CFS by RT modality ($p = 0.62$, $p = 0.87$, $p = 0.76$) or CT regimen ($p = 0.94$, $p = 0.78$, $p = 0.90$).

Conclusions: IMRT and HT differ with respect to dose homogeneity and normal-tissue sparing. Acute toxicity was significantly increased in patients receiving MMC2 compared to MMC1. However, there were no differences in outcome based on either RT modality or chemotherapeutic regimen between these cohorts.

136 CASARIA

A FEASIBILITY STUDY OF ADAPTIVE RADIATION THERAPY FOR POST-PROSTATECTOMY PROSTATE CANCER

Tim Craig1, Cynthia Menard2, Chung Peter1, Padraig Warde2, Andrew McPartlin1, Melvin Chau1, Eve Tiong1, Alejandro Berlin2, Andrew Bayley1, Shashikumar Elantholi Parameswaran2, Yazzan Obeidi2, Sandra Meyers2, Charles Catton2

1University of Toronto, Toronto, ON
2University of Montreal, Montreal, QC
3University of Victoria, Victoria, BC
4University of Waterloo, Waterloo, ON

Purpose: Image-guided, intensity-modulated radiation therapy (IG-IMRT) allows accurate, conformal treatment of the prostate bed post-prostatectomy. However, a large planning target volume (PTV) is still required to address deformations due to variations in rectum and bladder filling. Adaptive radiation therapy is a potential solution that has not been explored in this setting. We present the results of a feasibility study of ART for post-prostatectomy prostate cancer.

Material and Methods: Twenty-one patients were initially planned and treated with IG-IMRT according to our institutional standard. The original clinical target volume, plus the CTV that was recontoured on cone-beam CT (CBCT) images from the first four fractions and used to create an adapted PTV. A new plan using the adapted PTV was implemented on fraction 7 and used for the remaining 27 fractions. The primary study endpoint was improvement in dosimetric plan quality.

Results: All patients were successfully recontoured and replanned within the allotted 3 day period, requiring a mean of 1.9 days (0.4 days standard deviation). The mean adapted PTV volume was 19% (60 cc) smaller than the standard PTV ($p < 0.001$), and smaller than standard PTV for 20 of 21 patients. Reconstruction of the dose delivered on 102 recontoured weekly CBCT following adaptation shows the mean CTV coverage is similar although slightly lower in ART plans (mean CTV D99 94% [15%]) compared to if the unadapted standard plans had been continued (96% [1%]) ($p < 0.001$). Reconstructed small bowel dose demonstrated fewer fractions of the ART plan with small bowel exceeding 75% of the prescription dose (11% ART fractions versus 18% standard, $p < 0.01$).

Conclusions: ART for post-prostatectomy prostate cancer is feasible and safe, facilitates PTV volume reduction while maintaining reasonable CTV coverage, and can reduce the dose to adjacent normal tissues.

137 STEREOSTATIC ABALVE BLTIVE RADITERY (SABR) FOR LARGE RENAL TUMOURS: OUTCOMES, TOXICITY, AND TECHNICAL CONSIDERATIONS

Rohann Corr2, George Rodrigues2, Hanbo Chen2, Andrew Warner1, Belal Ahmad2, Alexander Louie2

1Schulich School of Medicine and Dentistry, London, ON
2London Health Sciences Centre, London, ON

Purpose: Metastatic renal cell carcinoma (mRCC) represents one of the few end-stage malignancies where aggressive treatment to the primary tumour (i.e. cytoreductive nephrectomy) is associated with a survival benefit. Criteria published by (Heng et al. 2009) have assisted in the risk-stratification of patients who may benefit most from this, but many are not surgical candidates due to medical inoperability or unresectable disease. We hypothesized that SABR could serve as a safe alternative modality for such patients. Our study objectives were to report on technical considerations, toxicity, and outcomes of our institutional experience with SABR for large renal tumours.

Methods and Materials: In this research ethics board approved study, a retrospective review of patient databases was conducted to identify patients with RCC (presumed or biopsy-confirmed) who underwent SABR at our institution between January 2008 and June 2015. Clinical and dosimetric data were abstracted from electronic and paper records. Toxicity was quantified using the CTCAE v4.0 and the RECIST classification was used to evaluate radiographic response. Median overall survival and follow up were calculated using the Kaplan-Meier and reverse Kaplan-Meier methods, respectively.

Results: We identified 11 patients of median age 79 (range 61-87), the majority (n = 9) with Stage III-IV disease. Patients were classified as poor (n = 5) or intermediate (n = 4) risk based on the model by Heng et al. SABR was directed to the tumour alone (n = 7) or the whole kidney (n = 4). Median tumour size, GTV, and PTV were 9.5 cm (range: 7.5-24.4), 482.6 cm3 (range: 185.7 - 4617.8), and 819.3 cm3 (range: 313.4 - 5704.3), respectively. SABR was delivered in five fractions to a dose of 25 (n = 6), 30 (n = 3), 35 (n = 1), or 40 Gy (n = 1). Favourable coverage of treatment volumes and largely acceptable doses to organs at risk were achieved via IMRT (n = 6), Helical Tomotherapy (n = 3), or VMAT (n = 2). Median follow up was 12.9 months (95% confidence interval [CI]: 1.3 - 56.1). Five cases of CTCAE Grade 1 toxicities were reported. Grade 2 diarrhea and probable Grade 3 nausea were observed in one patient with the largest tumour treated in the study. In patients with follow up imaging (n = 7), SABR resulted in stable disease (n = 5), partial response (n = 1), or progressive disease (n = 1). Median overall survival was 20.4 months (95% CI: 4.24 - N/A)

Conclusions: SABR can be delivered safely and with minimal toxicity, as demonstrated in this small retrospective cohort of patients with large primary renal tumours. A Phase I study at our institution is currently underway to prospectively determine maximum tolerable and optimal dosing in this setting (NCT02264548).

138 LOW BASELINE TESTOSTERONE IS A PROGNOSTIC FACTOR IN RADIOTHERAPY FOR PROSTATE CANCER

Maroie Barkati, Guila Delouya, Jean-Paul Bahary, Carole Lambert, Marie-Claude Beauchemin, Cynthia Ménard, Daniel Taussky

Université de Montréal, Montréal, QC

Purpose: Low baseline testosterone level is a known adverse prognostic factor in patients treated with prostatectomy and a positive predictive factor in patients treated for metastases or recurrences. Little is known about its importance in radiotherapy for localized prostate cancer.

Methods and Materials: Patients treated at our institution in prospective Phase 2 or 3 clinical trials and who had a baseline total testosterone level available before initiation of any treatment were selected from our institutional database. All patients received between 70-79.2 Gy in 1.8-2 Gy per fraction or a biological equivalent dose in hypofractionated protocols. A total testosterone (TT) level of < 10.4 nmol/L (< 300 ng/dL) was chosen as a cut-off, this being often used to define low TT levels. Results: A total of 360 patients were identified. Of these, 71% had D’Amico low- or intermediate-risk cancers, the remainder (29%) were classified as poor (n = 5) or intermediate (n = 4) risk based on the model by Heng et al. SABR was directed to the tumour alone (n = 7) or the whole kidney (n = 7) or the whole kidney (n = 4). Median tumour size, GTV, and PTV were 9.5 cm (range: 7.5-24.4), 482.6 cm3 (range: 185.7 - 4617.8), and 819.3 cm3 (range: 313.4 - 5704.3), respectively. SABR was delivered in five fractions to a dose of 25 (n = 6), 30 (n = 3), 35 (n = 1), or 40 Gy (n = 1). Favourable coverage of treatment volumes and largely acceptable doses to organs at risk were achieved via IMRT (n = 6), Helical Tomotherapy (n = 3), or VMAT (n = 2). Median follow up was 12.9 months (95% confidence interval [CI]: 1.3 - 56.1). Five cases of CTCAE Grade 1 toxicities were reported. Grade 2 diarrhea and probable Grade 3 nausea were observed in one patient with the largest tumour treated in the study. In patients with follow up imaging (n = 7), SABR resulted in stable disease (n = 5), partial response (n = 1), or progressive disease (n = 1). Median overall survival was 20.4 months (95% CI: 4.24 - N/A)

Conclusions: SABR can be delivered safely and with minimal toxicity, as demonstrated in this small retrospective cohort of patients with large primary renal tumours. A Phase I study at our institution is currently underway to prospectively determine maximum tolerable and optimal dosing in this setting (NCT02264548).
multivariate analysis adjusted for disease aggressiveness, age and BMI. A TT > 10.4 nmol/l was associated with a hazard ratio of 1.78 (95% CI 1.06-2.98, p = 0.03) for BCR. This difference in BCR appeared as a split on the Kaplan-Meier curve only five years after treatment. TT did not have an influence on overall survival (p = 0.28).

Conclusions: Low baseline TT level is an independent prognostic factor associated with a lower BCR rate. This effect appears only five years after radiotherapy treatment. The results are to the contrary to what has been shown from patients treated with radical prostatectomy.

139 WHAT ARE PROSTATE CANCER PATIENTS’ PREFERENCES FOR INFORMATION AND DECISION SUPPORT? A SYSTEMATIC SURVEY OF PATIENTS DIAGNOSED IN EACH OF THREE PROVINCES
Michael Brundage1, Deb Feldman-Stewart1, Christine Tong2, John Robinson3, Jackie Bender4, Hannah Carolan4, Joseph Chin5, Joyce Davidson5, Arminee Kazanjian5
1Cancer Centre of Southern Ontario, Kingston, ON
2Tom Baker Cancer Centre, Calgary, AB
3University Health Network, Toronto, ON
4University of British Columbia, Vancouver, BC
5London Health Sciences Centre, London, ON
6University of Saskatchewan, Saskatoon, SK

Purpose: Current clinical practice guidelines support the engagement of prostate cancer patients in their cancer care. However, the optimal timing of, and the most preferred sources of information provision and decision support desired by prostate cancer patients has not been systematically explored. In order to inform the design of strategies for information provision and decision support, we sought to determine prostate cancer patients’ preferences by conducting a systematic survey of recently diagnosed patients.

Methods and Materials: Surveys were conducted in British Columbia, Alberta and Saskatchewan. Based on power calculations and estimated response rates, a random sample of prostate cancer patients in each provincial registry diagnosed in late 2012 was invited to participate.

Results: Provincial response rates were 46%-55%, total n = 1007. Across provinces, mean age was 69 years. During the interval between diagnosis and the treatment decision, preferred information sources (not mutually exclusive) were the urologist (90%), family physician (85%), and radiation oncologists (58%). The Radiation Oncologist being identified as information source was highly dependent on whether the patient was managed with prostatectomy only (39%) versus primary radiotherapy (92%, p < 0.01) whereas both groups identified the urologist as an important source (98% versus 94% respectively). Across all patients, 73% wanted printed information and 58% wanted information from the internet. Barriers to obtaining information included patients’ perception of physicians not having enough time (27%), worrying about physician time (21%), and worrying about asking too many questions (15%). Barriers to obtaining information from physicians included patients’ perception of physicians not having enough time (27%), worrying about physician time (21%), and worrying about asking too many questions (15%). Barriers to obtaining information from the internet, and 13% would not want any printed information. Regarding decision making, 18% would have liked more help with their decision, though half of that group (53%) indicated that they felt well informed. 77% of all respondents either used decision support or would have wanted to if they had known about it. Recommended timing for decision support included before meeting any specialists (11%), at the urologist visit (31%), and after all specialist visits before the decision is made with a doctor (35%).

Conclusions: Most prostate cancer patients want information and decision support but vary in where, when, and preferred medium. Optimal support needs to be multi-faceted and flexible.

140 IDENTIFICATION OF CURATING miRNA ASSOCIATED WITH DEVELOPMENT OF CASTRATE RESISTANCE IN HIGH-RISK AND BIOCHEMICALLY RECURRENT PROSTATE CANCER PATIENTS
Shawn Malone1, Grant Howe2, Huijun Zhao3, Scott Grimes4, Gregory Pond5, Scott Morgan1, Libni Eappen6, Julia Craig7, Brad Musclow6, Christina Addison1
1The Ottawa Hospital, Ottawa, ON
2Ottawa Hospital Research Institute, Ottawa, ON
3McMaster University, Hamilton, ON

Purpose: We previously identified circulating miRNA in metastatic prostate cancer patients that are associated with early castrate resistance (< 2 years). The current study determined whether the predictive miRNA were associated with time to castrate resistance (CRPC) in PSA recurrent and high-risk adjuvant patients.

Methods and Materials: Patients from a prospective biomarker trial were categorized into three groups: 1) CRPC within two years of ADT, 2) CRPC greater than two years, and 3) patients remaining ADT sensitive. Total RNA was isolated from pre-treatment plasma using the miRNeasy kit (Qiagen). For quality control, known concentrations of cel-miR-39 were added prior to RNA isolation. Isolated miRNA was subjected to reverse transcription (RT) using the miScript II RT Kit and primers specific to miRNA of interest. Quantity of individual miRNAs was performed by qPCR using the miScript SYBR Green PCR Kit and specific primers for miRNAs of interest following RT. Quantification of relative levels of miRNAs between samples was determined following comparison of the ΔΔCT method of relative quantification following normalization to cel-miR-39 and the endogenous control SNORD61.

Results: Previous work in metastatic patients identified 3 miRNA associated with development of early versus delayed CRPC. In the current study similar trends were observed for the third miRNA which was increased in early CRPC compared to other two groups. The second miRNA showed more variable expression amongst the three cohorts, and was generally lower in those patients who developed early CRPC. First miRNA was also lower in patients with early CRPC as compared other two groups, similar to our original findings in metastatic patients.

Conclusions: A previously identified miRNA signature of early castrate resistance in metastatic patients appears to be applicable to PSA recurrent and high-risk patients. Future work will validate these findings in additional patients from our trial and independent cohorts.

141 VALIDATION OF A FRENCH CANADIAN VERSION OF THE EXPANDED PROSTATE CANCER INDEX COMPOSITE INSTRUMENT (EPIC)
Eric Vigneault, Josée Savard, Hans Ivers, Marie-Hélène Savard, Vincent Fradet, Philippe Després, William Foster, André-Guy Martin
Centre de recherche CHU de Québec, Québec, QC

Objectives: To assess the psychometric properties of a French Canadian version of the Expanded Prostate Cancer Index Composite Instrument (EPIC-50), among a clinical sample of prostate cancer patients.

Methods and Materials: The validity of the French Canadian version of the EPIC-50 was assessed among patients from the radiation oncology and urology departments of CHU de Québec. A total of 251 patients were recruited. Participants taking part in the sensitivity to change study (n = 51) were asked to complete a battery of self-report scales at their consultation and at a follow up visit at the hospital, approximately six months after the initiation of their treatment. Another subsample of 68 patients completed the EPIC on two occasions separated by two weeks to estimate temporal stability. The battery comprised the
Prostate cancer is diverse in clinical presentation, histopathological tumor growth patterns, and survival. Therefore, individual assessment of a tumor’s aggressive potential is crucial for clinical decision-making in men with prostate cancer. To date, a large number of prognostic markers for prostate cancer have been described, most of them based on radical prostatectomy specimens. However, in order to affect clinical decision-making, validation of respective markers in pretreatment diagnostic needle-biopsies is essential. Here, we discuss established and promising histopathological and molecular parameters in diagnostic needle-biopsies. In contrast, nerve-sparing surgery was considered as a confounding factor in the studies mentioned by Harnden et al. The Prostate Cancer (PCa) Guidelines Panel has prepared this guidelines document to assist medical professionals in the evidence-based management of PCa. Is alcohol consumption a risk factor for prostate cancer? A systematic review and meta-analysis. BMC Cancer, 2016. 16: 845. https://www.ncbi.nlm.nih.gov/pubmed/27842506. Key, T.J. Nutrition, hormones and prostate cancer risk: results from the European prospective investigation into cancer and nutrition. Recent Results Cancer Res, 2014. Review of low testosterone including pathology, symptoms, risk factors, treatment benefits, treatment risks, monitoring treatment, and more. Prostate Specific Antigen (PSA) changes. PSA is a protein produced by cells of the prostate gland. PSA levels are elevated in men with prostate cancer, but they can also be elevated in men with benign conditions of the prostate including prostatic hypertrophy and prostatitis. Testosterone stimulates the prostate gland, and testosterone therapy may raise PSA levels. Current guidelines from the Endocrine Society and EAU recommend monitoring PSA levels in men undergoing testosterone replacement therapy (see monitoring therapy).