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.

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

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**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 STEREOSTERIC ABLATIVE RADIOTHERAPY (SABR) FOR LARGE RENAL TUMOURS: OUTCOMES, TOXICITY, AND TECHNICAL CONSIDERATIONS

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**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

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**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 having high-risk cancers. Fifty-eight percent were > 70 years old and 29% had a BMI > 30 kg/m² (BMI data was available in 76% of the patients). Median follow up was 67 months (IQR 40-90 months). Baseline TT level was < 10.4 nmol/L in 58% of patients. Sixty-four patients (18%) experienced biochemical recurrence (BCR). Median time to BCR was 57 months (range 5-112 months). Fifty-five patients died at a median of 64 months after treatment (IQR 36-80 months). Testosterone as a continuous variable was not correlated to age (p = 0.27) and only weakly inversely correlated to BMI (r = -0.16, p = 0.009). On univariate analysis, patients with a TT < 10.4 nmol/L value had significantly lower rate of BCR (p = 0.044). This effect was maintained on
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.

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 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 books and from the internet, respectively, included uncertain quality (37% and 46%, respectively), unclear if personally applicable (39% and 41%), and poor search skill (11% and 20%). Recommended facilitators for providing information included a person to guide its acquisition (71%), providing printed information (69%), and someone to answer questions: in person (77%), over the phone (53%), or via email (43%). Even if access was easy, 27% would not want 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 it 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.

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IDENTIFICATION OF CURCULATING miRNA ASSOCIATED WITH DEVELOPMENT OF CASTRATE RESISTANCE IN HIGH-RISK AND BIOCHEMICALLY RECURRENT PROSTATE CANCER PATIENTS

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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 microscript II RT Kit and primers specific to miRNA of interest. Quantification of individual miRNAs was performed by qPCR using the microscript 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.

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VALIDATION OF A FRENCH CANADIAN VERSION OF THE EXPANDED PROSTATE CANCER INDEX COMPOSITE INSTRUMENT (EPIC)

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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
According to the latest research, testosterone therapy after prostate cancer is safe for men. Testosterone therapy can improve quality of life following prostate cancer treatment. The use of testosterone after prostate cancer has long been a controversial subject. For years, many in the medical field have argued that the incidence of prostate cancer increases with age, at the same time that testosterone levels decline. That theory alone shows the connection between testosterone and prostate health. If higher levels of testosterone were the cause for prostate cancer, then men would be more likely to develop it at a younger rather than an older age. In truth, testosterone may be protective for prostate health, keeping. Prostate cancer cells rely on testosterone to help them grow. Cutting off the supply of hormones may cause the cancer to shrink or to slow its growth. In men with stage 4 prostate cancer, hormone therapy is most often used alone, but it can be combined with chemotherapy and it may be used after radiation therapy or, rarely, surgery. Hormone therapy may be continued for as long as the treatment continues to work. Hormone therapy options include Despite the disappointing statistics of morbidity and mortality rates, prostate cancer is a slow growing tumor and does not always lead to death. Thus, it is of paramount importance for o. Predicting the development of erectile dysfunction and cardiovascular diseases Prognostic factors of survival of patients with prostate cancer. Read more. Number â–3, 2017. Recommendations for the treatment of prostate cancer with the help of high-power interstitial radiation therapy (brachytherapy). Read more. Number â–2, 2017. In the subgroup analyses, lower testosterone levels were a consistently poor prognostic factor for OS in patients treated with ARTAs, but not in those treated with chemotherapy. Therefore, higher testosterone levels could be a useful biomarker to identify patient subgroups in which ARTAs should be preferentially recommended in the CRPC setting. Introduction. Testosterone is the main growth stimulator for hormone-sensitive prostate cancer (PC). Lower testosterone levels were found to be a poor prognostic factor for both PFS and OS in these patients. However, the results had some heterogeneity. One of the reasons could be the treatment differences. Testosterone therapy can improve quality of life in men with low testosterone. However, itâ€™s been a controversial practice since some research has suggested that testosterone fuels prostate cancer growth. Whatâ€™s the connection? In the early 1940s, researchers Charles Brenton Huggins and Clarence Hodges discovered that when menâ€™s testosterone production dropped, their prostate cancer stopped growing. The researchers also found that giving testosterone to men with prostate cancer made their cancer grow. Your risk for prostate cancer rises the older you get. The median age of diagnosis is 66, with the majority of diagnoses occurring in men between the ages of 65 and 74. Family history. Prostate cancer runs in families.