



Thyroid Cancer Canada
Cancer de la thyroïde Canada

Thry'vors News

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Winter 2010

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This is the 29th in a series of seasonal newsletters, from *Thyroid Cancer Canada*. Your comments and suggestions are most welcome.

Please direct your comments to the Newsletter Committee at newsletter@thyroidcancercanada.org

Chernobyl: 25 Years Later

by Stephanie Wylie

The Meltdown

Saturday, April 26, 1986 marks an ominous event in history. The explosions that destroyed reactor number four at the Chernobyl, Ukraine nuclear power plant on that day, allowed for the release of considerable amounts of radioactive materials into the atmosphere that affected large areas of Belarus, Ukraine, western Russia and beyond. While all three of these countries were seriously contaminated with radioactivity, radionuclides (ionizing radiation) were found in measurable amounts throughout the northern hemisphere as well, and some argue that small amounts circulated the globe. The accident caused the deaths of 30 workers by acute radiation poisoning, within a matter weeks, and severe radiation injuries to hundreds of others, some of whom are still alive today. The radioactive material released was mainly I-131, the same radionuclide that is often used as a treatment material for those with thyroid cancer.

The estimated 350,000 clean-up workers (or "liquidators," as they became known) were made up primarily of men aged 20-45, most of whom were plant employees, local firefighters and soldiers from Ukraine and other parts of the former Soviet Union. These workers tackled damage control in the immediate aftermath of the accident, which included building dams, water filtration systems, as well as the concrete "sarcophagus" which enclosed the damaged reactor so as to contain the remaining radioactive material. The exact number of liquidators who worked in the 30km "safety zone", however, is difficult to know. The number of people registered for government benefits as a result, is currently around 600,000. About 247,000 liquidators received an average of 120 millisieverts (mSv) of radiation, and approximately 15% of those received more than 200mSv (this compares with 2 mSv/hr a patient who has been treated with 100mCi of I-131 emits soon after treatment. The maximum permissible exposure for a 'man in the street' in Europe is 1mSv per year).¹

Editor's Note:

(Sarah Lyons and Stephanie Wylie, Co-Editors)

Greetings!

In this, our final issue of 2010, read Charna Gord's poetic review of Sandra Steingraber's book *Living Downstream: An Ecologist's Personal Investigation of Cancer and the Environment*. The theme of cancer and the environment begins with a brief overview of the Chernobyl (Ukraine) nuclear disaster and its link to thyroid cancer, on the eve of the 25th anniversary of this devastating event.

As the year draws to a close, all of us at Thyroid Cancer Canada wish you and your family a safe and happy holiday season.

Until next year,
Stephanie

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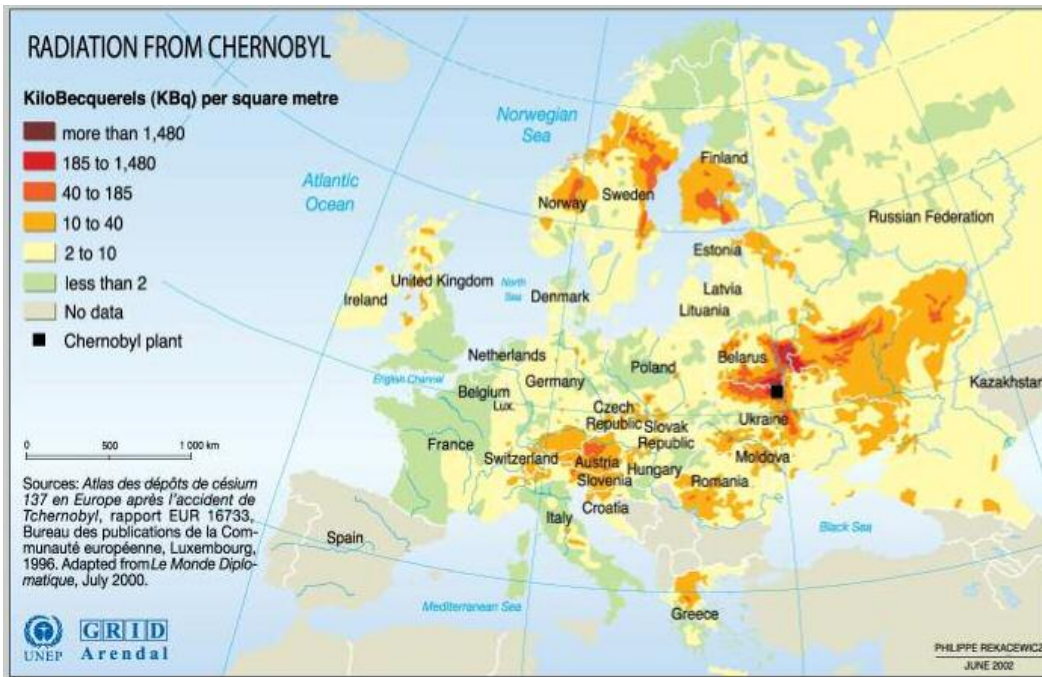
Email: info@thyroidcancercanada.org



In addition to the horror of the accident itself, those living within the danger zone in 1986 — about 116,000 people — were immediately evacuated. Many suffered serious psychological distress and social disruption as a result of not being allowed to return to their homes and social networks. Today, approximately 270,000 people continue to live in areas classified by Russian authorities as “strictly controlled zones” (SCZs), where radioactive caesium contamination levels exceed acceptable levels.

children and adolescents at the time of the accident and lived in the most contaminated areas of Belarus, the Russian Federation and Ukraine.

- Radioactive iodine was deposited in pastures eaten by cows who then concentrated it in their milk which was subsequently drunk by children.
- Affects could have been minimized by if contaminated milk supply had not been distributed for a few months following the accident.



Areas with highest level of radiation exposure.²
www.ncbi.nlm.nih.gov/pmc/articles/PMC2666867/figure/F2

Thyroid Cancer: The UN Chernobyl Forum and the World Health Organization

A series of meetings held between 2003 and 2005 by the World Health Organization within the UN Chernobyl Forum, set out to review all scientific evidence on the health effects associated with the Chernobyl disaster. The group had to say the following on the issue of high levels of radioactive iodine released from the damaged reactor and its link to thyroid cancer for those living in the immediate area:

- A large increase in the incidence of thyroid cancer has occurred among people who were young

- 5,000 cases of thyroid cancer diagnosed in children, in Belarus, Russia, and Ukraine.

- Treatment has been highly effective, even in children with advanced tumours.

- More research is recommended to evaluate prognosis for children with distant metastases.

- It is expected that the increased incidence of thyroid cancer from Chernobyl will continue for many years

Thyroid cancer is the fastest growing cancer in incidence worldwide³. In Canada alone, the incidence has risen more than 10% in the last decade and it is now the number one cancer in young women. Unfortunately, researchers do not have a clear answer as to why the incidence is increasing at such a high rate. Since the only known cause of thyroid cancer in some patients is exposure to radiation, some have argued that the event at Chernobyl and other similar exposures may have contributed to this global phenomenon⁴. Scientists will likely require long term international data (perhaps even a century’s-worth) to look at trends over time, before it is known if the disaster is related to global trends in thyroid cancer incidence.

¹ Barrington S.F., Kettle A.G., O'Doherty M.J, Wells C.P. , Somer E.J.R, Coakley A.J. Radiation dose rates from patients receiving iodine-131 therapy for carcinoma of the thyroid. *European Journal of Nuclear Medicine* 1996; 23(2): 123-30.

² ANNEX J - Exposures and effects of the Chernobyl accident www.unscear.org/docs/reports/2000/Volume%20II_Effects/AnnexJ_pages%20451-566.pdf Accessed October 27, 2010

³ Globocan 2008, Fast Facts <http://globocan.iarc.fr/factsheets/populations/factsheet.asp?uno=900#BOTH> Accessed October 27, 2010

⁴ World Health Organization, International Agency for Research on Cancer <http://monographs.iarc.fr/ENG/Monographs/vol75/index.php> Accessed October 27, 2010

the 14th International Thyroid Congress in Paris, September 2010. This group is looking towards creating more exciting projects in the future for thyroid cancer patients globally.

As always, we rely on small grants and donations from our members to carry on our important support and awareness work. Your donations -- large or small -- are vital to our ongoing work. Please see the enclosed donation form and consider supporting us this season.

Important Links & Numbers

Website: www.thyroidcancerCanada.org

Online Forum: www.thyroidcancerCanada.org/forum

Facebook: thyroidcancerCanada

Twitter: mythyroidcancer

View members of our Medical Advisory Panel:

www.thyroidcancerCanada.org/about-us.php

Order hard copies of publications:

www.thyroidcancerCanada.org/join.php

Contact us: info@thyroidcancerCanada.org or 416-487-8267

What's Up at TCC

Thyroid Cancer Canada has had a very busy year! With our name change came a new website, new Online Forum, Facebook page, printed resources and more. Our booklet “A Patients Guide to Thyroid Cancer” was revised and is now available in its fourth printing. As well, all our resources are now available in French.

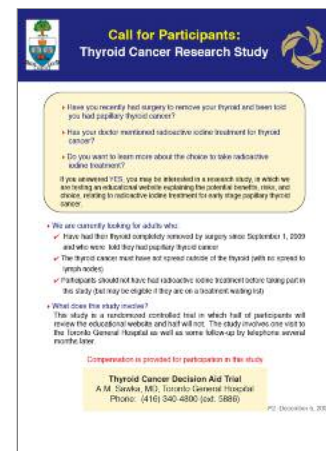
In September, we held a Canada-wide “Ambassadors Project”. About 60 volunteer members of TCC received sample packets of our new printed resources and distributed them to their own doctors — more than 160 thyroid cancer specialists across the country.

Also, in the autumn this year we engaged our Medical Advisory Panel for the period of 2010-2012. We are very pleased to welcome Dr. H. Pat Marshall (Internist, Victoria, BC), Dr. Michael Tamilia (Endocrinologist, Montreal, QC) and Dr. Mal Rajaraman (Radiation Oncologist, Halifax, NS) who are now joining the other reputable specialists to make up our panel of eleven experts.

Another wonderful piece of news this year was the formation of Thyroid Cancer Alliance (www.thyroid-cancer-alliance.org) which is a group of 7 national thyroid cancer support groups from Europe and the Americas. This group developed a survey exploring thyroid cancer experiences of more than 2,400 patients (274 Canadians). The survey results were presented at

Research Study Reminder

A quick reminder that a research study of interest to thyroid cancer patients, is underway in Toronto. The study tests an internet-based decision aid. This web-based site may help those who may want more information about the pros and cons regarding radioactive iodine treatment. If you were diagnosed after September 1 2009 with papillary thyroid cancer, have not yet had RAI treatment, can travel to the Toronto General Hospital, then you may be a candidate for this important study. For more information, contact Dr. Anna Sawka's office at 416-340-4800 ext 5886.



Call for Participants:
Thyroid Cancer Research Study

- Have you recently had surgery to remove your thyroid and been told you had papillary thyroid cancer?
- Has your doctor mentioned radioactive iodine treatment for thyroid cancer?
- Do you want to learn more about the choice to take radioactive iodine treatment?

If you answered YES, you may be interested in a research study, in which we are testing an educational website exploring the pros and cons, and options, relating to radioactive iodine treatment for early stage papillary thyroid cancer.

- We are currently looking for adults who:
 - Have had their thyroid completely removed by surgery since September 1, 2009 and who were told they had papillary thyroid cancer
 - The thyroid cancer must have not spread outside of the thyroid (with no spread to lymph nodes)
 - Participants should NOT have had radioactive iodine treatment before taking part in this study (but may be eligible if they are on a treatment waiting list)
- What does the study entail?
 - The study is a randomized controlled trial in which half of participants will receive the educational website and half will not. The study involves one visit to the Toronto General Hospital as well as some follow-up by telephone several months later.

Compensation is provided for participants in this study.

Thyroid Cancer Decision Aid Trial
A.M. Sawka, MD, Toronto General Hospital
Phone: (416) 340-4800 (ext. 5886)

PT, December 9, 2009

Living Downstream

A book review by Charna Gord, BSc, MEd, RD

Charna Gord is a Registered Dietitian working as an Education Coordinator in an Ontario public health unit. She underwent a total thyroidectomy for thyroid cancer in December 2007. This is the eleventh in a series of thyroid cancer related journal articles and other resource reviews that Charna has undertaken for Thy'vors News.

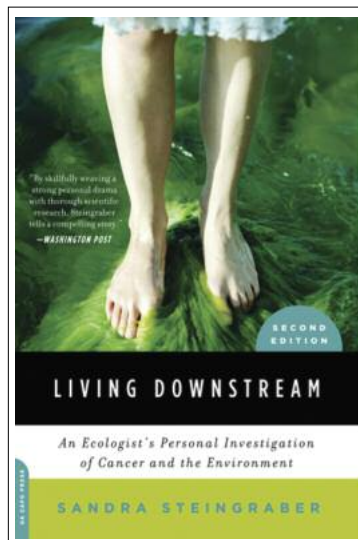
In this review, Charna summarizes the findings of the following book:

Steingraber, Sandra. (2010) *Living Downstream: An Ecologist's Personal Investigation of Cancer and the Environment*. Da Capo Press, Second Edition, 414 pages.

“The most direct way to prevent cancer is to stop putting cancer causing agents into our indoor and outdoor environments in the first place.”ⁱ

Living Downstream: An Ecologist's Personal Investigation of Cancer and the Environment is a wonder to read. The book was first published in 1997 and revised in 2010 by author Sandra Steingraber. It focuses on cancer prevention and it will be read by health professionals, environmentalists, and families touched by cancer. As an American scientist and cancer survivor, Steingraber's courage and empathy shine through the deeply personal portions of her book. Without giving away the punch line of her tremendously moving personal story, she writes about coming from a family where there is a prevalence of cancer and her outspoken love for her rural community of origin in Illinois. The poet in her makes the reading of her scientific documentation easier to grasp and a pleasure to read. Her ability to personalize and humanize the disease, whilst discussing epidemiological research, is humbling. Even after many years of reading scientific reports she finds ways to honour the people who have died and those who are yet to die, and whose deaths are being written up in medical journals.

Steingraber updated her book to synthesize what is currently known about environmental contamination and



cancer in order to uncover what new patterns exist, to identify further research areas and to argue for adherence to the 'Precautionary Principle'. The core principle of the Precautionary principle can be described as “...when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if

some cause and effect relationships are not fully established scientifically. This means that we need to: take action in the face of uncertainty; place the burden of proof of harm on the proponents of the activity instead of the potential victims; explore alternatives to possibly reduce harmful activities before taking action; and use democratic processes to carry out and enforce this principle.”ⁱⁱ

Steingraber's work builds from the legacy left behind by American biologist Rachel Carson, who died in 1964 soon after publishing her influential book, *Silent Spring*. Carson articulated the relationship between environmental contamination and human rights when she presented to the U.S. Senate subcommittee. All the while she was privately dying from breast cancer. Her key message was that people have the right to know what poisons are being released into the environment and the right to protection against them. Increased use of petrochemicals in industry began with the end of the Second World War, and in spite of workplace right-to-know and other environmental protection laws, a minority of the approximately 23,000ⁱⁱⁱ synthetic chemicals being used in Canada today have comprehensive toxicity data, with most chemical carcinogens still unidentified and unmonitored.

“Cancer is a river whose headwaters is not a single source but a network of streams that both fan out and reconnect.”^{iv}

Since the writing of the first edition of the book over a decade ago, Steingraber identifies six new critical trends in our understanding of the effect of the environment on

cancer. 1) The causes of cancer are complex. 2) ‘Epigenetics’, the study of how chemical exposures can alter the behaviour of genes, effect the development of cancer. 3) Some exposures act as dangerous endocrine disruptors. 4) The timing of exposure to toxic substances effects the growth of cancer. 5) Exposure to combinations of chemicals has different effects than exposure to a single agent. 6) Adherence to the Precautionary Principle for environmental decision-making is vital to protect public health.

Two worrying examples Steingraber describes to demonstrate the role of the environment in cancer concern firstly cancer in children and secondly smoking and cancer. Her first example shows that although it’s true that more children are successfully treated for cancers than ever before, it is also true that in many industrialized countries more children are diagnosed with cancer each year than the previous year. As dangerous lifestyle choices cannot be blamed for the apparent rises in incidence of cancer in children, exposure to environmental contaminants is implicated. And secondly, although smoking remains the largest single known preventable cause of cancer, the majority of cancers cannot be traced back to cigarettes. Trends in smoking are going down, yet incidence of specific cancers are increasing; for example, testicular cancer in young men and thyroid cancer in young women.

“What We Love We Must Protect.”^v

Living Downstream is a serious book. I read it during a two-week summer holiday while I was living in a rural community that I love, attending music and art camp. I needed to surround myself in nature, far away from my urban work life, to have the energy, the mind space and the courage to read her words. Not because the book is hard to read; on the contrary, the authenticity of her writing makes reading her book straightforward, but because her argument and evidence is so compelling. As a thyroid cancer survivor and public health practitioner, reading her poignant descriptions of the watchful waiting that occurs for patients, families and friends between medical tests and appointments, and the pregnant silence that builds up amongst loved ones coping with diagnosis and treatment, resonated deeply. Her ability to explain cancer and how it wreaks havoc in cells and bodies in clear and gentle language is awesome.

In the witnessing of the rising frequency of cancer within my own circles and in the face of the ease with which the term ‘chronic illness’ is being used in the media and health literature to describe cancer, the concept of cancer as an “epidemic in slow motion”^{vi}, is troubling. The rising ‘cancer burden’ (i.e. the economic, social and psychological costs of cancer) caused by the increasing prevalence of cancer, has not yet been fully understood or resolved by individuals, families, workplaces or the wider community.

Thyroid cancer patients and survivors, like other cancer patients and survivors, wonder what caused them to get cancer. Steingraber suggests that in cancers unrelated to tobacco and where the rates are on the rise, such as thyroid cancer in women, improvements in diagnostic techniques alone cannot account for the increased incidence. She argues that increased incidence is linked to environmental exposures and she lists one study in particular where rats exposed to the carcinogen dioxin (TCDD) show abnormal hormone disruptions.^{vii}

“To ignore the scientific evidence is to knowingly permit thousands of unnecessary illnesses and deaths each year.”^{viii}

Steingraber authoritatively unpacks the weakness in framing cancer largely as a lifestyle disease caused by individual behaviour. She argues that cancer is primarily an environmental disease caused by exposures to disease-causing agents. She does not accept the argument that the ongoing contamination of our air, food, water and soil is unalterable and something to which we must adapt by trying to avoid carcinogens.

Steingraber must understand the powerful effect of her words and to avoid paralyzing her readers with the impact of her message, she links action with hope. She advocates for, and invites others to join her to speak out and promote, strategies such as green chemistry and agricultural system redesign. She comments on the use of bans on chemicals to lower exposure and she cites Ontario as a jurisdiction that has successfully banned smoking in public and pesticide use for cosmetic purposes. She cites the removal of lead from gasoline as an example of how careful monitoring over several decades removed a serious contaminant affecting the health of children. She emphasizes the merits of ‘biomonitoring’, the search for an individual’s ecological roots by learning about the physical environment in which

they grew up. The information acquired from our cells and tissue, similar to how tree-ring analysis can tell a story about a history of a forest, can provide evidence for ‘toxic trespass’, or the extent to which toxic chemicals including cancer-causing agents have trespassed into our air, food, water, soil and our bodies. She recommends the adaptation of biomonitoring as a public health tool by sampling a representative cross-section of the population for a long enough period of time for trends to emerge.

In *Living Downstream*, Steingraber takes us on incredible personal and epidemiological journeys. Her evidence based research, analysis and recommendations and the questions she leaves us with are stunning. Why, she asks, must there be carcinogens in our environment and in our work places. Why are we still manufacturing these poisons? Why is the responsibility for cancer prevention downloaded onto individuals and not to commercial and agriculture industries that routinely create and use carcinogens and untested chemicals that we all ingest?

Further to reading her book, there is now a powerful documentary film with the same title, which follows Steingraber for one year. Produced and directed by Chanda Chevannes of the People’s Picture Company, its Canadian premiere was held at the Bloor Cinema in Toronto in May, 2010. To watch the trailer and for further information on the video and accompanying educational resources click on their website at <http://www.livingdownstream.com/index.html>

ⁱ Steingraber, S. (2010). *Living Downstream: An Ecologist’s Personal Investigation of Cancer and the Environment*. Da Capo Press, p. xxiv

ⁱⁱ Occupational and Environmental Carcinogens Working Groups for the Toronto Cancer Prevention Coalition. (2001). *Preventing Occupational and Environmental Cancer. A Strategy for Toronto*. p. 40.

ⁱⁱⁱ The Canadian Environmental Law Association (CELA) and the Ontario College of Family Physicians (OCFP), Environmental Health Committee. (2000), *Environmental Standard Setting and Children’s Health*, p. 22

^{iv} Steingraber, S. p. 278

^v Living Downstream website, retrieved from www.livingdownstream.com/index.html

^{vi} Steingraber, S. p. 48

^{vii} Steingraber, S. p. 224, 285

^{viii} Steingraber, S. p. xxv

POEM

Nuked

by: Janice Veri

The room is shocking.
It does not feel safe
So small-
Pots of toxic cures,
In a pizza oven

He seems an aged troll
Do they sacrifice
The old?
Charged with dispensing
This new clear power?

I see he shows no fear
Lifting my lead pot
Protected-
While I feel naked-
No defence to the rays

His tongs drop the capsule
To my tongue outstretched

Swallow-
I feel the deceit
Of its ease down my throat

I am persona non-grata
An untouchable-
Blinding-
My body glows, yet
The troll shakes my hand

In my fallout shelter
To protect others -
Banished -
I see my love’s fear
Not for me, but of me.

**TCC welcomes you to send your poetry to
newsletter@thyroidcancercanada.org**

Ask Thy'vors

by Mia Craig

The members of TCC's Medical Advisory Panel are available to answer YOUR general questions about every aspect of thyroid cancer. A list of our Medical Advisory Panel members appears on our website at: www.thyroidcancercanada.org/medical-advisory-panel.php

In This Issue:

We ask about how and when Thyroglobulin (Tg), a protein in blood, is tested in thyroid cancer patients.

Q1:

What is the difference between Thyroglobulin testing values under stimulated or non-stimulated conditions (i.e. those that are stimulated with Thyrogen® vs. just during a regular blood test). How do you interpret them clinically as to the difference in their importance?

A 1:

Thyroglobulin (Tg) is a substance that is only made by thyroid cells. Therefore, we can use Tg levels to help us monitor for recurrence of thyroid cancer after someone has had their entire thyroid removed and they have had radioiodine ablation. Thyrogen® or withdrawal causes the TSH level to rise, which results in stimulation of any remaining thyroid cells (cancer or normal) to make Thyroglobulin. Therefore, if the Tg level is undetectable, even when stimulated, we can be confident that there are no remaining thyroid cells. However, under non-stimulated conditions, the person is on thyroid replacement and their TSH is purposely kept low. When Tg is measured under those circumstances, an undetectable value is good but not 100% reassuring because if there were

only a small number of thyroid cells, they may not make enough Tg to be detected when not stimulated, but would make enough if stimulated. Therefore, clinically, stimulated Tg is much more useful when monitoring for recurrence of disease compared to non-stimulated.

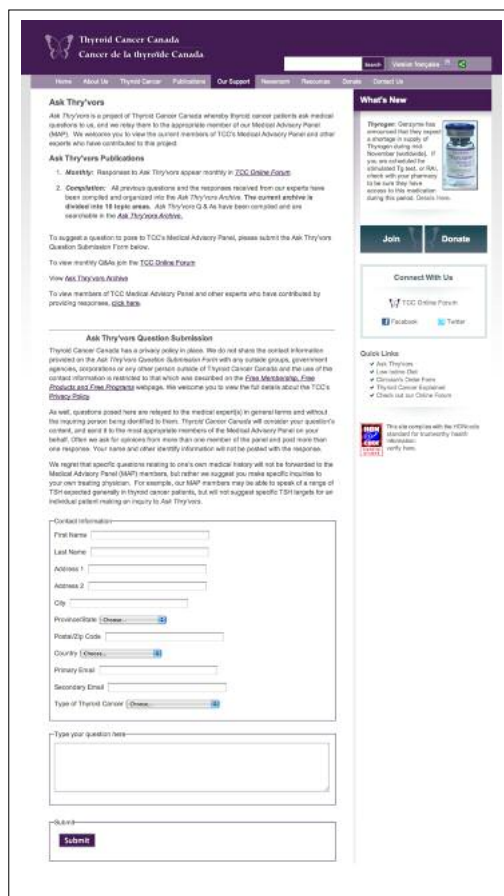
Q2:

In patients with Tg Antibodies following treatment with RAI, is it common for the antibodies measurement to become undetectable over time as the RAI continues to ablate the remnant tissue? How likely is it that the Tg Antibodies will 'disappear' with time and in what time period may that happen? Is a corresponding Tg measurement considered to be so unreliable as to make it totally insignificant in meaning, or is a low Tg paired with Tg Antibodies still have some predictability in terms of recurrence? Can the movement of measure of Tg Antibodies over time (up or down) in itself be used as a measure of remnant or metastatic tissue?

A 2:

If the radioiodine ablation was successful, one would expect that the anti-Tg antibody levels would also become undetectable over a matter of months to years. If anti-Tg antibodies are present, the Tg level is considered completely unreliable and the levels cannot be used for monitoring. That is because the presence of anti-Tg antibodies can sometimes raise the Tg reading or lower the Tg reading. The current guidelines suggest that one could use the level of anti-Tg antibody as an inexact indicator that there may be recurrent disease if the level starts to rise.

Special thanks to Dr. Alice Y.Y. Cheng, Endocrinology and Metabolism, Assistant Professor (Adjunct) at the University of Toronto for her participation in this edition of 'Ask Thy'vors'.



The screenshot shows the 'Ask Thy'vors' section of the Thyroid Cancer Canada website. It includes a header with the organization's name and logo, a navigation menu, and a main content area. The main content area contains the 'Ask Thy'vors' title, a brief introduction, and a 'Question Submission' form. The form includes fields for 'First Name', 'Last Name', 'Address 1', 'Address 2', 'City', 'Province/State', 'Postal/Zip Code', 'Country', 'Primary Email', 'Secondary Email', and 'Type of Thyroid Cancer'. There is also a 'Submit' button and a 'Type your question here' text area.

To pose to TCC's Medical Advisory Panel, please submit the Ask Thy'vors Question Submission Form found on: www.thyroidcancercanada.org/ask-thy-vors---ask-your-question.php

LID RECIPE BOX

Burgers with Roasted Garlic and Rosemary - Servings: 4
A hearty dinner for a cold winter's night

- 1 whole bulb garlic
- 1lb ground meat (beef, turkey, chicken)
- 1 zucchini, ends trimmed and coarsely grated
- 2Tbs chopped fresh rosemary
- 1/2tsp cracked black pepper
- 4 whole hamburger buns, split
- 4 tomato slices
- 4 lettuce leaves
- 4 red onion slices



Procedure

- Preheat oven to 400 degrees F.
- Wrap garlic in foil, place in oven and roast 45 minutes, until tender.
- When cool enough to handle, peel away foil and squeeze cloves from papery skin.
- Transfer to a large bowl and add ground meat, zucchini, rosemary, and cracked pepper. Mix well to combine.
- Shape mixture into 4 equal patties.
- Preheat grill or broiler.
- Grill or broil burgers (if broiling, use a baking sheet) 5 minutes per side for medium doneness.
- Arrange burgers on buns and top with tomato, lettuce and onion.

Thyroid Cancer Canada has recently assembled all recipes that have been shared with us by patients, in a new document on our website. View the Low Iodine Diet section of the website at www.thyroidcancercanada.org.

Community Events

The following events are offered by the Thyroid Foundation of Canada, Kitchener-Waterloo Chapter. Please contact them directly for more information at 519-745-4475

Date: Monday, January 10, 2011
Time: 7:00 pm
Topic: Nuclear Medicine - Thyroid Scanning/Testing
Speaker: Dr. Richard A. Dubeau, Department of Nuclear Medicine, St. Mary's Hospital, Kitchener
Location: Kitchener Public Library, Country Hills Branch, 1500 Blockline Road

Date: Tuesday, April 19, 2011
Time: 7:00 pm
Topic: Thyroid Nodules
Speaker: Dr. Deric Morrison, MD, FRCPC, Division of Endocrinology, Department of Medicine University of Western Ontario
Location: Kitchener Public Library, Forest Heights Branch, 251 Fischer-Hallman Rd.

Like you, we have been touched by thyroid cancer. We are a non-profit organization and we are all volunteers. If you would like to donate or to become a volunteer please visit www.thyroidcancercanada.org.

Donation cheques may be made payable to: Thyroid Cancer Canada

Mail to: Thyroid Cancer Canada
 PO Box 23007, 550 Eglinton Ave. West
 Toronto, ON M5N 3A8