Family Practice Oncology Network Newsletter

Issue Number 19, Fall 2012 | www.fpon.ca

BC Cancer Agency
CARE + RESEARCH
An agency of the Provincial Health Services Authority

Meet the new president of the BC Cancer Agency — Dr. Max Coppes

Dr. Max Coppes began his new role as President of the BC Cancer Agency in August. Originally from the Netherlands, Dr. Coppes is a pediatric oncologist who most recently served as Senior Vice President of the Centre for Cancer and Blood Disorders at the Children's National Medical Centre in Washington, D.C. Prior to that, he also worked at the Tom Baker Cancer Centre and Alberta Children's Hospital in Calgary. His research interests focus on tumour molecular genetics, particularly that of Wilms tumours, the most common form of kidney cancer in children.

Dr. Max Coppes is very supportive of the primary care/oncology partnership and eager to encourage its success.

Dr. Coppes shares his perspective and ambitions for primary care oncology:

The Quarterback

I grew up in a society where family physicians are at the centre of health care. They are the quarterback and fill one of the most important roles, certainly the most holistic. Many health care issues need to be seen within the context of where the patient lives including their family, their community and their environment. Family physicians, by definition and by location, have the unique ability to provide this big picture aspect of health care. It's not about a patient's left toe, for example, but about a toe that belongs to a certain person, who lives in a particular household, in a distinct community – it's about providing care from that perspective.

Specialist Relationships

In areas requiring specialized care such as oncology, for example, family physicians don't always have all the information they require

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Join us December 1st for Family Practice Oncology CME day

You won't want to miss this year's Family Practice Oncology CME Day – covering some of the most in-demand oncology topics requested by family physicians. This year's event (see enclosed flyer) will be held on Saturday, December 1 as part of the BC Cancer Agency's Annual Conference, November 29 – December 1 at the Westin Bayshore in Vancouver. It also offers a great opportunity to build useful contacts in primary care oncology and at the BC Cancer Agency.

The agenda includes highly regarded keynote speaker, Dr. Nadine Caron, General and Endocrine Surgeon at the University Hospital of Northern British Columbia, speaking on Cancer Care Through the Rural, Northern and Aboriginal Lens. The more clinical presentations will focus on HPV and Cancer Management, Hereditary Cancer: What Family Physicians Need to Know and Paraneoplastic Syndromes. There will also be two afternoon case-based workshops for all participants addressing breast and prostate cancer. The Family Practice Oncology Network gratefully acknowledges the contribution of the UBC Division of Continuing Professional Development in the planning and delivery of these workshops.

The session overall is accredited by the College of Family Physicians of Canada, BC Chapter, for up to 4 Mainpro-M1 credits. The cost to attend is $149 while the cost to attend the full conference, including this event, is $199. Register at www.bccanceragencyconference.com. We hope to see you there!

Online resource for tobacco cessation

By BCCA Prevention Programs

Tobacco use remains the number-one cause of disease and death in Canada, killing 50 percent of its long-term users. Imagine a product that is sold legally kills half of its long-term users! Although BC has the lowest rate of smoking in Canada, 17.4% of British Columbians still smoke. In Northern BC, the smoking rate is higher than the national average at 24% and is as high as 65% in some Aboriginal communities. Approximately 25% of cancer deaths are attributed to smoking.

With at least one in six of your patients smoking, are you aware of the most effective way to encourage smoking cessation? The BC Cancer Agency Prevention Programs developed a free online tobacco cessation education resource for those who want to support tobacco users – such as clients, students, co-workers, patients, staff, friends, or family members – to stop using tobacco.

There are two streams one can choose from depending on your need: CTIP — Clinical Tobacco Intervention Program for *clinical professionals* or TEAM — Tobacco Education Action Module for non-clinicians.

The information in the programs will assist you and your staff in providing informal support on tobacco cessation and is based on best practices in research. It will help participants to understand the change process and offer support for behavior change.

Specifically the CTIP course covers:

- Health consequences of tobacco use
- Tobacco dependence and addiction
- Principles of clinical tobacco intervention
- The 5 "A's" of clinical tobacco intervention
- Information on tobacco cessation medications
- Special population considerations

Whatever the setting of your practice, there is a module that is right for you and your patients. Visit TobaccoEd.org

Stop smoking before surgery

Smokers are also at a greater risk of surgical complications than non-smokers. It takes longer for their surgical wounds to heal and those wounds are more likely to become infected. It is beneficial for surgical patients to stop using tobacco eight weeks prior to having surgery, to help reduce the risk of complications. By quitting smoking before surgery patients:

- experience fewer complications when under anesthesia during surgery
- have their wounds heal more quickly
- experience less infection
- have decreased risk of lung and chest infection after surgery
- are likely to have a reduced length of hospitalization
- increase their changes for long-term success with smoking cessation

You can find the Stop Smoking Before Surgery Program (SSBS) resources and how to order at TobaccoEd.org. The SSBS Program is offered in partnership with several health authorities in BC.

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and need to bring in a specialist. Building the partnership between oncologists and family physicians in caring for patients with cancer is an area where the Family Practice Oncology Network is making enormous headway and where I would like to encourage further success. The Network provides an excellent means to build an understanding of the tools required to resolve problems and to share knowledge and advancements. I am looking forward to attending gatherings of family physicians with my eyes and ears open to get a true sense of the issues and opportunities before us.

Family physicians play a significant role in cancer prevention, diagnosis and follow-up care. Improving upon the transition of patients from oncologist back to family physician will be an area of focus. I am keen to hear suggestions on ways to improve the process and avoid the frustration that can result.

When thinking about transitioning a patient back to their family physician after treatment I use the analogy of a child going off to college who then comes back to the family home after a period away. It's impossible to convey everything that happened the first day back, even with a willingness to share. In the weeks and months that follow, however, everyone begins to understand the complex changes that took place so that all parties can move forward.

Part of the Whole

I am fiercely passionate about cancer, but I can only act on this enthusiasm with the support of a larger health care system. As president of the BC Cancer Agency and vice president of cancer control within the Provincial Health Services Authority, I get the chance to see this larger system in the context of all its opportunities and challenges. At the end of the day, we need to work together to do the best we can for the patient given the resources we have. I've met many colleagues already who see the glass as more than half full and I'm looking forward to working together to embrace more opportunities to improve our world leading cancer system.

Contact Dr. Max Coppes at mcoppes@bccancer.bc.ca

Prince Rupert gains oncology expertise through preceptor program

Both patients and medical staff in Prince Rupert are pleased with the enhanced oncology resources and options that Dr. Luke Tse brings to their oncology team. Dr. Tse is the first General Practitioner in Oncology (GPO) and graduate of the Family Practice Oncology Network's Preceptor Program to locate to this community and he's become a valued source of expertise in the two years he's been there.

Key members of the Prince Rupert oncology team: (left to right) Jennifer Nelson, RN, Judy Rea, RN, Toby Hilton, RN and Luke Tse, GPO

Originally from Hong Kong where he trained in pediatrics, Dr. Tse completed his general practice residency at Vancouver's Saint Paul's Hospital in 2010. He previously served as the Hospital's Research Coordinator for hematology /oncology where his interests in these subjects grew. He also completed electives in oncology, hematology and bone marrow transplant during his residency. When Dr. Tse learned of Prince Rupert as a community that could benefit from a greater oncology presence, he decided to make the move.

He has established that presence through numerous roles and contributions in the short time since his arrival. Dr. Tse thrives on the diversity of his rural practice – "You do everything!" – finding his oncology work at the hospital and his responsibilities as lead palliative care doctor for the community very rewarding:

"I see patients regularly through the hospital's oncology service where we administer chemotherapy and conduct follow-up care in consultation with the oncologists in Vancouver. Three months ago, we established a cancer surveillance clinic to address the gaps in care that commonly occur when patients transition from active treatment to surveillance/follow-up. Statistics show that patients' adherence to cancer follow-up protocol is generally low upon finishing active treatment. Overall, most family physicians and their patients are unfamiliar with the BC Cancer Agency's recommendations. We strive to improve compliance. I work, for example, with a nursing practitioner who spends up to two hours with each patient reviewing their chart, discussing their cancer experience and then customizing the medical and psychological surveillance that needs to take place over the next five years. We adhere strictly to the BCCA recommendations providing both the patient and his/her family physician with a copy of our plan. That way everyone's on the same page. Response to date is very positive and we intend to share this information with the Agency.

I found the Network's Preceptor Program practical and the instructors very experienced. The program also served as an excellent means to establish useful contacts at the Agency. The oncologists there exceed my expectations especially when I email them questions late at night and receive helpful replies within 30 minutes!

We have two highly skilled oncology nurses in Prince Rupert who deliver chemo and provide patient support. They tell me they're now more comfortable working with a doctor who has training and expertise in this area. Also, some of the family physicians who oversaw chemo delivery previously commented on the stress and sense of hesitancy they experienced even with remote supervision. They, too, are pleased with the GPO model of cancer care.

Overall, I find my role very fulfilling especially when I work with a new cancer patient who is at a loss with their diagnosis and I can bring them relief through an explanation of what can be done. With palliative patients, it is an amazing experience to help them navigate their end-of-life with comfort and dignity by providing medical and psychological support to both the patients and their families.

Contact Luke Tse at luke.tse@northernhealth.ca

Next preceptor course begins February 25, 2013

The Preceptor Program is an eight-week course offering rural physicians and newly hired Agency GPOs the opportunity to strengthen their oncology skills and knowledge. The Program includes a two-week introductory module held twice yearly at the Vancouver Cancer Centre followed by six weeks of flexibly scheduled clinical modules at the Centre where participants' patients are normally referred. The program is accredited by the College of Family Physicians of Canada for up to 25 Mainpro-C and 50 Mainpro-M1 credits and eligible physicians will receive a stipend and have their travel and accommodation expenses covered. For full details visit www.fpon.ca

Prostate cancer webcast Q&A's

Dr. Mira Keyes, Head, Provincial Prostate Brachytherapy Program, BC Cancer Agency

Dr. Peter Black, Urological Oncologist, Vancouver Prostate Centre

Following is the question and answer session from our April Webcast, Prostate Cancer: Surgery vs. Brachytherapy vs. External Radiation Beam Therapy featuring Drs. Mira Keyes of the BC Cancer Agency and Peter Black of the Vancouver Prostate Centre. You can view this Webcast along with all other previously recorded sessions at www.fpon.ca (under CME Initiatives).

Please explain the Gleason score:

The Gleason score is the sum of 2 numbers which describe the growth pattern of the cancer under the microscope. Pattern 3 grows slowly, pattern 4 is more aggressive and pattern 5 is very aggressive. Gleason 3+3=6 can often be watched, while GS 7 and up should be treated

Rx options for ED?

PDE5 inhibitors, vacuum pump, penile injections, penile prosthesis

What are the urinary symptoms?

Obstructive and irritative symptoms: frequency, nocturia, urgency, incomplete emptying, dysuria.

Where does hormonal therapy fit into the treatment algorithm?

For high risk disease – together with radiation. Also adjuvant therapy after radical prostatectomy if the lymph nodes are involved, and for patients with a rising PSA after primary radiation or surgery

Given the recent recommendations against PSA testing, what is your feeling about how we as family docs should be using PSA if at all?

Please see the BCCA web site for details.

Any complications from prostate biopsy?

Infections (1-2%), hematuria, hematochezia, hematospermia, urinary symptoms, urinary obstruction (1%)

Do you do a bone scan to look for mets when working up low risk patients?

Generally for patients with Gleason 8 or higher and PSA›20. Sometimes, according to physician discretion, for Gleason 4+3 or PSA›15 and for any patient with bone pain.

Do you use age 75 as cut off for any screening or 10 year life expectancy?

Life expectancy of 10 years or more.

On Active Surveillance, how often are biopsies and PSAs done over a 5 year period?

PSA every 3 months for first year or two, then every 6 months. DRE every 6 months. Biopsy in 6-12 months after initial biopsy to make sure more significant pathology is not missed. If results show same disease (number of scores + and Gleason score same) then repeat again in 1-4 years. Most urologists will do early repeat (6-12 months), then again 12 months later, and gradually increase the interval – but this practice is still in evolution.

You said MRI can pick up large anterior lesions that might be missed on prostate biopsy. Can US detect these large nodules?

Ultrasound does a poor job at picking up lesions anywhere in the prostate – we do not rely on US for visualization of tumour, just for guiding the needle placement for standardized biopsy scheme. The anterior prostate, particularly at the apex, is the hardest to get to with the usual transrectal approach and is generally not included in a routine biopsy. If we know there is a lesion there (from MRI), we can target it.

Please comment on ranges of Prostate size (in ml) on US

Normal: 30cc, many men have enlarged up to 30-60 cc, and we would generally consider the prostate to be quite large if ›60cc (BPH); size ›60cc may require downsizing with hormone therapy before radiation therapy

If a patient has brachytherapy or external beam radiation, is prostatectomy an option in the future for disease recurrence?

Salvage surgery is an option, but it is difficult and is associated with a higher rate of complications (especially incontinence) than primary surgery.

When a patient decides on either brach or surgery — what is the wait time and do you think wait times make a difference in low risk patients?

There is minimal wait for brachytherapy and no concerns about waiting from a perspective of cancer progression. Surgical wait times are variable, as we prioritize by perceived risk. If a higher risk patient has to wait, we can start him on androgen deprivation therapy. Most patients will wait approximately 6-8 weeks, but low risk patients may wait longer, and there is sometimes a longer wait time for robotic surgery. We are not concerned about low and intermediate risk patients waiting several months (prostate cancer is a very slow disease). It is not clear how quickly high risk patients need surgery, but we would generally try to make sure it happens within 3 months of diagnosis.

At the beginning of the webinar 2 treatments were mentioned, neither of them available in BC, why is this?

High intensity focused ultrasound (HIFU) and cryoablation are minimally invasive procedures that involve heating and cooling, respectively, of the prostate to treat the cancer. Historically, there have been some significant complications with both modalities, but they are currently considered safe. HIFU frequently causes urethral strictures and cyroablation often damages the nerves. The main limitation, however, is the lack of long-term clinical efficacy data that would support their use. Cryotherapy is a standard option for patients who have failed external beam radiation. We sometimes send patients to Calgary for this.

Further information is available on BCCA web site.

What can you tell us about the life span of a patient with prostate cancer and bone mets?

Multiple recent clinical trials show that a

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"Integrative oncology" – points to ponder

Integrative medicine – the combination of alternative or complementary medicine and supportive care with conventional medicine – can make a lot of sense particularly when it is evidence-based and provided in a transparent manner with true communication between all health care providers. Memorial Sloan-Kettering in New York City and MD Anderson in Houston, Texas are good examples of conventional care facilities that include integrative oncology clinics working to these principles.

At the BC Cancer Agency, supportive care is provided to patients and their families from the time of diagnosis encompassing survivorship and end of life care.

- Registered dietitians work with patients to help reduce weight loss and nutrition-related side effects while receiving treatment;
- Patient and Family Counselling Services offers strategies to address concerns patients may face related to their cancer diagnosis within a family context including individual, family and couple counselling. They also offer programs to help with coping such as stress reduction programs; and
- Work is underway across BC to support and ease the discharge of patients from the Agency including developing more robust care plans and communication with primary care providers.

It is important to note that there are various private oncology/wellness clinics which describe themselves as providing integrative oncology care. Some of the therapies they provide are at best unproven and at worse may cause harm. Examples of such therapies include intravenous hydrogen peroxide, high dosages of Vitamin D, injections of large quantities of Vitamin C, restrictive diets, and so on. There is usually a membership fee to join these clinics and additional costs for the services and therapies to which patients subscribe.

Dr. Lloyd Oppel, Chair of the BC Medical Association's Council on Health Promotion and an emergency physician at UBC Hospital's Urgent Care Centre, urges patients to give careful consideration before signing on with those integrative oncology clinics providing services outside of the safe realm of proven benefit. He outlines his views in the June 2012 issue of the *BC Medical Journal* (Point-Counterpoint p. 238) alongside those of Dr. Hal Gunn, CEO of Inspire Health.

Dr. Lynda Balneaves, Principal Investigator for the Complementary Medicine Education and Outcomes (CAMEO) Research Program, which provides evidence-based, user-friendly information on complementary and alternative therapies to patients and health professionals, stresses the need for more discussion and planning on how best to further the role and benefits of integrative oncology in this province. CAMEO is a collaborative program of the UBC School of Nursing and the BC Cancer Agency.

The Family Practice Oncology Network (FPON) supports the work of the CAMEO Research Program – to provide accurate, unbiased and evidence-based, user-friendly information on complementary and alternative therapies to patients and health professionals to assist them with choices should they wish to pursue alternative therapies in conjunction with their regular cancer care. FPON encourages BC family physicians to access these resources and to share them with patients and their families as appropriate: www.bccancer.bc.ca/RES/ResearchPrograms/cameo

Dr. Balneaves:

We need to work together to define acceptable evidence for therapies provided as part of integrative oncology and to provide services according to that perspective. This is the only way to ensure patient safety and efficacy of treatments. We also need to develop communication standards to better determine which information is shared and how providers of conventional medicine and

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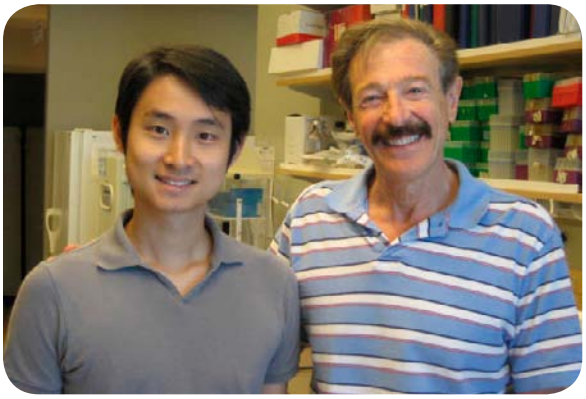
Low carb diet — a powerful anti-cancer ally



Drs. Gerry Krystal (right) and Victor Ho of the BC Cancer Agency's Terry Fox Lab

Recent mouse studies suggest that diet can play a key role in reducing the incidence of cancer and in slowing tumour growth and metastases once cancer has occurred. The BC Cancer Agency's expert in this area is Dr. Gerry Krystal, a protein biochemist specializing in signal transduction and immunology in the Agency's Terry Fox Lab. Dr. Krystal's interest in this area grew from attending seminars on PET scans (positron emission tomography) where he was reminded that cancer cells require much more glucose than normal cells to survive and grow (typically at least three times higher levels than normal cells). Thus began Dr. Krystal's eight-year research foray into the impact of diet on tumour growth, particularly the benefits of switching from a traditional Western diet – 50-60% carbohydrates, 15% proteins and 20-30% fats – to one that includes 15% carbohydrates (composed primarily of slowly digested amylose starch), 50-60% proteins and 20-30% fats.

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Metastatic pancreatic cancer: beyond gemcitabine

By Daniel Renouf, MD, MPH, FRCPC, BC Cancer Agency, University of British Columbia

View Dr. Dan Renouf's Webcast on pancreatic cancer at www.fpon.ca (under CME Initiatives).

Metastatic pancreatic cancer remains a devastating disease, with few patients living over a year from the time of diagnosis, and many patients living for only several months. Gemcitabine has been the standard treatment since a trial published in the late 1990's demonstrated an improvement in both survival and clinical benefit rate (a combination of performance status, pain and weight changes), with the use of gemcitabine compared with the previous standard of fluorouracil[1]. Since then numerous studies have assessed combinations of different chemotherapeutic agents, and until recently, none were found to improve survival compared with gemcitabine[2].

Over the past decade the field of oncology has shifted from traditional cytotoxic chemotherapy to the use of molecularly targeted therapies in the hope of improving treatment efficacy and reducing side effects. Molecularly targeted drugs have been tested in pancreatic cancer, and a clinical trial led by Canada found that the epidermal growth factor inhibitor erlotinib improved survival when added to gemcitabine compared with gemcitabine alone[3]. While statistically significant, the survival benefit was minimal and thus the combination of gemcitabine and erlotinib is not used in most centers. There is a significant amount of research ongoing to try to identify molecular predictors of which patients benefit from erlotinib, but up until now no clinically useful predictors have been identified[4].

Recently there has been significant progress in the treatment of metastatic pancreatic cancer with the presentation and subsequent publication of a randomized phase III study comparing gemcitabine with FOLFIRINOX[5]. The results of this study demonstrated that FOLFIRINOX significantly improved response rate (31.6% vs. 9.4 %), progression free survival (6.4 versus 3.3 months) and overall survival (11.1 versus 6.8 months) compared with gemcitabine. In addition 1 year survival improved to 48.4% and 18 month survival to 18.6%. FOLFIRINOX was found to also significantly increase toxicity though, including a high rate of significant myelosuppresion.

In summary, outcomes for metastatic pancreatic cancer remain poor, but there has been significant progress with the advent of FOLFIRINOX chemotherapy. This regimen now represents the standard treatment for good performance status patients, and with this chemotherapy there is a significant chance of surviving beyond 1 year. Given the toxicity of this regimen, it is important to attempt to expedite the diagnosis and initiation of treatment for patients with pancreatic cancer, as often performance status can decline quite rapidly. There is a significant amount of research ongoing to better understand the molecular biology of pancreatic cancer, and hopefully this will lead to improve diagnostics, targeted therapies, and more individualized treatment strategies in the near future.

Contact Dr. Dan Renouf at drenouf@bccancer.bc.ca

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Integrative oncology continued from page 5

integrated oncology therapies communicate about patient safety and potential or real interactions of therapies. An acupuncturist, for example, should be informed if a patient is suffering from thrombocytopenia so he/she can adjust treatment plans, as needed.

Other key issues to consider include the allocation of resources for patients receiving both conventional and complementary care. What happens, for example, if a patient enters a conventional setting with follow up recommendations from a provider of complementary medicine? What if a patient requires care as a result of an alternative therapy delivered in another setting? How is that provided for and how do we deal with it? We also need to develop referral protocols and to explore the related ethical and legal issues. Who is responsible, for example, if a patient is referred to a private integrative oncology centre and suffers an adverse event? Fees for service are another huge issue to resolve.

We are at the beginning stages of exploring these issues and in working toward integrating such approaches with those based on solid evidence. At the BC Cancer Agency, we want to put the patient first. Given the interest of patients to explore integrative therapies, we are committed to explore their true value and inform the public of our assessments.

Links to evidence-based resources for integrative oncology: www.bccancer.bc.ca/RES/ResearchPrograms/cameo/usefullinks.htm

Dr. Phil White, Network Chair and Medical Director, drwhitemd@shaw.ca

Low carb diet
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Dr. Krystal's focus is on lowering blood glucose levels through diet to slow tumour growth. His research is based on what happens to glucose once it leaves the blood stream and enters one of the body's 10 trillion cells. It is first processed to pyruvate by a series of enzymatic reactions called glycolysis. No oxygen is required and the process generates 2 molecules of ATP (which stores the energy we get from food to keep us alive and moving). The pyruvate can then either be converted to lactate and secreted or taken into our mitochondria to be "burned" by oxygen to carbon dioxide (which we breathe out). This "burning" generates another 34 molecules of ATP.

Dr. Otto Warburg made the discovery in the 1930s that cancer cells, unlike normal cells, prefer glycolysis even when oxygen is present — unexpected given that cancer cells need a lot of energy to divide rapidly. We have since learned, however, that cancer cells prefer glycolysis because pyruvate and the other sugar intermediates in glycolysis can be used as building blocks for protein, nucleic acid and fat synthesis – all required for cell division. Some of the sugars can also be used to generate glutathione which protects cells from stress-induced damage. Further, the secreted lactate generated by this glycolysis kills surrounding normal cells, depresses the immune system and activates extracellular proteases which enable cancer cells to spread. Importantly, glycolysis only works for cancer cells when there is an adequate supply of blood sugar, hence the impetus to move to a low carbohydrate diet.

Dr. Krystal's research includes putting mice on different diets, injecting them with tumour cells and then monitoring the tumours' growth. The role of complex, starch-based carbohydrates, both amylose and amylopectin, is also studied as the latter is quickly digested beginning in the mouth while the former is digested more slowly by bacteria in the large intestine.

Within three weeks of being on the revised diet, positive changes were evident in Dr. Krystal's mice including lower lactate levels, slowed primary tumour growth and reduced tumour metastases. A two-year study with mice genetically predisposed to breast cancer revealed that when these mice were put on a regular Western diet versus a low carbohydrate diet :

- Western diet mice got fatter while the low carbohydrate mice maintained their weight;
- 7 of 10 mice on the western diet developed cancer compared to 3 of 11 on the low carb diet;
- At one year of age (half their life span), half of the Western diet mice had tumours compared to none on the low carb diet.

"This research direction has huge ramifications for many medical problems from diabetes, to heart disease, to cancer. People can be empowered to make changes that will benefit them in a big way," notes Dr. Krystal.

Contact Dr. Gerry Krystal at gkrystal@bccrc.ca

Advice from Dr. Krystal:

- Stop drinking pop and fruit juices (simple sugars dissolved in such drinks do not register as calories by our bodies);
- Google "glycemic index" to learn which foods quickly raise blood glucose levels and which do not;
- Eat only 100% whole grain breads;
- As a good source of protein, eat oily fish, chicken, tofu and nuts (red and cured meats are the poorest choice because they increase colon cancer incidence); and
- Accompany your diet plan with exercise as there appears to be a synergistic benefit when combining exercise with a low carbohydrate diet.

Prostate cancer webcast Q&A's
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patient with metastatic castrate resistant (hormone refractory) prostate cancer has a survival of up to 2 years. The duration that a patient remains responsive to hormone therapy before this stage is highly variable, but is usually in the range of 2-3 years.

We often have 20 yr olds requesting PSA and exam — no family history or symptoms — what are your thoughts about the 'worried well'?

There is no role for PSA at this age. There is a large minority of prostate cancer experts who suggest testing the PSA once patients reach their early 40s, and then tailoring subsequent screening according to the level measured. If the PSA is ‹1, the patient doesn't need it checked for another 5 years. If it is ›1, the patient should have annual screening, but never before 40. Please reassure patients that there is no need for PSA testing before age 40.

Does the patient have to pay privately for the use of the DaVinci Robot for their radical prostatectomy at Vancouver General Hospital?

From 2007 to 2010 the additional cost (maintenance and disposable instruments) compared to an open radical prostatectomy was covered by philanthropy. In 2011, half of the additional cost was covered by VGH, and the other half was covered by the patient. Since mid 2012, the patient is now asked to pay for all of the additional cost.

Please comment further on "nerve sparing" surgery. My patients fear ED post intervention.

The cavernosal nerves that run from the pelvic plexus to the penis are embedded on each side of the prostate. It requires careful dissection to "peel" the nerves off the side of the prostate. If the patient is young and has good erectile function, and if the nerves can be spared on both sides, he has a good chance of having erections after surgery. Older patients (›65) and those with some impairment of function before surgery are more likely to lose function. In some patients we can only spare nerves on one side of the prostate because we would otherwise risk getting too close to the cancer and leaving cancer behind. There are novel techniques being developed with the robot to aide visualization (and therefore preservation) of the nerves at the time of surgery, but these are experimental.

Contact Dr. Mira Keyes at mkeyes@bccancer.bc.ca and Dr. Peter Black at pblack@mail.ubc.ca

Message from the chair

By Dr. Phil White, Chair and Medical Director of the Family Practice Oncology Network and family physician in Kelowna

We have no problem keeping active at the Family Practice Oncology Network what with our work on cancer care guidelines for family physicians, our various CME offerings, and our long-running Preceptor Program to strengthen rural physicians' oncology skills. In fact, with regard to guidelines, you will find the last in our Palliative Care suite (Depression and Grief and Bereavement) enclosed with this newsletter. The entire palliative set has now been distributed and is also available, including appendices, at bcguidelines.ca and in downloadable format for iPhone/iPod. Guidelines for breast, colorectal and female genital tract cancers are underway.

We are now looking to reach beyond British Columbia and build useful relationships with our colleagues across the country – to expand on what we have that's good and to glean from others what might work even better here. To begin, we are forming a Primary Care Oncology Western Collaborative with initial strategy sessions scheduled with like-minded organizations in Alberta, Saskatchewan and Manitoba.

Within our borders, we are also working closely with the BC Cancer Agency's Communities Oncology Network to support the provision of care and training for community oncology delivery where it makes the most economic and medical sense – and where it will prevent patients and families from having to travel long distances and treacherous winter roads for treatment.

Switching to individuals, I would like to extend a warm welcome to the Agency's new President, Dr. Max Coppes (see story on page 1). We are looking forward to working together to maximize the contribution family physicians can make to improve cancer care in BC. I would also like to highlight a member of the Executive of the Association of BC General Practitioners in Oncology. We neglected to include Victoria GPO, Dr. Peter Battershill, in our last newsletter when we highlighted the leadership for this new group. Apologies Dr. Battershill.

Contact Dr. Phil White at drwhitemd@shaw.ca

Mammography better than thermography for population-based breast cancer screening

Despite growing interest, thermography should not be used in place of mammography for breast cancer screening in British Columbia.

Thermography uses ultra-sensitive infrared cameras to produce images (thermograms) that show the patterns of heat and blood flow on or near the surface of the body. Areas with increase blood flow (producing higher temperatures) are considered suspicious.

The BC Cancer Agency recommends against thermography as a replacement for screening mammography and should not be used by itself to diagnose breast cancer. There is simply no scientific evidence that warmer tissue indicates pre-cancerous cells, or that increased blood circulation as detected by thermography correlates with breast cancer.

"Getting a conventional mammogram is the most effective thing a women can do to detect breast cancer at an early, treatable stage," said Dr. Christine Wilson, Medical Director for the BC Cancer Agency's Screening Mammography Program. "Thermography is not new and has been around for decades. In that time no credible study has shown that it is an effective population-based screening tool for breast cancer."

There are also significant risks and downsides associated with pursuing thermography-based screening over mammography, including:

- Thermography can miss abnormalities that mammograms can detect.
- Thermography has a very high false-positive rate and may lead to unnecessary testing.
- Thermography is not definitive — a suspicious area discovered by thermography will need to be tested further with conventional methods such as diagnostic mammograms or ultrasounds.
- Thermography is not covered by the BC Medical Services Plan.

Meanwhile, screening mammography has proven itself over several decades to be a beneficial test over a large population.

"The evidence is clear that mammograms save lives," said Janette Sam, Screening Operations Leader for the Screening Mammography Program. "For women in British Columbia looking to maintain healthy breasts and detect the early signs of cancer, screening mammography continues to be an accessible and effective screening tool."

The BC Cancer Agency is not alone in its strong recommendation of mammography over thermography for breast cancer screening. Health Canada does not approve of thermal imaging equipment for breast screening in Canada and no provincial screening program offers thermography as a screening tool. This view is also shared by the Canadian Breast Cancer Foundation, the US Food and Drug Administration, and the Susan G. Komen for the Cure Foundation.

For more information please contact the Screening Mammography Program of BC at smp-bc@bccancer.bc.ca

Hereditary cancer program's high-risk surveillance clinic

By Melissa Housty BScN, MSN, NP(F) & Mary McCullum, RN, MSN, CON(C)

The Hereditary Cancer Program's High-Risk Surveillance Clinic at the BC Cancer Agency (Vancouver) was established in 1997. It provides ongoing breast screening and consultation regarding cancer risk management for women with inherited *BRCA* mutations. In 2010, a Nurse Practitioner was integrated into the clinic to provide ongoing follow-up. This article provides an overview of services provided by the clinic and related outcomes.

To date, 517 women have been assessed by the clinic and 248 are currently followed. A woman is eligible to attend the High-Risk Clinic if she is:

- confirmed *BRCA1/2* mutation carrier (or at 50% risk of carrying a family *BRCA1/2* mutation and declined carrier testing), and
- age 25-65, and
- not currently under an oncologist's care, and
- able to attend appointments in Vancouver, and
- has not completed bilateral mastectomy

Screening guidelines

Breast screening for *BRCA+* women includes detailed clinical breast exam (CBE) every 6 months from age 20, annual bilateral breast MRI from age 25-65 and annual mammogram beginning at 30. Mammograms and MRIs alternate at 6 month intervals with breast ultrasound added as recommended by radiologist.

During pregnancy and lactation, breast screening includes CBE every 3 months with breast ultrasound as needed to investigate abnormalities. Regular mammogram and MRI screening resumes 3 months after lactation is complete.

Ovarian cancer screening methodologies (pelvic examination, transvaginal ultrasound, and serum CA-125) have limited sensitivity and specificity, even in high-risk women, and are not recommended in BC.

Risk-reducing surgery

The option of prophylactic mastectomy (PM), which reduces the probability of breast cancer by 90-95%, is discussed with each woman. Breast reconstructive options are briefly reviewed. After PM, women are discharged to their family physicians for regular examination of regional nodes and chest wall/reconstructed breast. Routine imaging of reconstructed breasts is not recommended.

BRCA1/2+ women are advised to consider bilateral prophylactic salpingo-oophorectomy (BSO) at age 35-40. This surgery reduces the probability of ovarian cancer by 85-95%, and may also reduce breast cancer risk by approximately 50% when performed before natural menopause. Effects of surgical menopause require ongoing management.

Outcomes

27% of 299 previously unaffected women have had PM (n=80) and 55% have had BSO (n=163). This includes 107 women who had both surgeries.

76 new cancers have been diagnosed in women followed by the clinic, including:

- 42 invasive breast cancers (3 diagnosed on PM)
- 10 DCIS (3 diagnosed on PM)
- 7 ovarian cancers (3 diagnosed on BSO)
- 3 fallopian tube cancers (2 diagnosed on BSO)
- 3 peritoneal cancers after BSO
- 11 other cancers

Some women have had more than one new cancer diagnosis.

Women are discharged from the High-Risk Clinic upon completion of both PM and BSO. Other reasons for discharge include a new cancer diagnosis (care transferred to oncologist), patient preference (e.g. unable to travel to Vancouver) and disclosure of negative BRCA carrier test results.

References available on request.

Contact Mary McCullum at mmccullum@bccancer.bc.ca

Cancer risks for BRCA1 and BRCA2 gene mutation carriers

Type of cancer	Risk in general population	*BRCA1* carrier	*BRCA2* carrier
Breast cancer–women*	11%	47-66%	40-57%
Ovarian cancer	1-2%	35-46%	13-23%
Breast cancer–men	0.1%	up to 6%	6%
Pancreatic cancer	1%	slight increase	slight increase
Prostate cancer	12%	24-36%	24-36%

* and significantly increased contralateral breast cancer risk, especially if 1st diagnosis before age 40

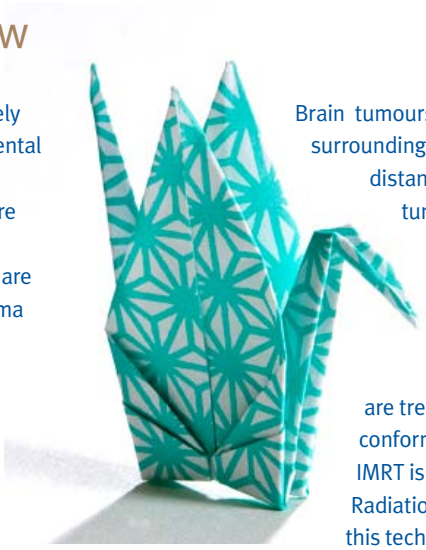
Pediatric brain tumours: a brief overview

By Dr. Karen Goddard, Radiation Oncologist, BC Cancer Agency, Vancouver Centre

Successful treatment of pediatric brain tumours often involves a multidisciplinary approach with surgery, chemotherapy and radiation therapy (RT). The way in which the different modalities are used depends very much on the type of tumour and the age of the child. In general though, surgery is critical to establish the diagnosis and usually has an important role to play in local control. Also, every effort is made to avoid RT if at all possible in children because of the associated long term side effects.

Low grade tumours are quite common in children and generally managed with surgery alone and then observation. If there is any evidence of disease progression, then the options of further surgery and/or chemotherapy are initially explored. Radiation treatment is used only as a last resort.

High grade tumours such as medulloblastoma (a primitive neuroectodermal tumour arising in the cerebellum) are treated by initial surgery. Subsequent treatment depends very much on the age of the child and the extent of disease. Very young children (3 years old or less) are generally treated with intensive chemotherapy alone and stem cell rescue. RT is avoided because this treatment is likely to result in severe developmental delay and growth problems. Results from this approach are very encouraging and a high proportion of young children are cured of their medulloblastoma without RT. Older children do generally receive RT to their craniospinal axis (whole brain and spine) as well as a RT "boost" to the cerebellum. The craniospinal axis is treated in this tumour because there is a very high risk of spread through the CSF pathways. The Children's Oncology Group (COG) has ongoing clinical studies designed to improve outcomes in children with medulloblastoma by reducing the amount of craniospinal axis RT and optimizing the chemotherapy.



RT involves "aiming" high energy X-rays from multiple different directions to the site of the original tumour. Our ability to target tumours accurately and spare surrounding normal tissues has improved significantly over the past 10 years or so. We can now identify the tumour bed by using special software to fuse diagnostic MR imaging with the RT planning CT scan.

Brain tumours often infiltrate surrounding normal tissue for some distance beyond the main tumour itself and a "margin" of normal tissue also needs to be given RT to treat microscopic spread of disease. Generally children are treated with either "3-D conformal therapy" or IMRT. IMRT is "Intensity Modulated Radiation Therapy" and in this technique, the treatment intensity varies at different depths. Rapid-Arc therapy is a type of "rotating IMRT" and was actually developed by a medical physicist at the BC Cancer Agency (BCCA). This technique really improves our ability to deliver high dose radiation therapy to the tumour and to spare surrounding normal tissues. Sometimes, when it is safe to treat with narrower margins (for example, a tumour such as a craniopharyngioma is cystic and the edges are well defined) special techniques can be used to spare surrounding normal tissue. The BCCA is about to implement a very high precision technique called "IMRT stereotactic RT". This

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Towards an optimal transfer of care for cancer survivors

The number of individuals who are living beyond the treatment of cancer today is higher than ever. Already, there are over 1 million cancer survivors in Canada. British Columbia alone accounts for 200,000. However, these encouraging figures mask an important fact: for individuals who have completed cancer treatment, leaving the care of their oncologist and "re-entering" the community is a daunting task. Not only do they have to deal with persistent issues such as pain and fatigue, but they also need to be cognizant of critical follow-up guidelines such as screening schedules for second primaries, while dealing with the uncertainty of what to do next. For survivors to attain optimal long-term health outcomes, it is clear that a proper transition, continuing support, and timely follow-up are essential.

Megan Stowe is the Director of the Provincial Survivorship Program.

Family Physicians (FP) have typically assumed the responsibility of coordinating survivors' post-treatment care. Due to their expertise and location in the community, FPs are ideally-positioned to positively impact survivors' lives. However, despite FPs' willingness to assume this task, many feel they require support to ensure the best possible patient outcomes. There are many approaches to meeting this need and the BCCA Provincial Survivorship Program (PSP), with the mandate of improving the quality of life of people living with and beyond cancer, is committed to finding the best solution. With a strategic plan, the support of the BCCA Executive, and a very capable team of dedicated professionals and researchers in hand, the PSP is now working towards a partnership with primary care providers to develop comprehensive approaches that ensure a seamless transition for survivors.

To learn more about this agenda, please contact Megan Stowe, Director of the Provincial Survivorship Program: mstowe@bccancer.bc.ca.

Striving to improve colorectal screening

Colorectal cancer is the 2nd leading cause of cancer death in BC – three people die from it every day in this province. Yet, if the disease is detected early, the chance of survival is over 90%. The key to such detection is effective colorectal screening. Currently, only 37% of eligible British Columbians get screened and, unfortunately, follow-up and treatment is not always consistent.

Dr. Jennifer Telford is one of BC's top experts on screening for colorectal cancer.

Dr. Jennifer Telford, Clinical Assistant Professor with Providence Health Care's Gastroenterology Division, shares her insight on primary colorectal screening in BC including her views on how ultimately the process should develop:
Fecal occult blood tests performed at least biennially are currently recommended for colorectal cancer screening in BC. Two types of test are available: the better known, traditional guaiac fecal occult blood test (gFOBT) tests for the presence of heme and the newer, more sensitive fecal immunochemical test (FIT) detects human globin. In British Columbia, only the gFOBT is currently covered by the Medical Services Plan at a cost of $18 per test while the FIT is available upon physician referral at a cost of $30 - 35 to the patient.

The FIT is considered superior for ease of use and accuracy (Table 1).

The increased accuracy and comparative simplicity of the FIT have proven it to be a more appealing alternative which ultimately increases participation and the rate at which we can detect colorectal cancer. The FIT – of which there are many brands – has been in use in Europe, Asia and South America for many years and was approved for use in Canada in 2008.

Presently, all provinces have either undertaken, or are in the planning stages, to implement population-based colorectal screening programs based on fecal occult blood testing. Nova Scotia, Saskatchewan, Newfoundland and PEI are proponents of the FIT while others are evaluating its adoption. In BC, the Guidelines and Protocols Advisory Committee recently submitted new colorectal cancer screening guidelines to the Ministry of Health which we anticipate will include the FIT. Early detection of colorectal cancer to decrease attributable morbidity and mortality as well as prevention of colorectal cancer through removal of adenomatous polyps are the primary goals of screening.

References

1. Levi Z, Rozen P, Hazazi R, Vilkin A, Waked A, Maoz E, Birkenfeld S, Leshno M, Niv Y. A quantitative immunochemical fecal occult blood test for colorectal neoplasia. Ann Intern Med 2007;146:244-55.

Table 1	FIT*	Guaiac**
Number of samples	1	6 over 3 days
Interaction with diet or medications	No	Yes
PPV† for all advanced adenomas and cancer	52% (van Rossum 2008 Gastro)	55% (van Rossum 2008 Gastro)
NPV‡ for all advanced adenomas and cancer	96% (Colon Check, Levi Annals Int Med)	84% (Imperiale NEJM 2004; 351:2704)
Specificity for human hemoglobin	Yes – antibody directed against human globin	No – reacts with any source of heme
Upatake (van Rossum Gastroenterology 2008)	60%	47%
Cost in BC	$30 - $35 (Patient pays)	$18 (MSP covered)

* Auto-OC Micro ** Hemoccult II
† Positive predictive value (PPV) – The percentage of patients with a positive test who actually have the disease.
‡ Negative predictive value (NPV) – The percentage of patients with a negative test who do not have the disease.

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will enable a small volume tumour to be very precisely targeted. However, proton therapy is still going to be important to treat some brain tumours in very young children. Protons are a type of particle therapy which has the same radiobiological effect as standard RT, but it is possible to make the treatment very highly focused. We do not have a proton facility in BC, but children for whom this modality has an advantage, are sent out of province for treatment at a proton facility. In some circumstances, there is much debate about which treatment technique is best.

Over time, RT is used less frequently to treat different childhood brain tumours and when RT is necessary, our ability to target tumours precisely and spare surrounding normal brain has significantly improved. Both of these factors are likely to reduce the risk of severe, late morbidity in survivors of childhood brain tumours. However, it would be good to think

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PET/CT scan capacity doubled

PET/CT scanning wait times are dramatically reduced.

Cancer patients requiring an urgent PET/CT scan in BC now wait less than a third as long as they did before – an average of about 2 weeks compared to the previous 6-8 weeks. This is thanks to the addition of a second PET/CT scanner to the BC Cancer Agency's Centre of Excellence for Functional Cancer Imaging in July of last year plus a replacement of the older, well-utilized original unit. This increased scanning capacity coupled with a significant broadening of clinical scanning indications has made PET/CT scanning a much more accessible publicly-funded resource in BC. The Centre also completed construction of and opened its PET/Cyclotron Radiopharmacy facility in 2010 and thus secured a permanent production facility with capabilities to not only produce much larger quantities of clinical radiotracers such as 18F-FDG, but also to continue investigating other research radiotracers.

PET – Positron Emission Tomography – is a relatively new imaging procedure that when combined with CT – Computed Tomography – enables physicians to more accurately diagnose and manage diseases, especially cancer. PET detects changes in cellular metabolism often indicating the presence of disease while CT detects changes in the physical size or shape of a lesion as well as where in the body the lesion is located. The information provided from a scan can, for example, help physicians improve treatment planning for individual patients.

Since the Centre began operations at the Agency's Vancouver Centre in 2005, over 20,000 PET/CT scans have been performed (as of July 2012) for patients from throughout the province and Yukon Territory. With the addition of the second scanner, the Centre's capacity has increased from 3,100 to 6,200 scans per year.

Complete lists of the expanded indications for PET/CT scans for both adult and pediatric patients are available at www.bccancer.bc.ca/HPI/PET as are the referral forms and additional information for patients.

For further information please contact Colin Alden, Technical Manager for the Centre, at calden@bccancer.bc.ca

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that in the future we might avoid RT altogether. There have been some exciting developments in the characterization of pediatric brain tumours recently. Transcriptional profiling studies of medulloblastoma tumours have shown multiple distinct molecular subgroups with very different clinical outcomes and sensitivities to therapy. Transcriptional profiling will help us to understand the pathogenesis of these tumours and there is hope that this research will lead to new, targeted treatments.

Links for more information on these topics:

General overview of the management of pediatric brain tumours:
www.pedsoncologyeducation.com/brain tumor.asp

General overview of radiation therapy:
www.pedsoncologyeducation.com/RadiotherapyBasicIntro.asp

Medulloblastoma:
www.pedsoncologyeducation.com/medulloblastoma.asp

Molecular classification of medulloblastoma:
www.pedsoncologyeducation.com/MedulloblastomaMolecularClassification.asp

Late effects after treatment for medulloblastoma:
www.pedsoncologyeducation.com/MedulloLateEffects.asp

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www.fpon.ca

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