following questionnaires: the EPIC-50, the International Prostate Symptom Score (IPSS), the Sexual Health Inventory for men (SHIM), and the EORTC QLQ PR25. Analyses were conducted using the SAS 9.3 software (2012, SAS Institute, Cary, NC, USA) and the alpha level was set at 5%.
Results: The internal consistency of the EPIC was demonstrated by significant item-total correlations and elevated Cronbach's alpha for each subscale (urinary: r = .25-.80; α = .85; intestinal: r = .27 - .73; α = .84; sexual: r = .48 - .80; α = .92; hormonal: r = .21-.71; α = .80). Strong and significant correlations were found between EPIC-urinary subscale and IPSS total score (r =- .71, p < .01) and between EPIC-sexual subscale and SHIM total score (r = .79, p < .01), thus supporting the convergent validity of the EPIC. The test-retest reliability was excellent with strong and significant correlations obtained between the two administrations (urinary: r = .90; intestinal: r = .84; sexual: r = .88; hormonal: r = .79) and the absence of significant differences between T1 and T2 mean scores. Finally, a significant deterioration was found on all EPIC subscales from pre- to post-treatment thus indicating that the tool is sensitive to clinical change.
Conclusions: Our French Canadian version of the EPIC-50 appears to provide a reliable and valid assessment of quality of life in prostate cancer patients. Future analyses will investigate its factorial structure and the psychometric properties of the abbreviated version.

142
THE INFLUENCE OF DOSIMETRY ON ACUTE URINARY TOXICITY IN HDR PROSTATE BRACHYTHERAPY
Nancy El-Bared, Talar Desrashodian, Georges Wakil, Marise Mondat, Djamal Berbiche, Marjorie Jolicoeur
University of Sherbrooke, Greenfield Park, QC

Purpose: Although high-dose rate (HDR) brachytherapy boost is widely used in intermediate and high-risk prostate cancer treatment, the appropriate dose constraints are still evolving. The aim or our study is to analyze the influence of patient characteristics as well dosimetric parameter specifically the V150 (volume receiving 150% of the dose), on acute urinary toxicities.
Methods and Materials: We retrospectively analyzed 231 consecutive patients treated, between May 2012 and September 2014, with HDR brachytherapy boost in our institution. The CTCAE V3 criteria were used to grade the urinary symptoms. However, we wanted to separately analyze patients with urinary obstruction requiring urinary catheter for longer than 24 hours. For the purpose of our analysis, we used a value of 35% as a cut off for the V150. Other dosimetric parameters were also analyzed. Pearson's correlations as well as logistic regressions were performed.
Results: During a median follow up of 18.6 months, 29% of patients had no urinary toxicity, 28% had Grade 1 and 38% had Grade 2 or 3 urinary toxicities. Eleven patients (5%) needed a urinary catheter for longer than 24 hours because of urinary obstruction. Although not significant (p = 0.0951), we found an important difference between the mean prostate volume of patients needing urinary catheter (51 cc) versus those who did not (42 cc). Among different patient characteristics such as tobacco use, dyslipidemia, hypertension, coronary heart disease and hormone therapy treatments, only the use of hormone therapy at the time of HDR treatment significantly increased urinary toxicity (p = 0.0462). A V150 ≥ 35% did not significantly influence Grade 1 (p = 0.2204) or Grade 2-3 (p = 0.8162) urinary toxicity, nor did it significantly influence the need for urinary catheter placement (p = 0.1678). However, in the 11 patients for whom a urinary catheter was needed, the median V150 and Dmax to the urethra (maximal dose to the urethra) were 42% and 124.78% respectively.
Conclusions: In conclusion, the only significant prognostic factor for urinary retention requiring prolonged catheter placement was the use of hormone therapy. We did not find a significant influence of dosimetric parameters, specifically the V150, on acute urinary toxicity. However, due to the small sample size of patients requiring a urinary catheter we cannot conclude on the influence of the V150 for those patients. Nevertheless, we strongly believe that the V150 should be kept as low as possible since in our cohort the median V150 for the patients requiring a urinary catheter for obstructive symptoms was 42%.

143

Abstract withdrawn

144
EVALUATION OF MILK OF MAGNESIA TO REDUCE VARIATION IN RECTAL FILLING IN IMAGE GUIDED VOLUMETRIC MODULATED ARCH THERAPY OF PROSTATE CANCER
Ali Hosni, Tara Rosewall, Timothy Craig, Vickie Kong, Andrew Bayley, Charles Catton, Peter Chung
Princess Margaret Cancer Centre, University of Toronto, Toronto, ON

Purpose: To investigate the effect of milk of magnesia (MoM) on consistency of interfraction rectal filling and acute rectal toxicity.
Methods and Materials: Two groups were retrospectively identified, each consisting of 40 patients with localized prostate cancer treated with VMAT to prostate +/- seminal vesicles, to prescribed dose of 78 Gy in 39 fractions over eight weeks. The first group were instructed to follow a bowel regimen with antiflatulent diet and MoM started three days prior to planning CT scan (P-CT) and continued during RT, while the second group followed simple dietary advice to achieve an empty rectum. The rectum between the upper and lower borders of the clinical target volume (CTV) was delineated by a single observer on the P-CT and on eight, weekly cone beam CT (CBCT). Rectal filling was assessed by measurement of anterio-posterior diameter of the rectum at the superior and mid levels of CTV, and by calculation of rectal volume (RV) and the average cross-sectional rectal area (CSA; defined as the rectal volume divided by length). The differences in these measurements were compared between the two groups by repeated measures analysis. Data relating to acute toxicity was extracted from patients' medical charts.
Results: A total of 720 images, including 80 P-CT and 640 CBCT images from 80 patients were analyzed. All images showed satisfactory visualisation of the rectum at the level of CTV. Using linear mixed models, and after adjusting for baseline values at the time of P-CT to test the differences in rectal dimensions between both groups over the eight-week treatment period, there were no significant differences either in rectal volume (p = 0.58), average CSA (p = 0.63), anterio-posterior diameter of rectum at superior level of CTV (p = 0.95) or at mid level of CTV (p = 0.28). In the MoM group, the mean volume of MoM taken by patients was 31 cm^3 (range, 15–45 cm^3) in the first week and 13 cm^3 (range, 0–30 cm^3) in the last week. The proportion of patients who took MoM decreased from 100% in the first week to 60% in the last week. Acute RTOG rectal toxicity in MoM/non-MoM groups consisted of G2 diarrhea (n = 3/2), G1 diarrhea (n = 21/7), G1 proctitis (n = 5/5).
Conclusions: MoM did not appear to reduce the interfraction variation in rectal filling compared to simple dietary advice. MoM may cause diarrhea and a substantial proportion of patients discontinued its use by the end of radiation treatment.

145
LONG-TERM OUTCOMES OF STAGE II SEMINOMAS
Rima Pathak[1], Scott Tyldesley[2], Gaurav Bahl[1]
[1]University of British Columbia, Abbotsford, BC
[2]British Columbia Cancer Agency, Vancouver, BC

Purpose: To review the long-term outcomes for patients with Stage II Seminoma treated at our institute.
Methods and Materials: We included all patients referred and registered with Stage I or II Seminoma in our Cancer Registry, from 1984. Patients with unknown stage or histology were

excluded. The query identified 142 patients who received treatment for clinical Stage II disease. Median age was 38 years (range: 19 – 68), 33 had Stage IIA, 47 IIB, and 62 had IIC disease. Fifty-nine patients were treated with radiation therapy (RT) while 83 received chemotherapy (CT). Only three patients with Stage IIA got CT, and only five with IIC got RT. Median RT dose was 30 Gy. Most common CT regimens used were EP (n = 68) and BEP (n = 13).

Results: After a median follow up of 18 years, 24 patients had died, and there were 16 recurrences (three in the contra-lateral testis). Patients were more likely to die of second cancers (n = 7) and myocardial infarctions (n = 6), than from progressive Seminoma (n = 3). Two patients died during treatment (neutropenia and sepsis). The 10- and 15-year overall survival (OS) was, IIA: 93.8% and 93.8%; IIB: 91.4% and 88.3%; IIC: 83.2% and 76.0%. The 10-year cumulative incidence of relapse (CIR) for Stage IIA patients treated with RT was 3.4%. Stage IIC patients treated with CT had a 10-yr CIR of 10.6%. The 10-year CIR for Stage IIB patients treated with RT (n = 24) versus CT (n = 23) was 29.8% versus 0% (p = 0.005). Seventeen patients developed a second malignancy (SM); non-melanoma skin cancers were excluded. The 15-year cumulative incidence of SM was 7.3% for patients treated with RT, versus 9.7% for those treated with CT (p = 0.321).

Conclusions: Long-term outcomes for patients with Stage II Seminoma continue to be excellent. Patients are more likely to die of second cancers and cardiovascular disease than from progressive seminoma.

146

CURRENT PRACTICE OF EXTERNAL BEAM RADIOTHERAPY AND BRACHYTHERAPY FOR MANAGEMENT OF ENDOMETRIAL CANCER IN ONTARIO, CANADA

Negin Shahid[1], Allison Ashworth[2], Michelle Ang[3], Anne Di Tomasso[1], David D'Souza[4], Raxa Sankreacha[5], Robert Hunter[6], Carey Shenfield[2], Michael Milosevic[1], Iwa Kong[6]
[1]University of Toronto, Toronto, ON, Canada
[2]Cancer Centre of Southeastern Ontario, Kingston, ON
[3]Cancer Care Ontario, Toronto, ON
[4]University of Western Ontario, London, ON
[5]Trillium Health Centres, Mississauga, ON
[6]McMaster University, Hamilton, ON

Purpose: To describe the practice of adjuvant brachytherapy (BT) and external beam radiotherapy (EBRT) for management of endometrial cancer.

Methods and Materials: An electronic survey including 83 questions focusing on general/demographic information, pre-treatment assessments, radiotherapy policies and EBRT/BT techniques was sent to all 14 regional cancer centres in 2014.

Results: The response rate was 100%. The most frequently used dose/fractionation scheme for EBRT was 45 Gy in 25 fractions. The EBRT technique was 4-Field box in 46%, IMRT in 15%, VMAT in 31% and VMAT/4-Field box in 8% of the centres. Pelvic EBRT was recommended by all centres for Stage II/IIIA/IIIC1 any grade, by 92% of the centres with Stage IB Grade 3 or serous-clear cell carcinoma/Stage IIIC2 any grade and by 70% of the centres for Stage IA serous-clear cell carcinoma. Combination of EBRT and BT was recommended by all centres for Stage II any grade carcinoma, by 92% of the centres for Stage IIIC1 with cervical stromal involvement, by 85% of the centres for Stage IIIA/IIIB/IIIC2 with cervical stromal involvement and by 54% of the centres for Stage IVB any grade with cervical stromal involvement. Adjuvant BT alone was recommended for Stage 1A Grade 3 or Stage 1B Grade 1-2 in 77% of the centres, for Stage 1A serous-clear cell carcinoma in 31% of centres, for Stage 1B Grade 3 in 15% of centres. In 85% of centres, the cases were always peer reviewed. Half of the centres used image verification with x-ray/CT/fluoroscopy after each insertion of the applicator. Bladder and rectal doses were recorded in 8% of the centres using ICRU 38 point doses and in 25% using dose-volume metrics (D2cc). Seventeen percent of the centres treated the upper 3 cm of the vagina, 42% the upper 4 cm, 8% the upper 3-4 cm, 8% the upper 5 cm, 17% the upper half and 8% the upper third of the vagina. The dose was prescribed at the surface of the cylinder and at a depth of 5 mm in 33% and 67% of the centres, respectively. The dose for BT alone prescribed to the surface varied from 6-10.5 Gy x 3-5 fractions. The dose was more uniform when prescribed at depth, with 87% using 7 Gy x 3 fractions. For combination EBRT-BT treatments, BT dose varied from 5-6 Gy x 3 fractions at the surface to 4-5.5 Gy x 2-3 fractions at depth.

Conclusions: Practice patterns regarding the use of EBRT and BT appear to be fairly consistent across the province of Ontario, however, there is considerable heterogeneity in BT treatment planning practices, particularly with respect to length of vagina treated, prescription points, and dose/fractionation. Further research is required to determine the reasons for this heterogeneity, to identify areas where harmonization of practice might lead to clinically significant benefits, and to generate evidence–based practice recommendations for the use of EBRT and BT in the province of Ontario.

147

OUTCOME OF STAGE 4A AND 4B HEAD AND NECK SQUAMOUS CELL CARCINOMA: A SINGLE INSTITUTION EXPERIENCE WITH INTENSITY MODULATED RADIOTHERAPY AND VOLUMETRIC MODULATED ARC THERAPY

Ming Pan[1], Ken Schneider[1], Swati Kulkarni[1], Daphne Southcott[2], Ramen Nissan[1], Amin Kay[1], Rasna Gupta[1], Akmal Ghafoor[1], John Mathews[1], Tarek Elfik[1], Sindu Kanjeekal[1], Khalid Hirmiz[1], Junaid Yousuf[1], Colvin Springer[1], Caroline Hamm[1]
[1]University of Western Ontario, Windsor, ON
[2]University College Dublin, Dublin, Ireland

Purpose: Our region has higher than provincial average smoking rates and alcohol consumption and lower human papillomavirus (HPV) vaccination rates. These have contributed to high incidence and poor prognosis of head and neck squamous cell carcinoma (HNSCC) in the past. This study reviews our single institution experience with Stage 4A and 4B HNSCC outcomes during 4 years since we adopted Intensity Modulated Radiotherapy (IMRT), Volumetric Modulated Arc Therapy (VMAT) and Image-guided Radiation Therapy (IGRT).

Methods and Materials: All charts of patients with head and neck malignancy between August 2009 and July 2013 were reviewed. Total of 195 consecutive patients met the selection criteria for analysis. There were 100 Stage 4A or 4B locally advanced HNSCC (AJCC-7).

Results: Median age was 63 years (36-88), 81% were male, 21% were P16 positive (the most biologically relevant indicator for HPV-induced oropharyngeal squamous cell carcinoma), 74% had two or more major comorbidities. Most common sites are oropharynx (52%), hypopharynx (13%) and larynx (10%). Majority 96% received radiotherapy, including 90% IMRT and 37% VMAT, 86% received 50 Gy or higher dose, 39% had surgery, and 62% had chemotherapy. Using Kaplan-Meier life table, the 2/3 year local regional control rates are 82.8% and 80.5% respectively, and the 2/3 year overall survival rates are 62.3% and 57.4% respectively. Median survival has not been reached. There was no treatment related death and 25% had Grade 3-4 acute toxicity (RTOG Acute Radiation Morbidity Scoring Criteria).

Conclusions: Stage 4A and 4B HNSCC outcome in our institution is better than historical data. This might be due to our multidisciplinary approach and the introduction of new technology including IMRT, VMAT, and IGRT. Normal tissue tolerance dose constraints usually can be met using IMRT or VMAT. The local regional control and overall survival is excellent despite significant comorbidities associated with unhealthy life style in this region.