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radiation medicine

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connexions

PERSONALIZED TREATMENT OPTIONS FOR WOMEN WITH BREAST CANCER

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WOMEN DIAGNOSED WITH EARLY STAGE BREAST CANCER HAVE AN INCREASING VARIETY OF TREATMENT OPTIONS designed to maximize cure while minimizing side effects. Recent developments include sentinel node biopsy replacing axillary dissection, and molecular testing for low-risk groups, such as Oncotype DX or Luminal A molecular subtypes, to avoid the need for chemotherapy.

Results from Dr. Fei-Fei Liu's lab, in collaboration with the Princess Margaret Cancer Centre's multidisciplinary breast site group, have recently shown that Luminal A subtypes have a low risk of breast relapse following localized radiation. Preliminary data also indicate that lumpectomy and endocrine therapy alone may be sufficient and would avoid the need for radiation altogether. If these results can be confirmed in the upcoming LUMINA Trial (see "Clinical Trials") these low-risk women could completely avoid radiation.

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NEW LEADERSHIP IN RMP

DR. FEI-FEI LIU is our newly-appointed Chief of the Radiation Medicine Program and Head of the Department of Radiation Oncology at the Princess Margaret Cancer Centre. Dr. Liu is a radiation oncologist in the Breast Site Group, Professor in the Department of Radiation Oncology, University of Toronto and Senior Scientist at the Ontario Cancer Institute. She holds the University of Toronto/Princess Margaret Cancer Centre Dr. Mariano Elia Endowed Chair in Head & Neck Cancer. Her research program focuses on developing novel molecular therapeutic strategies for human malignancies including breast, cervix, and head & neck cancers. Dr. Liu holds two new major leadership positions as she was also recently appointed Chair of the Department of Radiation Oncology, University of Toronto. Dr. Liu is a strong advocate for personalized cancer medicine, which is a major part of her leadership vision.

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DR. FEI-FEI LIU MD, FRCPC



ANTHONY FYLES MD

MARIANNE MOORE

“PERSONALIZED
MEDICINE IS
NOT JUST ABOUT
TREATING
EACH PERSON
DIFFERENTLY
DEPENDING ON
THEIR ILLNESS.
IT'S ABOUT
TREATING EVERY
PERSON AS A
PERSON AND NOT
A PATIENT, NOT
AN ILLNESS, NOT A
BODY THAT NEEDS
TO BE FIXED.
A PERSON.”

—MARIANNE MOORE

“...SAVING MY LIFE
MEANT FINDING A SOLUTION
I COULD LIVE WITH, NOT JUST
SURVIVE WITH...”

—MARIANNE MOORE

TREATMENT OPTIONS CONTINUED

For women who do require radiation there are a number of options to improve outcome and reduce toxicity. The recently reported NCIC MA20 trial opened the door to expanding the role for nodal radiation in those with 1–3 positive nodes following lumpectomy. This study demonstrates an improved disease-free survival with nodal radiation, with a trend to improved overall survival.

On the other end of the spectrum, women with small unifocal tumours may opt for partial breast radiation.

MARIANNE MOORE was treated with mantle radiation for Hodgkin's disease in 1985 at the age of 18. In 2008, she found a small right breast tumour that was confirmed to be cancer. After a full discussion of options, she elected a conservative approach with lumpectomy and sentinel node biopsy. This showed a 1.6 cm tumour with negative sentinel lymph nodes. Hormone receptors and HER-2 were positive. Chemotherapy and trastuzumab followed by tamoxifen was recommended.

Although previous radiation is generally considered a contraindication to further breast RT, we now have techniques which can conform radiation to the tumour bed/seroma, limiting the dose to the previously treated breast tissues and other organs. After reviewing the previous treatment details it was determined that the current tumour was likely under a lung block during the mantle radiation, and partial breast radiation to a standard dose of 50 Gy over five weeks was feasible. This treatment was delivered with minimal skin reaction and Marianne remains free of disease over four years later.

Marianne recalls her first visit with Dr. Anthony Fyles: “...what struck me the most was that Dr. Fyles listened to me and not just listened to me, he heard me.” Given the complexity of her situation, she knew decisions would be difficult. She had been lead to believe her options were significantly reduced and compromise was likely inevitable. However, her meeting with Dr. Fyles convinced her there was still hope —“...he understood that saving my life meant finding a solution I could live with, not just survive with. So he went to work and he found me that solution.”

Marianne's case illustrates how partial breast radiation can be used in a re-treatment situation, using conventional doses over five weeks to minimize the risks of toxicity. Another option is intra-operative radiation, which, if given at the time of lumpectomy, has recently been shown to have similar outcomes to standard treatment over three to five weeks. This simple one-shot treatment is likely to be an option for selected women over age 50 with favourable clinical characteristics (unifocal T1, negative sentinel nodes, low-intermediate grade).

With all the recent advances in diagnosis and in the precise delivery of radiation, breast cancer patients have more options which lead to improved outcomes.



CAROLINE CHUNG MD

Clinical Trials Highlights

PERSONALIZING CARE FOR BREAST CANCER PATIENTS

CAROLINE CHUNG MD, FRCPC
RADIATION ONCOLOGIST
ASSISTANT PROFESSOR, UTDRO

AS WE LEARN MORE ABOUT THE UNDERLYING MOLECULAR AND GENETIC FEATURES OF BREAST CANCERS, it is apparent that some tumours need more treatment than others to achieve cure. Similarly, differences in molecular and genetic features of normal tissues may impact the tissue's tolerance to various treatments. Clinical trials at the Princess Margaret Cancer Centre aim to find ways to optimize treatment by maximizing tumour control and minimizing toxicity for each patient.

ONGOING CLINICAL TRIALS

MA-33: Randomised Phase III Study of Whole Breast Radiotherapy +/- Boost Following Breast-Conserving Surgery for Ductal Carcinoma *In Situ* (DCIS)

PI – Anne Koch

This study will test whether an additional radiation boost given to women with DCIS reduces recurrence, as has been demonstrated in trials of invasive cancer.

Eligible Patients: DCIS patients with a high risk of local recurrence due to young age or adverse clinico-pathologic features.

Prospective Study to Evaluate the Effect of Local Radiation Therapy on Circulating Hematopoietic Stem Cells (HSCs), Serum Cytokines and Fatigue in Breast Cancer Patients

PI – Fei-Fei Liu

This study will evaluate whether breast RT alters the proportion of circulating HSCs in patients. The level of fatigue, measured using psychometric questionnaires, in these patients prior to, during and after adjuvant radiotherapy will be assessed in relation to the level of pro-inflammatory cytokines in patients' blood.

Eligible Patients: Women undergoing adjuvant breast +/- nodal RT for *in situ* or invasive carcinoma not receiving herceptin.

HIGHLIGHTS OF THE UPCOMING OCOG LUMINA TRIAL

Gene expression profiling has identified four main subtypes of breast cancer that behave biologically differently: luminal A, luminal B, HER-2 enriched and basal. The luminal A cancers were found have a very low recurrence risk such that adjuvant RT may provide only minimal benefit. The LUMINA trial will accrue women with low-risk clinical features and luminal A cancers for treatment with endocrine therapy following breast conserving surgery without adjuvant radiotherapy. The findings of this study may reduce treatment-related toxicity and costs, both to patients and the cancer system.

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Clinical Care Innovation

QUICKSTART PROCESS



GRACE LEE MRT(T)

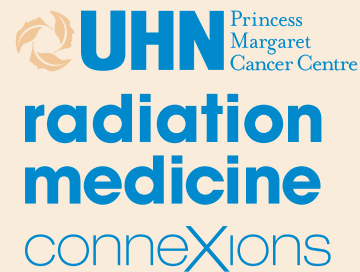
SAME-DAY RADIATION THERAPY TREATMENT FOR PATIENTS WITH EARLY-STAGE BREAST CANCER

GRACE LEE MRT(T), BSc, CMD, MHSc(c)
CLINICAL SPECIALIST RADIATION THERAPIST
BREAST SITE GROUP

WHOLE BREAST RADIATION TREATMENT USING INTENSITY-MODULATED RADIATION THERAPY (IMRT) IS OFFERED ROUTINELY IN THE RMP to optimize the delivery of a tumoricidal target dose while minimizing dose to normal tissues. Typically, the multiple steps in the treatment planning process can lead to *ready-to-treat to treat* wait-times ranging from days to weeks.

Patients receiving whole breast irradiation through the RMP QuickStart program can have CT simulation, treatment planning and delivery of the first treatment fraction on the same day. Continuity of care is provided throughout the process by an advanced practice radiation therapist, who is responsible for all the essential activities required to expedite the planning process, including treatment target delineation for oncologist review and approval. The automated treatment planning software reduces planning time from hours to a matter of minutes. Quality control checks are performed prior to initiation of the patient's first IMRT treatment, and the treatment can be delivered approximately three hours after the morning simulation session.

In our recent clinical study, patients utilizing this streamlined process received their first radiation treatment 13 days sooner compared to similar patients treated through the conventional process. Given these results, QuickStart is expanding to be available to more patients.



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NEWSLETTER PRODUCED BY
THE RADIATION MEDICINE
PROGRAM AT PRINCESS
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IN THE NEXT ISSUE
MANAGING
OLIGOMETASTASES

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MAY 2-3, 2013

**Rethinking Radiation
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IN THIS ISSUE



FROM THE EDITOR

Like RMP, the editorial board of *conneXions* is comprised of specialists within the three core disciplines of radiation medicine (medical physics, radiation oncology and radiation therapy) with diverse clinical, research, education and administrative professional roles. Editorial board member and issue editor, Nicole Harnett, is the Director of the Medical Radiation Sciences Graduate Programs and Assistant Professor at the University of Toronto. She is also the Director of the Radiation Skills Lab at Princess Margaret. Nicole's current professional interests include the advancement of the radiation therapy profession as well as interprofessional education and its impact on practice in radiation medicine locally and beyond.

JOHN KIM MD FRCP
RADIATION ONCOLOGIST
ASSISTANT PROFESSOR, UTDRO
RMP GI SITE GROUP PHYSICIAN LEADER

As highlighted in the Princess Margaret Cancer Foundation's *Personalized Cancer Medicine* fundraising campaign, "Every patient is unique. Every patient's cancer is different. So it follows that individualized treatment will get the best results." (ibelleveit.ca). The RMP Breast Site Group provides over 1,200 new patient consultations annually to a diverse population of women and men. In this issue, we highlight the efforts and achievements of the RMP Breast Site Group and its collaborators to develop personalized treatment options for our breast cancer patients.

An important aspect of breast cancer radiation therapy is the timeliness of the radiation therapy process. In "Clinical Care Innovations," read about QuickStart — an approach developed by the RMP Breast Site Group to reduce the time from CT simulation, through treatment planning, to delivery of the first treatment fraction.

Education, for our patients and professional colleagues, is also a major RMP activity. In "Did You Know?," the Princess Margaret Cancer Centre's Radiation Therapy Patient Education Video Resource Series is featured as a free educational resource for you and your patients.

You can find *conneXions* online at www.radiationatpmh.com. We encourage you to send comments and suggestions—drop us an email at connexions@rmp.uhn.on.ca

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DIRECTOR, GRADUATE PROGRAMS IN MRS
ASSISTANT PROFESSOR, UTDRO



DID YOU KNOW?

EDUCATE AND EMPOWER RADIATION THERAPY EDUCATION VIDEO SERIES FOR PATIENTS AND CLINICIANS

ERICA MESSNER BSc, MRT(T)
RADIATION THERAPIST

THE PRINCESS MARGARET CANCER CENTRE HAS LAUNCHED A RADIATION THERAPY PATIENT EDUCATION VIDEO RESOURCE SERIES.

This self-paced series provides information about the process and experience of radiation treatment for potential patients and their families. Intended for both patients and clinicians, the videos contain valuable insights from both groups on the radiation therapy experience, equipment, and support services in the RMP. There is unique coverage of topics related to quality and safety of treatment and the basic principles of radiobiology.

The opportunity to see the equipment, to learn how radiation exerts its effects, and to hear interviews with staff and patients, provides clarity not available through print resources alone.

The videos serve as an informative educational resource for patients who might be facing radiation treatment and are anxious about what to expect. They can also help physicians address, in simple and relatable terms, patients' concerns and questions regarding radiation treatment.

The series is freely available online at www.whattoexpectrt.theprincessmargaret.ca.



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.

Palliative Radiation Oncology Program (PROP)

Direct palliative referral patients to our PROP Coordinator. Within 24 hours, she will contact you with an appointment. Patients will be seen within a few days.

Site Group Coordinators **Alannah Pyke / Novlette Douglas**
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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.

Emergencies For patients requiring same day consultations (e.g. spinal cord compression), please contact our Palliative Radiation Oncology Referral Coordinator (416.946.2130) who will identify the Radiation Oncologist that is best able to respond to your requests.

For After-Hour Requests

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

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