that biopsy sampling error can underestimate the true burden of the disease. PSA density of the transition zone (PSA/TZ) was previously shown to increase the sensitivity and specificity of PSA. We studied the value of baseline PSA/TZ for predicting progression in patients with PCa on AS.

Methods: A retrospective review of 389 patients on AS from 1995-2010 was performed. 250 patients fulfilled the criteria for AS and had measurable TZ volumes on their initial biopsy. Univariate and multivariate Cox proportional hazard regression analyses were performed to analyze the predictive role of PSA, PSA/TZ, prostate volume (Pvol), PSA velocity (PSAV), TZ volume, age and use of 5-ARI for pathologic progression.

Results: Eighty-one patients (32.4%) progressed pathologically after a median follow-up of 39.7 months. PSA/TZ (0.28 vs. 0.16 ng/ml/cc, p<0.001) and PSAV (0.59 vs. 0.19 ng/ml/year, p<0.001) were significantly higher in patients who progressed compared to those who did not. Univariate analysis showed that PSA/TZ (HR 1.37, 95%CI 0.91-2.04) and PSAV (HR 1.45, 95%CI 1.11-1.89) were the most significant predictors for pathological progression. Multivariate analysis showed that PSA/TZ (OR 3.25, 95%CI 1.20-8.80, p=0.02) and PSAV (OR 1.80, 95%CI 1.22-2.65, p=0.003) were predictive for overall progression. The area under (AUC) the ROC curve for predicting pathological progression was the largest for PSA/TZ (0.69) compared to the other parameters (p<0.001).

Conclusions: PSA/TZ at baseline may help to identify men starting AS at higher risk for pathological progression. A high PSA/TZ level may suggest that a larger volume of cancer or a higher Gleason score tumour might have been missed on the initial biopsy.

MP-07.13

Factorial Analysis of Disease Progression in a Cohort of Prostate Cancer Patients Under Active Surveillance: The McGill University Experience

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Introduction: Active Surveillance (AS) is a treatment option for low risk Prostate Cancer (PCa). The aim of our study was to determine the characteristics of our cohort and evaluate the effect of clinical and pathological factors in predicting disease progression.

Methods: A total of 300 patients diagnosed with adenocarcinoma of the prostate between 1992 and 2012 elected to be managed by AS or refused treatment. Of these, 155 patients with at least 1 repeated biopsy and his-

tological findings compatible with insignificant disease at the time of the diagnosis were included in this analysis. Patients were followed every 3 to 6 months with prostate-specific antigen (PSA) and physical examination and were offered repeat biopsy annually or if there were any changes on physical examination or in PSA. We defined disease progression as ≥1 of the following criteria; ≥3 positive cores, >50% of cancer in at least 1 core, or a predominant Gleason pattern of 4.
Results: The mean age ± SD at the time of diagnosis of these 155 patients was 67.75 ± 7 years with a median follow up of 5.4 (IQ range 3.6-9.5) years. Of these, 79, 44, 23, 7, and 2 patients had 1, 2, 3, 4 and 5 repeated biopsies, respectively. Eleven (7.9%) patients had a Gleason score (GS) of 3+4 while 144 (92.9%) patients had a score ≤6 at diagnosis. 50 (32.3%) patients had disease progression on rebiopsy. The 5-year overall and cancer-specific survival rate was 100%. Positive first repeated biopsy, ≥2 positive cores, PSA density of >0.15, GS ≥6 at the time of the diagnosis, and not using 5 α- reductase inhibitor (5ARI) have significant higher hazard ratio on univariate analysis (p<0.05). On multivariable analysis, only positive first repeat biopsy has a significant hazard ratio of 7.5 (p<0.001) in predicting progression, consistent with our previous study. The use of 5ARI showed a trend toward significance in lowering the risk of progression (p=0.063). Five patients ultimately received radiotherapy, 12 received hormonal therapy, and 13 underwent radical prostatectomy.
Conclusion: In men with low-risk prostate cancer on active surveillance, the first positive repeated biopsy showed significant hazard for pathological disease progression. The use of 5ARI may reduce the risk of progression.

MP-07.14

Emergence of Variant Histology During Neo-adjuvant Chemotherapy for Muscle Invasive Urethelial Bladder Cancer is Common and Associated with Poor Prognosis

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Introduction: Cisplatin based neo-adjuvant chemotherapy (nCT) improves survival in patients with localized muscle invasive urethelial bladder cancer (MIUBC) but it is not known whether nCT can also select for more aggressive variants of the disease.
Methods: Retrospective analysis of single tertiary centre cohort of 84 unselected consecutive patients with MIUBC. The diagnostic TURBT and the final pathology obtained at RC (36 patients post-nCT and 48 upfront) were reviewed. Presence of any of the following elements was defined as variant histology (VH): neuro-endocrine carcinoma, micro-papillary carcinoma and sarcomatoid, squamous or glandular differentiation. Differences in survival were compared using the log rank test.
Results: Median follow-up from time of RC was 18 months (range, 1 to 153). VH was present on initial TUR in 20/84 patients (24%), but did not appear to be associated with adverse survival (log rank p=0.1). In contrast, if VH was found in the RC specimen (17 patients, 20%) significantly worse overall survival was observed (HR 0.04, 95% CI 0.0094 - 0.17, p<0.0001). We then examined those patients who presented with urothelial carcinoma only on initial TUR but were found to have VH on RC: VH was seen in 7/24 patients (29%) during nCT compared to 4/39 patients (10%) who underwent upfront RC. Patients with VH after nCT had significantly worse survival compared to patients with no VH (HR 7.27, 95% CI 1.476-35.8; p=0.0147). Although down-staging occurred in 10 of the 36 patients (28%) who had nCT (including 5 (14%) with pathological complete response), it did not occur in any of the patients with VH following nCT. Moreover, 43% of the patients with VH after nCT had positive nodes at RC compared to 23% and 28% in patients with no VH during nCT or with upfront RC with no VH, respectively.
Conclusions: We report for the first time that VH can develop following cisplatin-based nCT for MIUBC. In our series this was common and associated with poorer survival.

MP-07.15

Quality of Radical Cystectomy in Quebec: A Population-based Analysis During the Years 2000-2009

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Introduction and Objectives: Radical cystectomy (RC) is a major urologic operation with potential significant morbidity and mortality. The quality of surgical care delivered to patients with bladder cancer (BC) who had RC is a subject of increasing interest. Our objective was to examine quality of surgical care indicators for RC in Quebec and determine potential related factors.
Methods: Using the data obtained from the governmental health insurance system of Quebec (RAMQ), all RC performed for BC in Quebec over 10 years (between 2000 and 2009) were retrospectively analyzed. Procedure codes present in the billing records were used to identify RC outcomes. The outcomes analyzed included: postoperative complications, referral to medical oncology and mortality rates at 30, 60 and 90days. Conditional Logistic Regression was used to generate Odds Ratios (OR) along with 95% confidence Intervals (CI). Variables considered in analyses included: sex and age at RC, type of hospital (academic vs. community), hospital annual RC case load, hospital geographical location, surgeon age and surgeon annual RC case load.
Results: A total of 2779 RC were performed in 51 hospital facilities by 122 urologists across Quebec. Among them, 1124 (40.4%) patients had at least one postoperative complication and 413 (14.8%) patients had more than one complication. Overall mortality rate at 30, 60 and 90days was 2.8%, 5.4% and 7.4% respectively. Referral to medical oncologist for possible adjuvant therapy was done in 679 (24.4%) patients. Hospital and surgical volumes were found to be associated with certain RC outcomes. Hospitals with an annual case load of more than 25RC were independently associated with a statistically significant 77% reduction in 30-days mortality when compared to hospitals with an annual case load less than 10RC (OR 0.23, 95% CI 0.054-0.98).
Conclusion: Our study confirms the association between RC volumes and certain postoperative outcomes including postoperative mortality.

MP-07.16

Lower Risk of Cardiovascular (CV) Events and Death in Men Receiving ADT by Gonadotropin Releasing Hormone (GnRH) Antagonist, Degarelix, Compared with Luteinising Hormone-releasing (LHRH) Agonists

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Background: LHRH agonists are used to treat men with advanced prostate cancer and are associated with increased risk of CV events and death. Compared with LHRH agonists, degarelix has the advantage of no flare, better PSA control, and improved LUTS control. This study examined whether degarelix was associated with lower risk of CV events or death.
Methods: Data were pooled from 2328 patients participating in 6 prospective randomised trials comparing GnRH antagonist, degarelix, (n=1491) to GnRH agonists goserelin (n=458) or leuprolide (n=379). Data were classified by the MedDRA system and analysed using Kaplan Meier plots and a Cox proportional hazard model. Event analysis was based on death from any cause or serious CV event (life threatening or requiring hospitalisation).
Results: Baseline characteristics and prior CVD history (31% vs. 29%) were well balanced between treatment groups; characteristics associated with CVD (e.g. statin medication, elevated blood pressure, diabetes, cholesterol >6.2 mmol/L) were also similar between groups.
Based on a time to event analysis, men receiving GnRH antagonist had a significantly lower risk of serious CV event or death when compared

Figure 1. Time to serious CV event or death for men with a prior history of CVD at baseline treated for up to 1 year with degarelix or an LHRH agonist

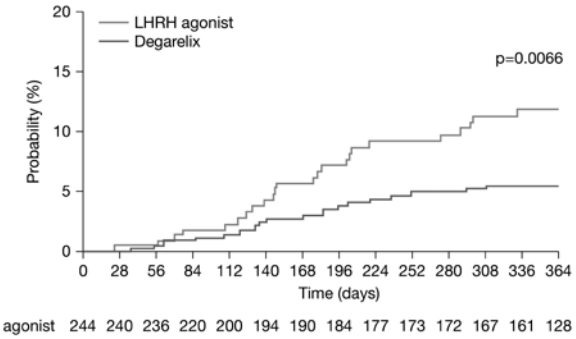

Fig. 1. MP-07.16.

to men treated with LHRH agonists. This outcome was confined to men with prior CVD at baseline (Fig. 1) who demonstrated a significantly lower risk of death or serious CV event after receiving GnRH antagonist for up to 1 year (HR=0.414 [95% CI: 0.227-0.755]).

Men with no prior CVD at baseline had similar rates of subsequent serious CV events or death between treatment groups.

Conclusions: Men with a history of CVD had a lower risk of subsequent serious CV event or death of more than 50% after receiving a GnRH antagonist (degarelix) cancer for up to one year when compared with those men receiving LHRH agonists.

MP-07.17

The Use of Neobladders in Patients Undergoing Radical Cystectomy in Canada

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Purpose and Objective: To determine the use of neobladder urinary reconstruction in Canada.

Methods: We reviewed a historical cohort of patients undergoing radical cystectomy for urothelial carcinoma at 8 academic institutions in Canada. In addition to type of urinary diversion, preoperative patient characteristics included age, gender, Charleson comorbidity index, tumour stage, year of surgery, and geographic region of surgery.

Results: Between 1998 and 2008, 2287 patients underwent cystectomy and 1800 had complete information on type of urinary diversion performed. Overall, urinary reconstruction was an ileal conduit in 1500 (83%), a neobladder in 280 (16%) and continent cutaneous diversion in 20 (1%). Compared to ileal conduit patients, neobladder patients were younger (57±9 vs. 68±9; p=0.01), more likely male (17% of males vs. 10% of females; p=0.001), had fewer comorbidities (Charleson 3.6 vs. 5.0; p=0.07), and had lower clinical tumour stage (T-stage >2, 6% vs. 14%; p<0.001). The proportion of neobladders performed in Canada remained stable over time (<2000=15% vs. 2000-2003=16% vs. >2003 = 16%; p=0.45). Geographic location of the treating institution was significantly associated with choice of neobladder (Eastern Canada 43%, Western Canada 44%, and Central Canada 13%; p<0.01).

Conclusions: In Canada, use of neobladder urinary reconstruction is low. Patient factors associated with neobladder reconstruction may not necessarily predict neobladder function and should be analyzed. The reasons for neobladder underutilization and geographic disparity also require further study.