ROBERT BRISTOW MD, PHD, FRCPC

UHN Princess Margaret Cancer Centre

radiation medicine

Radiation Medicine Program, Princess Margaret Cancer Centre, University Health Network

2015. issue1. volume 6

connexions

GETTING PERSONAL:
INDIVIDUALIZED TREATMENT FOR MEN WITH PROSTATE CANCER

ROBERT BRISTOW MD, PHD, FRCPC
RADIATION ONCOLOGIST
PROFESSOR, UNIVERSITY OF TORONTO, DEPARTMENT OF RADIATION ONCOLOGY (UTDRO)

AN ESTIMATED 25,000 MEN ARE DIAGNOSED WITH PROSTATE CANCER IN CANADA EVERY YEAR. A subset of these men with aggressive disease will require curative treatment with precisely-targeted radiotherapy. The Radiation Medicine Program (RMP) at the Princess Margaret Cancer Centre delivers state-of-the-art radiotherapy for prostate cancer, consisting of image-guided external-beam radiotherapy or low-dose rate or high-dose rate brachytherapy. These treatments are sometimes administered with systemic therapies, such as androgen deprivation therapy (to block the effect of testosterone). Choosing "the right treatment for the right patient at the right time" is an integral part of the personalized medicine that takes place at RMP and is based on patient factors and characteristics of the patients' tumours (e.g. stage of disease, pathologic Gleason score, pre-treatment value of prostate-specific antigen).

> JACQUES LUPIEN wanted cutting-edge radiotherapy for his prostate cancer after weighing his options between surgery and radiotherapy. With a localized tumour and more than 75% chance of cure, he opted for image-guided radiotherapy at the Princess Margaret and never regretted his choice. "When I needed treatment for prostate cancer, I sought a premium facility and hoped for a caregiver that I could relate to. Dr. Robert Bristow answered all my questions with patience and depth of knowledge. He insisted that with treatment the cancer would abate – and it did."

Jacques' case demonstrates the effectiveness of optimized therapy, but unfortunately due to microscopic disease outside the prostate gland and lymph nodes at the time of treatment, not all patients are cured by radiotherapy. CONTINUED ON PAGE 2.

GETTING PERSONAL: INDIVIDUALIZED TREATMENT FOR MEN WITH PROSTATE CANCER PAGE 1
ROBERT BRISTOW MD, PHD, FRCPC

CLINICAL TRIALS HIGHLIGHTS PAGE 3
LOCALIZED PROSTATE CANCER TRIALS AT RMP
ANDREW BAYLEY MD, FRCPC

DID YOU KNOW? PAGE 3
CLINICAL CASE CORNER
JAMES BRIERLEY MBBS, FRCPC

HOW TO FIND US PAGE 4

"Dr. Bristow fostered a human connection beyond the scientific and technical, without jeopardizing a high standard of care.

He will never forget the 'person' for whom he is personalizing the care."

—JACQUES LUPIEN


JACQUES LUPIEN

connexions
2015. ISSUE 1. VOLUME 6

produced by the Radiation Medicine Program at Princess Margaret Cancer Centre

IN THE NEXT ISSUE...

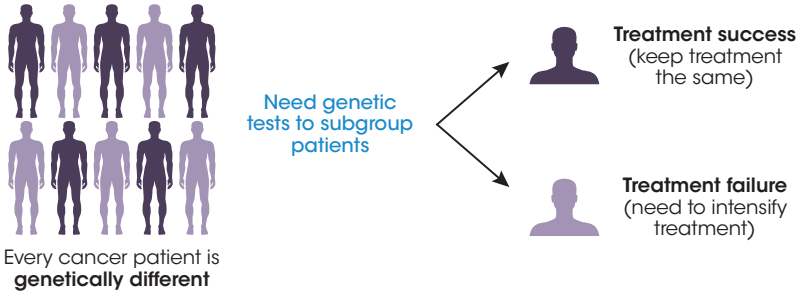
HEAD AND NECK CANCER PROGRAM

Providing patients with more specific information about their chance for success with one therapy or another is the basis for personalized cancer medicine.

Personalized cancer medicine for prostate cancer is now entering a new era. Within the next 5 years, patients will be provided with the best treatment options determined by tests that define their unique cancer genetic fingerprints and measure the tumour microenvironment. RMP will be able to offer the best care for prostate cancer patients by understanding which therapies are the most successful for certain genetic subtypes.

In a landmark study published in *Lancet Oncology* last year, RMP researchers evaluated the role that prostate cancer cell genetics and tumour microenvironment play in predicting successful treatment with radiotherapy. Analysis of pre-treatment tumour biopsies for genetic aberrations and oxygen content revealed that patients whose tumours had similar clinical characteristics could be further subdivided into those that would, or would not, do well with precision radiotherapy. Men with low levels of genetic changes had a favorable outcome; therapy would be effective more than 95% of the time. Men with aggressive features characterized by high levels of genetic changes and low oxygen content (also called hypoxia; a predictor of spread in prostate cancer) had a 50% chance that the treatment would fail to control the tumour.

These results will be validated over the next two to three years on more patients before a personalized test to accurately predict prostate cancer recurrence can be utilized in the hospital setting. The clinical impact of such a test is significant and will benefit thousands of patients. It will provide a way to identify men who are at greatest risk of their prostate cancer returning and who could be offered more aggressive treatment as part of a personalized treatment plan, ultimately improving cure rates for this subgroup of patients.



Clinical Trials Highlights

LOCALIZED PROSTATE CANCER TRIALS AT RMP

ANDREW BAYLEY MD, FRCPC
RADIATION ONCOLOGIST
ASSISTANT PROFESSOR, UTDRO

MRI-Guided Biopsy Mapping with Tumour-Targeted Radiotherapy

PI – Cynthia Ménard

Prostate cancer patients with a visible tumour nodule on MRI may have a higher local recurrence rate after undergoing standard radiotherapy. This study evaluates whether an increase in local control can be achieved by delivering a higher than normal dose of radiation specifically to the MRI-visible tumour within the prostate gland without increasing treatment-related toxicities.

Eligible Patients: Patients with localized prostate cancer whose tumour is visible on MRI and will undergo radiotherapy.

ClinicalTrials.gov Identifier: NCT01802242

Personalized Post-Operative Adaptive Radiation Therapy (ART)

PI – Charles Catton

Internal motion of organs can change the shape of the prostate bed that requires radiation. A large volume is typically irradiated to ensure the intended target is not missed, but this treats more normal tissues and results in greater side effects. This study prospectively evaluates if ART can improve toxicity compared to standard radiotherapy for post-prostatectomy prostate cancer treatment. ART uses advanced MRI and CT images from the first week of treatment to monitor each patient's unique anatomical variations to adapt the treatment and personalize a new treatment plan.

Eligible Patients: Patients who have undergone radical prostatectomy and may need adjuvant radiotherapy or those who have detectable PSA post-radical prostatectomy with initial undetectable PSA.

ClinicalTrials.gov Identifier: NCT02034955

ANDREW BAYLEY MD, FRCPC

DID YOU KNOW?

CLINICAL CASE CORNER

JAMES BRIERLEY MBBS, FRCPC
RADIATION ONCOLOGIST
PROFESSOR, UTDRO

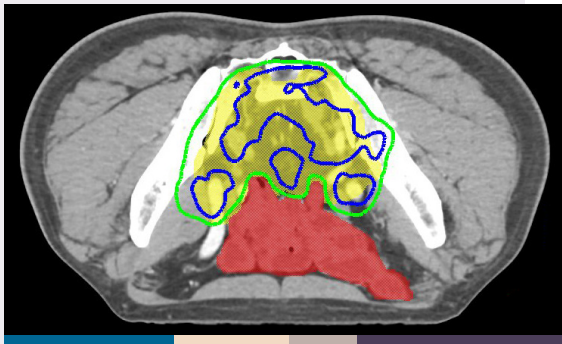
INTENSITY MODULATED RADIATION THERAPY (IMRT) enables precisely-targeted radiation to be delivered to the tumour, while sparing the surrounding normal tissues. It is the standard of care for various cancer sites at the Princess Margaret. Here, we describe a typical case in which IMRT was used to reduce the radiation dose to critical organs.

A 34-year-old man presented with rectal bleeding and no other symptoms. A colonoscopy revealed a rectal mass that was 5 cm from the anal verge, measuring 5 cm in length. An MRI showed it to be a T3 tumour with mesorectal lymph nodes.

Given that it was a clinical T3N1 tumour, he was offered pre-operative chemo-radiation. The patient was concerned about the risk of infertility, so he underwent sperm banking before starting radiotherapy.

A CT simulation was conducted to define the target area and design a radiation treatment plan; oral contrast was given to outline the small bowel. The patient's pre-operative radiation was planned to ensure that the dose to the small bowel and testes were as low as possible. He completed 5 weeks of radiation with chemotherapy.

A flexible sigmoidoscopy was performed by the patient's surgeon 4 weeks later; no gross residual tumour was observed. The patient underwent surgery as planned 6 weeks later. The final pathology report showed minimal residual tumour beyond the muscularis propria, but not into the mesorectum. None of 17 identified lymph nodes contained metastatic disease; he was staged as ypT2N0. The patient has since made good recovery and has started systemic chemotherapy to reduce the risk of distant metastases.



IMRT enables radiation doses (green and blue lines) to conform to the tumour target volume (yellow) and minimize exposure to the small bowel (red). Patient is in prone position.

HOW TO FIND US
FOR YOUR REFERRALS

We offer three ways to facilitate your requests for consultation:

1. Site Group Coordinators

Site group coordinators serve as a liaison for referring physicians, radiation oncologists and the Princess Margaret Patient Referral Centre.

2. Princess Margaret New Patient Referral Centre

Tel: 416.946.4575
Fax: 416.946.2900

3. Direct to Specific Radiation Oncologists

Referrals to specific radiation oncologists should be directed to site group coordinators.

Palliative Radiation Oncology Program (PROP)

Direct palliative radiation referral patients to our PROP coordinator. Within 24 hours, she will contact you with an appointment. Patients will be seen within a few days. PROPReferrals@rmp.uhn.ca

Coordinator **Novlette Douglas**
Tel: 416.946.2901
Fax: 416.946.4657
novlette.douglas@rmp.uhn.ca

Leader **Dr. Laura Dawson**
Tel: 416.946.2127
laura.dawson@rmp.uhn.ca

Emergencies For patients requiring same day consultations (e.g. spinal cord compression), please contact our Palliative Radiation Oncology referral coordinator (416.946.2901) who will identify the radiation oncologist that is best able to respond to your requests.

After-Hour Requests

Please page the radiation oncologist on call through the switchboard at 416.946.2000.

UPDATED MARCH 2015

BREAST

Coordinator **Anila Samji**
Tel: 416.946.4501 x3639
Fax: 416.946.4657
anila.samji@rmp.uhn.ca

Leader **Dr. Anne Koch**
Tel: 416.946.2122
anne.koch@rmp.uhn.ca

CNS

Coordinator **Alannah Pyke**
Tel: 416.946.2130
Fax: 416.946.4657
alannah.pyke@rmp.uhn.ca

Leader **Dr. Normand Laperriere**
Tel: 416.946.2127
normand.laperriere@rmp.uhn.ca

ENDOCRINE

Coordinator **Novlette Douglas**
Tel: 416.946.2902
Fax: 416.946.4657
novlette.douglas@rmp.uhn.ca

Leader **Dr. James Brierley**
Tel: 416.946.2124
james.brierley@rmp.uhn.ca

EYE

Coordinator **Alannah Pyke**
Tel: 416.946.2130
Fax: 416.946.4657
alannah.pyke@rmp.uhn.ca

Leader **Dr. Normand Laperriere**
Tel: 416.946.2127
normand.laperriere@rmp.uhn.ca

GASTROINTESTINAL

Coordinator **Anila Samji**
Tel: 416.946.4501 x3639
Fax: 416.946.4657
anila.samji@rmp.uhn.ca

Leader **Dr. John Kim**
Tel: 416.946.2126
john.kim@rmp.uhn.ca

GENITOURINARY

Coordinator **Anila Samji**
Tel: 416.946.4501 x3639
Fax: 416.946.4657
anila.samji@rmp.uhn.ca

Leader **Dr. Charles Catton**
Tel: 416.946.2983
charles.catton@rmp.uhn.ca

GYNAECOLOGICAL

Coordinator **Anila Samji**
Tel: 416.946.4501 x3639
Fax: 416.946.4657
anila.samji@rmp.uhn.ca

Leader **Dr. Michael Milosevic**
Tel: 416.946.2122
michael.milosevic@rmp.uhn.ca

HEAD AND NECK

Coordinator **Ellen Hoffman**
Tel: 416.946.6522
Fax: 416.946.2111
ellen.hoffman@rmp.uhn.ca

Leader **Dr. John Waldron**
Tel: 416.946.6522
john.waldron@rmp.uhn.ca

LUNG

Coordinator **Alannah Pyke**
Tel: 416.946.2130
Fax: 416.946.4657
alannah.pyke@rmp.uhn.ca

Leader **Dr. Alex Sun**
Tel: 416.946.2126
alex.sun@rmp.uhn.ca

LYMPHOMA

Coordinator **Novlette Douglas**
Tel: 416.946.2902
Fax: 416.946.4657
novlette.douglas@rmp.uhn.ca

Leader **Dr. Richard Tsang**
Tel: 416.946.6513
richard.tsang@rmp.uhn.ca

MULTI-DISCIPLINARY BRAIN METS CLINIC

Coordinator **Alannah Pyke**
Tel: 416.946.2130
Fax: 416.946.4657
alannah.pyke@rmp.uhn.ca

Leader **Dr. Caroline Chung**
Tel: 416.946.6513
caroline.chung@rmp.uhn.ca

PEDIATRICS

Coordinator **Novlette Douglas**
Tel: 416.946.2902
Fax: 416.946.4657
novlette.douglas@rmp.uhn.ca

Leader **Dr. David Hodgson**
Tel: 416.946.2121
david.hodgson@rmp.uhn.ca

QUICKSTART BREAST PROGRAM

Coordinator **Anila Samji**
Tel: 416.946.4501 x3639
Fax: 416.946.4657
anila.samji@rmp.uhn.ca

Leader **Dr. Anne Koch**
Tel: 416.946.2122
anne.koch@rmp.uhn.ca

SARCOMA

Coordinator **Maria Prentice**
Tel: 416.946.4575
Fax: 416.946.2900
maria.prentice@uhn.ca

Leader **Dr. Brian O'Sullivan**
Tel: 416.946.2122
brian.osullivan@rmp.uhn.ca

SKIN

Coordinator **Maria Prentice**
Tel: 416.946.4575
Fax: 416.946.2900
maria.prentice@uhn.ca

Leader **Dr. Alex Sun**
Tel: 416.946.2126
alex.sun@rmp.uhn.ca

UNKNOWN PRIMARY

Coordinator **Novlette Douglas**
Tel: 416.946.2901
Fax: 416.946.4657
novlette.douglas@rmp.uhn.ca

Leader **Dr. Laura Dawson**
Tel: 416.946.2127
laura.dawson@rmp.uhn.ca

ConneXions can be found online at www.radiationatpm.com. To comment, suggest future topics or to request an electronic version of *ConneXions*, please email us at connexions@rmp.uhn.ca.