Thyroid Foundation of Canada

thyrobulletin

La Fondation canadienne de la Thyroïde

Volume 23, No. 1 **Spring 2002**

What is the influence of Genes on Thyroid Eye Disease?

by
Tristan TQ Reuser, MD

We know there is a connection between an overactive thyroid gland and the orbital/eye changes of Thyroid Eye Disease (TED), and we know that the two do not necessarily happen at the same time. But both do not always occur in the same patient: not all the patients that develop Graves' thyroid disease will necessarily develop TED. We know the mechanisms involved that will eventually cause the changes in the orbital tissues. However, we do not yet know what causes TED. It is likely that both our genes as well as our environment are important. What do we know regarding the genes involved in TED?

With advances in scientific techniques over the last decade, research has speeded up in the genetic field, and as a consequence more detailed studies are being done.

Chromosomes

Chromosomes are a whole collection of genes, and we all have 23 pairs of them. One pair, the X and Y chromosomes are commonly know as the 'sex chromosomes' since they determine what sex a person is.

We have known for a long time that the wrong sex to have in this regard is the female one. Female TED patients far outnumber their male counterparts. A significant role is likely played by the female sex hormones, and they probably have a modifying role towards the immune system. If patients with TED could choose their sex, I would advise them to stay female, since although most TED patients are female, the male patients fare significantly worse, especially older men. We are not sure why this should be, but it suggests there are

factors other than genes that affect the severity of the eye changes: why would older men be worse affected than younger ones? We have also known for a long time that in identical twins, if one twin develops Graves' disease the other only has a 20% of also developing this disease. So in persons with the same genes, one still does not see equal numbers of people affected. If genes were all important, one would expect a higher percentage than 20.

Genes

Recently more detailed studies have been done, looking at specific genes. It has been shown that Graves' disease is linked to certain genes that a person has in the whole collection of genes that makes up their genetic 'fingerprint'. And although no one single gene has been found to be solely responsible for Graves' hyperthyroidism, certain genes are present more often in patients with Graves' disease compared to patients without the disease. For technophiles: HLA-DR3, HLA-DQA1*0501 are in white persons positively linked to Graves' disease, but HLA-DRB1*0701 protects against it. Associated in this respect means that these genes are found more often in patients suffering with the disease compared to people who do not suffer with Graves' disease. Graves' is also associated with 'cytotoxic T-lymphocyte antigen 4' in several races.

It has not been clear whether in TED these genes played an important role. We recently finished a study on a lot of TED patients seen in the combined TED clinic at the eye clinic in Birmingham Heartlands Hospital, England. We looked at genes that were known to be linked to Graves' disease, and wanted to find out whether there was a difference in patients

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with Graves' hyperthyroidism with TED and patients with Graves' disease but without TED with regard to the presence of these genes. If there would be a difference, we would know a bit more about the role of genes in TED.

In our study we could confirm what had been found in other studies regarding the role of certain genes and Graves' disease: some genes are more common in patients with Graves' disease. However, we did not find a difference between TED and non-TED patients! It means that these specific genes do raise the risk for developing Graves' thyroid disease, but it does not mean that these patients then also have a higher risk of developing TED. So was this study a useless one? No, it means that other influences play a role in causing TED in these patients: other genes possibly, or indeed other environmental factors. One environmental factor is worth mentioning, even though we now know that it not only harms TED patients, but many other tissues in the body. Smoking is definitely related to more severe TED.

Although there are diseases in which a cause can be found easily, and the presence of that disease can be simplified to the presence of one gene, this appears not to be the case in thyroid disease; more genes are likely involved, causing some predisposition or susceptibility.

Environmental factors then trigger an event in the body that will start a whole series of changes that eventually lead to the development of the well-known thyroid gland and eye changes. Because the development of TED is so complex, it will be quite some time before we know how to put the pieces of this puzzle in the right place.

Tristan TQ Reuser, MD, FRCS(Ed) FCROphth, Consultant Orbital, Lacrimal and Eye Plastic Surgeon, Birmingham Heartlands Hospital, England. Reprinted with kind permission from TED, the newsletter of the Thyroid Eye Disease Association.

A child's life is like a piece of paper on which every person leaves a mark.
(Chinese Proverb)

Monthly Draw

By renewing your Membership now you become eligible for our Monthly Draw.

Every month one renewing member receives a book on thyroid disease.

Our December 2001 winner was:
Mr. J. O. "Moe" Morrice
Winnipeg, Manitoba

Our January 2002 winner was:
Ann MacLeod
Pointe-Claire, Quebec

Our February 2002 winner was:
Inge Clifton
Petawawa, Ontario

Each of our winners received
"The Thyroid Gland A Book for Thyroid Patients"
by Joel I Hamburger, MD, FACP

NOTICE TO ALL MEMBERS

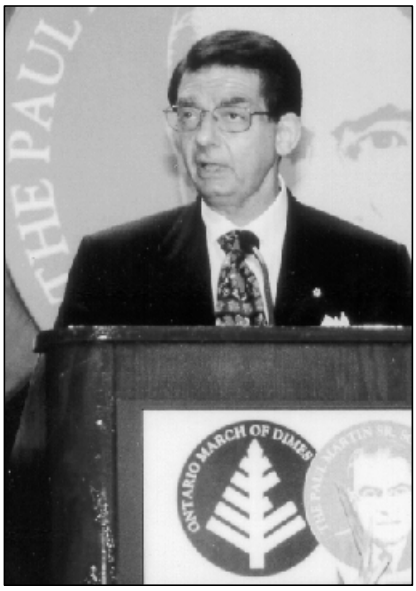
Your membership in the Foundation expires on the date that is printed on the address label on your *thyrobulletin.*

Please use the **Membership/Donation Form** on page 15.

You may renew early – and for one or two years! You will be credited with renewal on the date that you are due to renew.

. . . Donations are always welcome.

Congratulations to Dr. Paul G. Walfish



Dr. Paul G. Walfish,
C.M., M.D., F.R.C.P. (C), F.A.C.P.

Dr. Paul G. Walfish, Professor of Medicine, Pediatrics & Otolaryngology, University of Toronto Medical School and a Senior Consultant, Department of Medicine, Endocrine Division, Mount Sinai Hospital, Toronto, has been awarded a 2001 Jonas Salk Prize, sponsored by the Ontario March of Dimes and Aventis-Pasteur, Canada. The award recognizes Dr. Walfish's pioneering research contributions which have resulted in the development of a newborn-screening program for detecting congenital hypothyroidism and preventing the mental and physical disabilities that would have otherwise developed if thyroid hormone replacement therapy had not been commenced the first month after birth.

The Jonas Salk Prize honours a Canadian scientist or physician who has made an outstanding contribution in science or medicine to the prevention, alleviation or elimination of physical disability. The award was presented to Dr. Walfish by Darrel Salk, eldest son of Jonas Salk, at the fall dinner of the Paul Martin Sr. Society, October 24, 2001, at the Sheraton Centre Hotel Toronto.

President's message

Irene Britton
National President/Présidente nationale

Good News! We have been advised that subject to final approval by the Court, we have been chosen as recipients of Cy-pres funding named in the Settlement Agreement between the plaintiffs and the defendants in the Synthroid class action suit.

A hearing for Court approval of the settlement took place on April 3, 2002. Public notification of this hearing began on March 1, 2002.

Should the Court approve the settlement the estimated grant made to the Thyroid Foundation of Canada will be in the amount of approximately $50,000 for education and outreach programs.

However, it must be noted that this grant is subject to the ultimate authority of the Court to approve or make changes to the arrangement that has been reached between the parties.

I would like to emphasize that the reasons for the class action suit, and the settlement thereof, were the result of inappropriate marketing practices on the part of the drug company, and **not** the effectiveness of Synthroid.

We are especially grateful to one of the members of the class action who had a particular interest and understanding of the type of support the Foundation offers.

Thanks to all who have donated much-needed funds to the Foundation. Without your support, we can do nothing. To those of you still thinking about it, I urge you to consider donating to your Foundation from your next paycheque. There is a growing need for the distribution of information to thyroid patients and for the education of patients and the public on thyroid disease. Education, Awareness, Research – those are our aims.

April is Volunteer Month and I want to thank all the volunteers who work so diligently for the Foundation. As you are aware, with just a small support staff of two, TFC is managed exclusively by volunteers. These dedicated people each donate hundreds of hours a year for the benefit of those suffering from thyroid disease.

There are volunteers and then there are Thyroid Foundation of Canada volunteers. We salute you!

Message de la présidente

De bonnes nouvelles! Nous furent avisés que, sujet à l'approbation de la Cour, nous avons été choisis comme bénéficiaire des fonds de Cy-pres nommé dans le contrat de règlement entre les plaignants et les défendeurs dans l'action contre Synthroid. Une audition pour l'approbation de la Cour a pris place le 3 avril, 2002. Le public fut notifé de cette audition commencent le 1 mars, 2002.

Si la Cour approuve ce contrat de règlement, le montant estimée de cette subvention sera d'environ 50 000$ pour les programmes d'éducation de La Fondation canadienne de la Thyroïde. On doit bien noter que cette subvention est sujette à l'autorité ultime de la Cour à approuver ou à faire changement aux arrangements fait entre les participants de ce règlement de contrat.

Je voudrais bien souligner que cette action était le résultat des pratiques de marketing inapproprié de la compagnie de drogue et non l'efficacité de Synthroid qui étaient les raisons pour l'action et le règlement de contrat qui a suit.
Nous sommes particulièrement reconnaissant à un des membres de l'action qui avait une compréhension et un intérêt particulier du type de fonction qu'offre la Fondation.

Merci à tous ceux et celles qui ont déjà donné les fonds ci nécessaire à la fondation. Sans votre appui, on ne peut rien faire. A ceux et celles qui y pensent encore, je vous presse à considérer de faire un don perçu de votre prochaine paie. Il y a un grand besoin d'éduquer les patients thyroïdiens et le publique et aussi la distribution d'information aux patients. L'éducation, l'éclaircissement, la recherche – ceux-ci sont nos buts.

Avril est le mois des bénévoles, et je veux dire un grand merci à tous les bénévoles qui travaillent avec assiduite pour la fondation. Comme vous le savez sans doutes, avec rien qu'un personnel de soutient minimum de deux, la fondation est dirigée exclusivement par des bénévoles. Ces personnes dédiées offrent des centaines d'heures chaque année pour bénéficier ceux qui souffrent de maladies thyroïdiennes.

Il y a des bénévoles et ensuite il y a les bénévoles de La Fondation canadienne de la Thyroïde. On vous salue!

We need you

- ✓ consider a gift membership
- ✓ renew your membership
- ✓ consider a donation
- ✓ ask a friend to join

Visit our website if you wish to use a credit card on our secure payment system.

Remember . . .

the only gift too small is no gift at all!

Thank you for your past support. Your help is needed more than ever.

Nathalie Gifford,
Member-at-large, Membership Chair

Thyroid Foundation of Canada

thyrobulletin

La Fondation canadienne de la Thyroïde

ISSN 0832-7076 Canadian Publications Mail Product Sales Agreement #139122

thyrobulletin is published four times a year: the first week of May (Spring), August (Summer), November (Autumn) and February (Winter)
Deadline for contributions for next issue: June 15, 2002

Le **thyrobulletin** est publié quatre fois par année: la première semaine de mai (printemps), août (été), novembre (automne) et février (hiver).
La date limite pour les articles pour le prochain numéro: le 15 juin, 2002

Contributions to/à – Editor/Rédacteur: Ed Antosz
973 Chilver Road, Windsor ON N8Y 2K6
Fax: (519) 971-3694
E-mail: antosz@uwindsor.ca

Please note:

The information in *thyrobulletin* is for educational purposes only. It should not be relied upon for personal diagnosis, treatment, or any other medical purpose. For questions about individual treatment consult your personal physician.

Notez bien:

Les renseignements contenus dans le ***thyrobulletin*** sont pour fins éducationelles seulement. On ne doit pas s'y fier pour des diagnostics personnels, traitements ou tout autre raison médicale. Pour questions touchant les traitements individuels, veuillez consulter votre médecin.

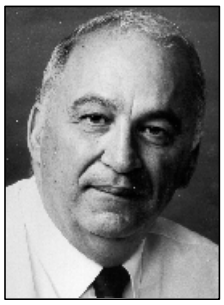
The objectives of the Foundation are:

- to awaken public interest in, and awareness of, thyroid disease;
- to lend moral support to thyroid patients and their families;
- to assist in fund raising for thyroid disease research.

* * * * *

Les buts de la Fondation sont:

- éveiller l'intérêt du public et l'éclairer au sujet des maladies thyroïdiennes;
- fournir un soutien moral aux malades et à leur proches;
- aider à ramasser les fonds pour la recherche sur les maladies thyroïdiennes.



Letters to the doctor

Robert Volpé, MD, FRCPC, MACP, Medical Adviser to the Foundation

I have had a thyroid problem for many years now and I urgently need to know how to solve it. My nodule is located on the left-hand side of my thyroid and it is a warm functioning nodule. I have been on Synthroid since 1983 when it was first discovered.

I desperately need your advice now because I am not certain if I have hypothyroidism or hyperthyroidism or whether I should consider surgery.

Hoping to hear from you at your earliest convenience since I have been a subscriber to *thyrobulletin* many years now and acquired a great deal of information from it.

Thank you for your letter of December 4, 2001, regarding your thyroid nodule. I take note that you have had a thyroid nodule since 1983, which is now 18 years. It is not clear from your letter if it has enlarged during that long interval, or whether it has remained stable.

If it has remained stable I would doubt that you require any surgical intervention. If it is enlarging, that is a different matter, and would suggest that you might need surgery in that situation. Whether you are hypothyroid or hyperthyroid is not a function of the size of the nodule, and you probably have neither of these conditions.

There are several excellent thyroidologists in the Montreal area and I might suggest that you see one of these, such as Dr. Enricque Silva, of the Department of Medicine, the Jewish General Hospital in Montreal.

*****

I have been taking Eltroxin for eight years and am currently taking 0.1 mg. Could there be a connection between hypothyroidism and tinnitus? The tinnitus developed approximately one year ago.

There is no connection between hypothyroidism and tinnitus. Tinnitus is usually due to an abnormality in the inner ear, and you should see an Ear, Nose and Throat specialist for that purpose. Moreover, the use of Eltroxin will not interfere one way or the other and should be continued.

*****

Thank you for the commemorative issue of *thyrobulletin* in memory of the Founder, Diana Hains, Meltzer Abramsky. I joined the Foundation from the first ad in *The Montreal Star.*

When I left Montreal in 1986 I was under the care of my endocrinologist for 19 years, Dr. Marvin Clamen. When I arrived in Israel I was sent to a specialist in Internal medicine before I could ask to be sent to an endocrinologist. Dr. Knecht told me not to worry, he would take care of me. During the years, every six months my doctor sends me for a TSH test. Whenever I ask him to send me to an endocrinologist, he refuses. He never touches my throat, only takes my blood pressure.

I would like to see an article written about what your doctor should do beside look at your TSH. How can I check my thyroid? I am a woman of 75 years. I know that I always have low blood pressure 120/70 - it runs in the family.

Why do we need an endocrinologist? I have the books *The Thyroid Gland – A Book for Thyroid Patients* by Dr. Joel Hamburger, and *Your Thyroid – A Home Reference* by Drs. Lawrence Wood, David Cooper & Chester Ridgway

I would like to know when your Graves' disease started with hyperthyroidism and in old age it became hypothyroidism, does one still have Graves' disease?

In a recent issue of *thyrobulletin* in *Letters to the doctor* a lady asks why her TSH is sometimes 0.5 and sometimes it rises to 6.0. When my TSH was 10.07, I told my doctor it was high and he said to take 2 - 100 mcg tablets of Eltroxin every third day. After six months the TSH fell to 0.70. My doctor told me to continue till the next six-months test.

Aside from doing the blood tests for thyroid function, the thyroid gland should be felt by an expert examiner. If there is any abnormality in the size and shape of the thyroid, then at least an ultrasound of the thyroid should be performed.

Graves' disease is characteristically associated with hyperthyroidism. It is caused by an antibody which stimulates the thyroid gland and makes it overactive. However, after treatment, or even spontaneously at times, the gland can burn out and become hypothyroid. However, if it commenced as Graves' disease, then it may still be called Graves' disease, although the function has become low.

The TSH values can vary considerably from day to day, and certainly may vary from 0.5 mu/l up to the upper limits of normal. If your TSH was 10.07 mu/l, that is above normal and that indicates that you do require more thyroid hormone.

*****

Live one day at a time
And make it a masterpiece

If you have not made your will yet, will you do it now? Will you remember the Thyroid Foundation of Canada?

If you plan to update your will, will you do it now? Will you help the Thyroid Foundation of Canada?

If we have helped you, will you help us help others? A bequest, an insurance policy, a tax exempt donation – will you think about it? Will you do it now?

Summer scholarship report

by
Marie-Eve Domingue

Thyroid hormones are essential to the human body. They contribute to the development and differentiation of cells and to the regulation of the metabolism. These hormones act by binding to receptors that are located in the cell nucleus. When bound by their hormone, nuclear receptors become active and initiate the transcription process leading to the synthesis of proteins responsible for the effects of thyroid hormones.

Research on the mechanism of action of T3, the active form of the thyroid hormone, shows that many co-regulators are necessary for optimal action of thyroid hormone receptors (TRs). In Dr. Langlois' laboratory, new co-regulators interacting with TRs have recently been identified. My project was to study the interaction between one of these new co-regulators and the different TR isoforms: TRa1, TRb1 and TRb2.

The first step was to become acquainted with molecular biology techniques used in the laboratory. More specifically, I worked on the cloning of the TRb2 gene in a variety of plasmid vectors to measure its interaction with my co-regulator. I began by verifying this interaction *in vitro,* followed by experiments in living cells. In order to understand the action of the co-regulator in the binding of T3 to TRb2, T3 was either omitted or added. I found that the co-regulator interacts with all TR isoforms and that T3 influence on this interaction was limited.

If the findings of similar projects were to be collated, the detailed functioning of TRs and the precise action of the co-regulators would undoubtedly be more fully understood. This would make it easier to identify the mechanism that are impaired in pathologic conditions of the thyroid system and possibly allow researchers to determine with precision when intervention or treatment becomes possible. It is in this way that the research I took part in was of great importance.

I would like to thank the Thyroid Foundation of Canada for giving me the opportunity to participate in this research project. This experience allowed me to discover the world of research and to realize the importance it has on understanding thyroid diseases. I would also like to express my gratitude to Dr. Marie-France Langlois for her availability, support and encouragement. Finally, I would like to thank Dr. Langlois' laboratory staff for their precious teaching and good advice.

Marie-Eve Domingue
Second-year medical student
Laboratory of
Dr. Marie-France Langlois
Université de Sherbrooke

UNIVERSITÉ DE SHERBROOKE

Faculté de médecine
3001, 12e Avenue Nord
Sherbrooke (Québec)
CANADA J1H 5N4

Département de médecine, biochimie et physiologie
Service d'endocrinologie
Téléphone : (819) 564-5223
Sec. : (819) 564-5244 Télécopieur : (819) 564-5292
Courrier électronique : mflanglo@courrier.usherb.ca

Marie-France LANGLOIS, MD, FRCPC, CSPQ
Professeur adjoint

Sherbrooke, March 11, 2002

Mrs. Rita Wales
Liaison, Medical Research
Thyroid Foundation of Canada

Please find enclosed the Research Report of Marie-Ève Domingue, in French and English, and a photograph of both of us in the laboratory. I would like to take the opportunity to thank the Thyroid Foundation for giving the opportunity to medical students to have a laboratory experience during the summer and to be introduced early to the importance of thyroid diseases. I think that Marie-Ève benefitted a lot from learning how we study thyroid hormone in the laboratory, and from her attendance at my thyroid clinics. In fact, she plans to pursue additional research on thyroid hormone action starting next summer in the MD-MSc program of our university.

Sincerely,

Marie-France Langlois, MD, FRCPC, CSPQ
Endocrine Division, CHUS
Professeur adjoint
Faculté de médicine
Université de Sherbrooke

Thyroid Foundation of Canada
La Fondation canadienne de la Thyroïde

Rapport de stage – initiation à la recherche

par
Marie-Eve Domingue

Les hormones thyroïdiennes sont essentielles au bon fonctionnement de l'organisme. Elles contribuent notamment au développement et à la différenciation des cellules et à la régulation du métabolisme. Ces hormones agissent en se liant à des récepteurs qui sont situées dans le noyau des cellules. Lorsqu'ils sont liés par l'hormone, les récepteurs nucléaires deviennent actifs et initient le processus de transcription menant à la formation de protéines. Les protéines ainsi générées produisent l'effet des hormones thyroïdiennes.

La recherche qui a été faite quant au mode d'action de la T3, la forme active des hormones thyroïdiennes, montre que de nombreux co-régulateurs sont nécessaires à l'action optimale des récepteurs des hormones thyroïdiennes (TRs). Dans le laboratoire de Dr Langlois, de nouveaux co-régulateurs interagissent avec les récepteurs thyroïdiens ont récemment été identifiés. Mon projet d'été a donc consisté à étudier l'interaction d'un nouveau co-régulateur avec les différents isoformes des TRa1, TRb1 et TRb2.

La première étape a été de me familiariser avec les techniques de biologie moléculaire propres à la recherche en laboratoire. Plus particulièrement, j'ai travaillé à cloner le gène de TRb2 dans divers vecteurs afin de le rendre utilisable et d'être en mesure d'étudier son interaction avec le co-régulateur en question. J'ai vérifié cette interaction *in vitro* puis dans des cellules, selon la présence ou l'absence de T3, afin de mieux comprendre l'action du co-régulateur lors de la liaison de la T3 à TRb2. J'ai trouvé que le co-régulateur interagit avec toutes les isoformes et que la T3 a peu d'influence sur ces interactions.

Éventuellement, lorsque les résultats de projets similaires auront été mis en commun, la compréhension du fonctionnement détaillé des récepteurs et du rôle des co-régulateurs s'en trouvera plus complète. Nous serons alors en mesure d'identifier des mécanismes pouvant faire défaut des certaines conditions pathologiques du système thyroïdien et peut-être même de pointer l'endroit précis où il nous serait possible d'intervenir cliniquement. En se sens, la recherche à laquelle j'ai participé a une grande importance.

Je voudrais remercier La Fondation canadienne de la Thyroïde de m'avoir permis de participer à ce stage, où j'ai pu m'initier à la recherche tout en prenant conscience de l'importance de celle-ci au niveau de la compréhension des maladies thyroïdiennes. Je tiens aussi à exprimer toute ma réconnaissance au Dr Langlois qui, dans sa grande disponibilité, m'a offert support et encouragement au cours de ce stage. Enfin, je remercie les membres de l'équipe du laboratoire du Dr Langlois, qui par leurs conseils judicieux et leur enseignement se sont avérées pour moi d'excellentes personnes ressources.

Marie-Eve Domingue
Étudiante en 2ième années de Médecine
Laboratoire de
Dr Marie-France Langlois
Université de Sherbrooke

Left: Dr. Marie-France Langlois – Right: Marie-Ève Domingue

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Deadline for contributions are:

March 15, 2002 (Spring)

June 15, 2002 (Summer)

September 15, 2002 (Autumn)

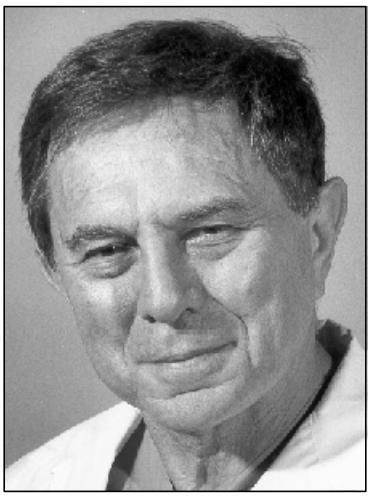
December 15, 2002 (Winter)

Contributions to:

Ed Antosz, Editor
973 Chilver Road,
Windsor ON N8Y 2K6

Fax: **(519) 971-3694**
E-mail: **antosz@uwindsor.ca**

Primary treatment of thyroid cancer



Irving B. Rosen, MD

by
Irving B. Rosen, MD

Thyroid malignancy is usually made up of well-differentiated cancer 80% of the time while the more aggressive medullary, lymphoma and Hurthle cell type are less frequent. Diagnosis is usually made by needle biopsy which can report a definite malignancy or show a high possibility of cancer. In this situation, I prefer carrying out a **total** or near-total thyroidectomy along with sampling of lymph nodes so that a repeat procedure is not necessary. This is done in hospital under a general anaesthetic. The inferior parathyroid glands are frequently involved by nodularity and may require resection and free transplantation in close proximity. It is usually possible to preserve intact upper parathyroid tissue.

Node sampling is also done to judge the presence of spread of cancer. Such an approach permits the use of radioactive iodine, discourages the emergence of contralateral malignancy, general local recurrence, and permits reliable estimation of blood test for recurrence. Some surgeons still feel that the removal of a half a thyroid bearing the lateralized nodule is sufficient for control. It does guarantee the patient good calcium and nerve function afterward. There, however, seems to be currently growing support for a total or near-total approach. Where cancer has spread to regional lymph nodes, these can be removed through a cosmetically acceptable incision, and the procedure is called a **modified neck dissection** where neck muscles and nerves are, as a rule, not removed or disturbed.

Radioactive iodine (RAI) is frequently administered to patients 6 weeks to 6 months following the thyroid surgery. RAI does appear to add something to the possibility of cure and/or lack of recurrence, particularly in patients who appear to have what is called a high-risk malignancy. RAI is usually given by pill form and requires a night stay in hospital, really to dispose of radioactive excretion.

Postoperatively, patients are usually followed every 3 to 6 months and, once a year, undergo ultrasound of the neck and a chest x-ray to exclude recurrent problems.

External radiation is used infrequently and mainly in situations where the cancer has invaded parts of significant anatomy, such as the windpipe or the swallowing tube or where it cannot be completely removed. If the cancer resists normal treatment and involves the windpipe or the swallowing tube, then consideration should be made to remove these structures if no other option is available since the disease if left behind will prove fatal.

Pregnant patients pose special problems. Abortion is not required, and surgery can be carried out safely in the middle trimester, avoiding problems of defective development or premature labour that would occur in first and third trimester surgery.

Where cancer has spread to **lung** and **bones,** even primary resection may still be indicated to permit effective RAI therapy. Where recurrence has been detected, surgery and radioactive iodine are once more required, and even external radiation may be necessary.

Medullary thyroid cancer often occurs in families, detected by blood analysis, and may involve other tissues, and requires a near-total thyroidectomy and node assessment.

Lymphomas require biopsy only, since their treatment is benefitted by non-surgical methods.

Anaplastic cancer requires a total thyroidectomy where possible, and adjuvant postoperative radiation is very important. Cancer that spreads to the thyroid from other sites, namely secondary cancer, can also be ameliorated by thyroidectomy.

Thyroid cancer is showing in Canada, at the present, the most rapid increase in numbers of all cancers reported. The common cancers of the thyroid can be managed by relatively simple techniques with an excellent prognostic outcome.

Irving B. Rosen, MD, FRCS (C), FACS, Professor of Surgery, University of Toronto; Dept of Surgery, Mount Sinai Hospital; Co-Director Head and Neck Oncology Program, Mount Sinai Hospital

Mrs Robert T. Mactavish
305 Union Street
Kingston, Ontario K7M 2R2

Dear Sirs:

In his will my late husband, Robert T. Mactavish made a specific bequest to the Thyroid Foundation of Canada (TFC) in the amount of $2,000.

Since his retirement to Kingston in 1980 he developed a strong belief in the goals and aspirations of TFC and as a volunteer enjoyed many happy relationships with his fellow co-workers and associates.

It is my privilege to enclose this cheque to you to honour his wishes.

Sincerely,

Shirley Mactavish

Fine needle aspiration biopsy and its value in management of thyroid nodules

by
Yvan C. Bedard, MD

Foreward: Thyroid nodules are very common and can represent a variety of causes, most of them highly benign. Surgical removal is indicated where very necessary. Fine needle aspiration biopsy is the best way of understanding the cause of a thyroid nodule short of an operation, which is in most cases to be avoided. I have asked Dr. Yvan Bedard to write a guest column. Dr Bedard is an authority in interpreting the cytopathalogical nature of material obtained by fine needle aspiration. Irving B. Rosen MD

Fine needle aspiration has become, with rare exceptions, an essential part of the investigation of a thyroid nodule. The technique, which was originally described in 1930, gained acceptance in North America in the 1970s. Mount Sinai Hospital has been a pioneer in this technique, with its use dating back almost 40 years.

The procedure is an ambulatory one performed by a physician (surgeon, endocrinologist, radiologist, pathologist). Most patients tolerate the procedure without local anaesthesia but a 1% lidocaine solution may be used for the skin and subcutaneous tissue. The needle used ranges from 21 to 27 gauges, 1 1/2 inches in length attached to a disposable nozzle tip 10 mi plastic syringe. One or several passes may be made into the nodule which is steadied by the operator's left hand. The aspirated material may be smeared on slides and immediately fixed or sent to the laboratory in a preservative transport solution. Small or clinically occult nodules may be aspirated under ultrasound guidance. Complications are rare and may include a local haematoma, cough due to accidental entry into the trachea and infarction of the nodule. An adequate aspirate should contain at least six groups of thyroid follicular cells or two pools of isolated cells (i.e. lymphocytes) in two slides. Roughly 60% of our aspirates are adequate. Inadequate aspirates are usually seen in small (less than 1 cm.) fibrotic or calcified nodules.

The most common non-neoplastic diagnosis made is that of a **colloid nodule** characterized by flat sheets of benign follicular epithelium against a background of colloid. A **degenerating lesion** (cyst) is diagnosed by the presence of blood and hemosiderin laden macrophages.

Various **inflammatory processes** can also be diagnosed: acute, subacute, and chronic lymphocytic thyroiditis of the Hashimoto's type.

The most common malignant tumour of the thyroid is the **papillary carcinoma** (>80% of malignancies) and it shows characteristic cytological findings on fine needle aspiration including nuclear grooves and pseudoinclusions, papillary structures, syncitial sheets and psammoma bodies. With an adequate sample, cytology has a diagnostic accuracy of more than 90% for papillary carcinoma. Other neoplasms which may be diagnosed by fine needle aspiration include medullary carcinoma, anaplastic carcinoma, Hurthle cell tumours, lymphomas and metastatic tumours. These rare tumours show cytologic features which would be too long to detail in this short review.

A difficult area in fine needle aspiration is in the diagnosis of 'follicular lesion' which encompasses hyperplastic colloid nodule, follicular adenoma and follicular carcinoma. These aspirates in these conditions may be cellular and contain rather bland follicular cells. The abundance of colloid should favour hyperplastic colloid nodule. The distinction between follicular adenoma and carcinoma is usually impossible on fine needle aspiration because the helpful diagnostic criteria (capsular or vascular invasion) do not rest on cytological characteristics.

In spite of its limitations, fine needle aspiration has significantly improved our ability to identify specific disorders of the thyroid and facilitate their management. Advances in our understanding of molecular changes in thyroid cancer, if applied to cytology material, may even make this already helpful technique more accurate in the future.

Yvan C. Bedard, MD, PhD, FRCPC, is Head of Cytology & Electron Microscopy, Mount Sinai Hospital, Toronto.

Quick tips for dealing with stress

Follow the **Get Stress Fit** plan for a healthier, more enjoyable life. Here are 12 easy to remember tips on how you can bring stress fitness into our life. Keep them handy and review them often.

G ive yourself a break. Go for a walk. Get a good night's sleep. Get away from it all.

E at a healthier diet.

T alk it out.

S pend time with family and friends.

T ake a course. For fun or improvement.

R elax. With a good book, a great movie or music.

E xercise. Walk, jog, swim, dance, go to the gym.

S et priorities.

S chedule your time.

F ind alternative sources of satisfaction.

I ncrease your awareness of what causes your stress.

T ake action! Address the person or situation that's causing your stress. And if you're still not sure how to manage, talk to a counsellor.

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Chapter news

Royal Military College of Canada's (RMC) "Annual Spring Concert in Scarlets"

Burlington/Hamilton

This looks like a great year for our chapter with five education meetings and two fundraising events. See Chapter Coming Events for details, and contact numbers.

Kingston

The Royal Military College of Canada's (RMC) "Annual Spring Concert in Scarlets" chose the Kingston Chapter to be the recipient of the funds raised from their excellent March 17 concert. Thanks to the organizing skills of Nathalie and Bob Gifford, the concert was almost sold out and the chapter received $3,155.51. Many thanks to Rear-Admiral David C. Morse, CMM, CD, Commandant RMC, W.O. Sylvain Gagnon, Band Master and Sgt. Brad Ryckman, College Drum Instructor. It would be our pleasure to partner with RMC again!

The National Organization will soon be receiving funds from the sale of Nevada tickets by the Gateway Newstand at the Kingston Centre. Many thanks to Barb and Ron Manor for choosing TFC to be the new recipient of its sales. Nathalie Gifford made the arrangements for this outlet, as well as the one in Ottawa that will benefit the Ottawa Chapter. The Ottawa newstand is operated by Scott Manor, Barb and Ron's son. The Foundation is most appreciative for their support.

Montreal

The Montreal chapter held two great meetings. On February 13 Dr. Morris, an endocrinologist spoke on *Thyroid disease and reproduction* and on March 11, Dr. Keyserlingk spoke about *Current concepts of thyroid imaging and surgery*. Both well attended meetings were followed by a lively question and answer period. We thank the doctors and volunteers who made these meetings possible.

Saint John

Venette Godbout, former national VP Operations, was admitted as *"Sister of the Order of Saint John"* in a ceremony, November 16, in Ottawa, Ontario. Venette has been a diligent volunteer with Saint John Ambulance for many years. It is a great honour to be recognized and admitted into the Order of Saint John. Her Excellency, Adrienne Clarkson, Governor General of Canada was present to congratulate Venette and her fellow honorees.

Venette Godbout with
Her Excellency, Adrienne Clarkson,
Governor General of Canada

Toronto
Joan Dawson

It was with sadness that members of the Toronto chapter learned of the death of Joan Dawson, in Australia June 2001. Joan was president of Toronto chapter 1990 -1993. In 1988 and for several years thereafter she also looked after the busy help-line with dedication and professionalism. In 1989 Joan initiated a forum for a Toronto Public Education Meeting on the doctor-patient relationship. She had a surprising side to her that was creative and humorous – she liked to write and draw and some of her cartoons enlivened the pages of *thyrobulletin.*

In 1994 Joan and her husband retired to England, then moved to Australia to be near their daughter. Joan is sadly missed by her friends and co-workers in Canada, England and Australia. Our heartfelt condolences to her husband, Bruce, and her family.

Ellen Garfield
Past President, Toronto chapter

Venette Godbout being admitted
as "*Sister of the Order
of Saint John"*

Chapter coming events

Free admission – everyone welcome

Burlington/Hamilton

Location: Royal Botanical Gardens, 680 Plains Road West, Burlington.

- Tuesday, June 4, 2002, 7:00 pm. Speaker: **M. Sara Rosenthal**, author, *Thyroid Sourcebook for Women* and Pharmacist, Dell Pharmacy. Topic: *Living well with thyroid disease*. Registration required.

For information call: (905) 549-1464

Fun and Fundraising Days

Location: 178 Craigroyston Road, Hamilton

- **Second annual spring plant sale** Saturday May 25, 2002, 8:00 am to 2:00 pm

For information call: (905) 549-1464

Location: 533 Beach Blvd. Hamilton.

- **Huge used book sale** Sunday July 14, 2002. 9:00 am to 3:00 pm. In conjunction with Hamilton's Beach Blvd. community garage sale. Donations needed.

For information call: (905) 549-1464

Location: Evergreen Apartments, 5 Tabor Drive, St. Catharines**,** "the Lounge" meeting room.

- Tuesday, September 24, 2002, 7:00 pm Speaker: **Bill Cuthbert**, Pharmacist, Dell Pharmacy. Topic: *Thyroid medication: your pharmacist and you.* Registration required.

For information call: (905) 549-1464. In St. Catharines call Betty: (905) 937-7372

Location: Brantford**,** September, Speaker, Pharmacist. Topic. TBA

Kingston

Location: Ongwanada Resource Centre, 191 Portsmouth Avenue, Kingston

- Tuesday 21 May 2002, 7:30 pm. Speaker: Bozica Popovic, Pharmacist Topic: *Open forum*, pharmacist will answer your written questions on thyroid hormone, hormones, osteoporosis.

For information call: (613) 545-2327

Monthly thyroid discussion group

Location: Loblaws Market, Upstairs, Kingston Centre

- Fourth Sunday of each month, 3:00 - 4:00 pm. Discussion led by pharmacists, Douglas Clarke and Bozica Popovic. Sponsored by Loblaws Pharmacy. Elevator, thyroid literature.

For information call (613) 530-3414

London

Location: London Public Library Auditorium, 305 Queens Avenue, London

- Tuesday May 21, 2002, 7:30 pm. **Dr. Lisanne Laurier,** Endocrinologist, St. Joseph's Health Centre. Topic: *Hyperthyroidism.*

For information call (519) 649-5478

June is Thyroid Month Fundraiser Barbecue

- Saturday, June 1, 10:00 am to 4:00 pm, Loblaws Market, Southdale Road at Wonderland Road. Please come out and support your chapter.

Montreal

Location: Atwater Library, 1200 Atwater

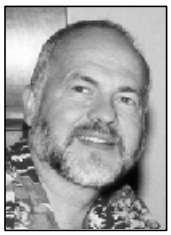
- Wednesday May 22, 2002. 7:00-8:00 pm. Annual General Meeting. Please attend to vote for your board members. Leave a message on our message machine if you want to nominate someone.

For information call (514) 482-5266

12,000 attend forum on women's health thyroid disease lecture included

The sixth annual Women's Health Forum and Expo held January 18-19, 2002 at the Metro Toronto Convention Centre drew in excess of 12,000 women. There is presently a great interest and focus on Women's Health issues. The forum featured 40 presentations by top medical experts and health professionals and 130 exhibits on women's health issues. This is the second year I was able to arrange with the coordinator of the event to include a presentation on thyroid disease since thyroid disease can be considered a significant women's health problem affecting 1 in 20 Canadians and being 5-7 times more common in women. We were fortunate to have Dr. Ivy Fettes, Acting Head of Endocrinology and Metabolism at Sunnybrook and Women's College Health Sciences Centre to present a session on thyroid disease. It attracted 200 participants early Saturday morning and was one of the best attended of all the sessions. An information booth was set up at the lecture where a great deal of our educational material was distributed. My thanks to Laura Mandryk, Education and Help-Line and Ellen Garfield, Web Site Coordinator for setting up and assisting at the booth.

Lottie Garfield
Liaison Community Education
Toronto Area Chapter



Letters to the editor

Ed Antosz, Editor

The *thyrobulletin* is very important to me and my family. It is informative, well written and interesting. I can see no reason not to use corporate sponsors, advertisements etc etc. The alternative (no further issues) is unthinkable. Thank you for allowing us to voice our opinion and also for your effort. I gave a subscription to *thyrobulletin* as a Christmas present.

Barbara Isherwood

*****

It is imperative that you use all the support you can get. If the pharmaceutical companies want to become involved...good. Not only will their involvement guarantee the continued publishing of the thyrobulletin, but the products these companies advertise can also be advantageous to your readers. One final word, Ed. I am sure there are many of your readers, like myself, who would be happy to donate more, but my income bracket prevents it. I do, however, donate to other worthy charities, such as the heart and stroke, lung, kidney, MS, and the cancer charities. So each month, I spread what I can afford to each. I am a thyroid patient and ***thyrobulletin*** gives me valuable information... I need it. Thanks.

Lilian Rosamond

*****

I am sending my membership because I believe in thyroid information. I am disappointed that you do not have any information on alternative therapy. With so much information available it would be wonderful to hear about natural medication, letting people choose which procedure they feel is right for them. *C. Craddock*

*****

I am writing in response to your editorial message in the Winter 2002 issue of *thyrobulletin.* Although I have a 33 year history of thyroid disease including 'thyca', I just joined the Thyroid Foundation of Canada and thus began receiving *thyrobulletin* in 1999. I have found it to be an excellent and highly informative publication and I sincerely hope that funds can be generated from advertising and/or corporate grants to continue quarterly publication.

Another expense-reduction measure to consider is electronic transmission, at least for those members who have computer access. Most organizations to which I belong (including one with 70,000 members) have made this move successfully in the past few years. Personally, I would much prefer to continue receiving the same quality of information, with the same frequency, regardless of format or mode of delivery.

Thanks for reading this and for applying your editorial talents to *thyrobulletin*. I especially appreciate the thyroid cancer information you have published in the last few years.

Nancy Williams

*****

In response to your request for answers to the questions you pose re future issues of *thyrobulletin,* I send you my personal views:

Advertising...I do not think *thyrobulletin* should feature advertising. The items it features are much clearer without having to wade through pages cluttered up with ads.

Getting involved with pharmaceutical companies has its risks. I am a member of the Arthritis Association and receive their Arthrofax regularly. The most recent one was sent, and it appears published as well, by the company which produces Celebrex, Pharmacia (Pfizer). Originally I was under the impression that this was sent by the Association with a view to educating us how to live with arthritis, and it was at that time in my view objective, and thus effective. This last one has a front page column on Celebrex, touting its virtues, etc. but without a mention that it can (and does) cause loss of hearing as a side effect. I myself tried this medication over a year ago and lost 5 decibels of hearing during that trial. Since I had had a very early, sudden and extensive hearing loss some ten years ago, I have had it monitored on a regular basis ever since. Fortunately, what I lost due to Celebrex returned after I had stopped taking Celebrex for a few months, which my specialist said is usually the case with hearing loss due to NSAIDS which have this side effect.

However....a person not fully cognizant of this danger, with no record of hearing loss and thus without a record of audiological tests on his/her hearing for comparison, would likely not attribute it to the arthritis drug he/she was taking.

And for me therein lies the danger in taking the easy way out and allowing *thyrobulletin* to be published by a pharmaceutical company. The only way it might be done is if the name of that company appeared only in small print at the end of the bulletin, with an acknowledgement only of its assistance, and no expectation by the company of any "favours".

So my vote would be against pharmaceutical companies assisting in any way, because of the conflict of interest presented.

If funding is offered by a government grant, why not? However, if from a pharmaceutical company, what happens if *thyrobulletin* happens to have data that puts one of their products in a negative light? Again, one must be wary of the source.

Ideas – Suggestions

What may be more to the point of addressing costs is a different form and content format for *thyrobulletin.* Many local associations use a simple folded-page form, using ordinary 8 1/2 by 11 paper, for their newsletters, one that can easily be done (written) on any computer with capacity to print it, equipment which I'm sure is available to the national office if not already there. It is light, can be folded over and mailed at the lowest postage rate, especially with the lesser weight of the paper used. In my view, it is not a prestigious physical appearance that counts, but rather, the intellectual content of the publication.

Another suggestion is in the format...items which are pertinent to regions could be given a place on the website for members to check at their pleasure to decrease pages needed. I am thinking here of items such as Chapter News, Coming Events, but you may feel that these are necessary. I myself never read them, but then I do not have a chapter closer than 40 miles and it may be inactive, hence as an uninvolved member it is not a priority for me to read these.

I trust this is what you had in mind in asking for input from members, and respectfully submit them to you.

Barbara Fisher

con't page 15

Thyroid Foundation of Canada

Nominations for the 2002-2003 National Board of Directors

The Foundation's nominating committee presents the following slate of nominees for the positions of each officer and member-at-large to be elected at the 22nd Annual General Meeting of the Thyroid Foundation of Canada, Saturday, June 15, 1:30 pm, Ramada Hotel 400/401, 1677 Wilson Avenue, Toronto, Ontario.

OFFICERS OF THE FOUNDATION (Executive Committee):

President (two nominees): ..... Ed Antosz, Windsor ON
and
Irene Britton, Saint John NB

Vice-Presidents (four):

- Publicity & Fund Raising: ..... Gary Winkelman, Vancouver BC
- Chapter Development: ..... Barbara Cobbe, London ON
- Education & Research: ..... Lottie Garfield, Toronto ON
- Operations: ..... David Morris, Kingston ON

Secretary: ..... Darlene Ibey, Thunder Bay ON

Treasurer: ..... Terry Brady, Kingston ON

MEMBERS-AT-LARGE (maximum six):

Editor, *thyrobulletin*: ..... Rick Choma, Verona ON

Liaison, Medical Research: ..... Rita Wales, Napanee ON

Archivist: ..... Marc D. Abramsky, Kingston ON

Membership Chair: ..... Nathalie Gifford, Kingston ON

Website Co-ordinator: ..... Ellen Garfield, Toronto ON

(No designated title) ..... Marvin Goodman, St. Laurent QC

Additional nominations for any of these positions may be made from the floor at the time of the election, provided the nominee has given consent to his/her nomination. All nominators and nominees must be members in good standing of the Foundation.

PLEASE NOTE:
Our slate of nominees does **NOT** include the following who are automatically members of the national board:

* Chapter Presidents (22) elected at each Chapter's Annual Meeting
* National Immediate Past President

2001-2002 NOMINATING COMMITTEE:

Margaret Burdsall, Chair, Kingston ON

Marlene Depledge, Calgary AB

Phyllis Payzant, Halifax NS

Shirley Penny, Creston South NF

Roger Wales, Napanee ON

22nd Annual General Meeting

Saturday

June 15, 2002

1:30 pm

To each member of the Foundation:

Notice is hereby given that the 22nd Annual General Meeting of the Thyroid Foundation of Canada/La Fondation canadienne de la Thyroïde will be held **Saturday, June 15, 2002 1:30 pm at the Ramada Hotel 400/401, 1677 Wilson Street, Toronto, Ontario** for the purpose of:

- Receiving and considering reports from the directors of the national board
- Receiving and considering the financial statements and auditor's report for the year ended March 31, 2002
- Appointing auditors for the financial year ending March 31, 2003
- Electing the executive and members-at-large of the 2002-2003 national board, and
- Transacting such other business as may properly be brought before the meeting

Members of the Foundation and the general public are welcome to attend the above meeting. All TFC members have the right to vote on all resolutions presented for approval.

In accordance with By-Law No. 1, Clause 47, each voting member present shall have the right to exercise one (1) vote. A member may vote by means of a written proxy, provided the proxy holder is a member in good standing of the Foundation. Proxy forms may be obtained from the national office. Proxies must be received by the national office by Wednesday June 5, 2002.

Darlene Ibey, National Secretary

Hypothyroidism

More than a million Canadians are affected by hypothyroidism, an underactive thyroid condition. That is five per cent of the population or one in twenty.

What is hypothyroidism?

The thyroid gland is a small butterfly-shaped gland located at the front of the neck. This gland produces thyroid hormones that control the ***rate*** at which every cell in your body works. Thyroid hormones regulate digestion, heart rate, body temperature, sweat gland, nervous and reproductive systems and body weight.

When the thyroid gland does not produce enough hormone to meet the body's needs, hypothyroidism occurs.

What are the signs and symptoms of hypothyroidism?

The signs and symptoms of an underactive thyroid can often be mistaken for other diseases. You may experience some or all of the following symptoms:

- Tiredness/weariness/fatigue
- Dry skin
- 'Pins and needles' in the hands and feet
- Constant feeling of coldness
- Slowness in thinking
- Constipation
- Aching muscles
- Nails that peel and split easily
- A hoarse deep voice
- Thinning hair
- Depression
- Weight gain
- Heavy menstrual flow
- Infertility

What causes hypothyroidism?

The most common causes of hypothyroidism are:

- The body's own destruction of the thyroid gland (Hashimoto's Thyroiditis)
- Surgery on the thyroid gland
- Radioiodine treatment for an overactive thyroid gland (Hyperthyroidism)
- Though rare, thyroid gland failure can be related to pituitary gland failure

Your physician can give you more information on the causes of hypothyroidism.

Who is at risk for hypothyroidism?

The types of people at increased risk for thyroid disease include:

- People with a strong family history of thyroid disease
- People with diseases that affect the immune system, such as those with Type 1 diabetes, rheumatoid arthritis, pernicious anemia, lupus
- Women who have recently given birth
- Women over 40 (including women experiencing menopause)
- Men over the age of 65
- People receiving drugs such as lithium and amiodarone

Hypothyroidism may run in families. It is not known why, but hypothyroidism affects women four to six times more often than men.

How is hypothyroidism diagnosed?

Because the signs and symptoms of an underactive thyroid can be mistaken with everyday stress and strain, etc., hypothyroidism can easily be overlooked by you or your doctor. This is particularly true in its earliest stages when signs and symptoms may be hardly noticeable.

However, with a simple blood test, called the sensitive TSH test, an underactive thyroid gland is easy to discover. So, if you are in a group at risk and have any of the signs and symptoms listed, it may be a good idea for you to be tested.

Why is early treatment important?

It is important to understand that hypothyroidism, like many diseases, will progress if undetected and untreated. As your thyroid gland becomes worse you will feel worse. Thyroid disease, if left untreated, can cause increased cholesterol levels, cause long-term organ damage, and may lead to irregular menstrual periods, infertility and worsening osteoporosis.

Therefore, early diagnosis and treatment will allow you to avoid these complications.

What is the treatment for hypothyroidism?

Once an underactive thyroid is diagnosed by your doctor, treatment is simple and generally trouble-free with daily use of the prescription drug levothyroxine sodium. This man-made thyroid hormone supplements your body's needs.

Very precise dosing is important so your body cells receive the same amount of hormone they would if your thyroid gland worked normally. The long-term consequences of imprecise dosing are increased cardiac risk, bone loss or the symptoms of hypothyroidism returning. Therefore levothyroxine sodium is manufactured in many dosage strengths to suit your individual needs.

When thyroid treatment is started, your physician will closely monitor your blood levels using a TSH blood test to be sure you are receiving the proper dose. Once your dose is established, your doctor will monitor your condition at least annually.

Here's what you should know about treatment for hypothyroidism:

- After beginning your drug treatment, your symptoms will disappear slowly. A return to normal may take as long as several months.
- Make a point of taking your thyroid hormone medication at the same time each day, preferably first thing in he morning with a glass of water, so that it becomes a part of your daily routine. This will reduce the chance of your forgetting to take your medication.
- Since the thyroid gland rarely returns to normal on its own, it will probably be necessary for you to take thyroid medication for the rest of your life.

Your role in recognizing and managing hypothyroidism

- Know the signs and symptoms of an underactive thyroid gland
- Ask your doctor for a TSH test if you think you have symptoms
- Make TSH testing part of your medical examination if you are in a higher risk group
- Take your medication as directed
- Remember, consistency is critical in achieving easy living with hypothyroidism
  - don't skip taking your medication
  - stay on the same brand of thyroid medication you started with
  - don't allow a change of brand or dosage strength **unless your blood levels are monitored**
- If you feel restless or irritable, or your heart is beating rapidly, you may be taking too much thyroid hormone. If this happens, advise your doctor, nurse or pharmacist

Provided they have no other health problems and have proper treatment, people with hypothyroidism can and do lead normal, active lives.

Letters to the editor . . . con't from page 12

It is with sorrow that my Foundation membership must be terminated after 18 years. At 95 years my resources are depleted. I am sending in a small donation. As a serious case for many years before I was diagnosed with hypothyroidism, I really appreciate all you are doing and hope you get excellent results. I mentioned the need to a friend whom I hope sends a good donation. Thank you for taking the time to read my note. It seems the best I can do now. Best wishes for success.

Robina Guinn

*****

Thank you for the reminder of my membership. I have been quite busy lately and it slipped my mind. I look forward to receiving *thyrobulletin* and have learned a great deal about thyroid disease. I have Graves' disease and believe the more I know about it, the more in control I am.

Marion Copeland

*****

There is never any information on hypothyroidism – especially foods not to eat and medications, such as soy products and iron.

Susan Centen

*In **thyrobulletin,** Volume 22, No. 1, Spring 2001, there is an article by Alan Smith, B Sc Pharm, Drug interaction in thyroid disease. Editor*

*****

The Osteoporosis Society is now the servant of its sponsor The Milk Marketing Board. Don't look in any newsletter for results of any research implicating milk as a leading cause of osteoporosis. UGH! Dad used to say that the man who pays the piper calls the tune. Excellent feature article by Dr. Hart.

Edward Hopper

*****

Thank you so much for the information (re: Dr Sigal's work). I was found to have low T3 and have been put on a Cytomel & Eltroxin combination on trial.

Janet Parker

*****

Membership/Donation Form

New memberships run for one or two years from the receipt of this membership application.
All members receive *thyrobulletin,* the Foundation's quarterly publication.

Yes!
I will support the Thyroid Foundation of Canada!

Donations – ***The only gift too small is no gift at all.*** $ _____

Membership Level	**One Year**	**Two Year**	
❑ Regular	$20.00	$35.00	$ _____
❑ Senior 65+	$15.00	$25.00	$ _____
❑ Student	$15.00	$25.00	$ _____
❑ Family	$25.00	$45.00	$ _____

Total: $ _____

I will be paying my donation/membership by:

❑ Personal Cheque (enclosed and payable to Thyroid Foundation of Canada) or,

❑ Visa or ❑ MC #: _____ Expiry Date: _____

Signature: _____

Name: _____

Address: _____

City: _____ Province: _____ Postal Code: _____

Tel: _____ Fax: _____ E-mail: _____

Type of Membership: ❑ New ❑ Renewal • Language Preferred: ❑ English ❑ French

We accept your membership fees and donations by mail, fax or online at our website.
All donations and membership fees qualify for a tax receipt. Please send your application and payment to:

THYROID FOUNDATION OF CANADA, PO Box/CP 1919 Stn Main, Kingston ON K7L 5J7
Tel: (613) 544-8364 or (800) 267-8822 • Fax: (613) 544-9731 • Website: www.thyroid.ca

Please Continue Your Support—We Need You!

National Office/Bureau national

Staff/équipe

Katherine Keen, National Office Coordinator/Coordinatrice du bureau national
Helen Smith, Membership Services Coordinator/Coordinatrice des services aux membres

Office Hours/ Heures du bureau

Tues.- Fri., 9:00 am - 12:00 pm/1:00 pm - 4:30 pm
Mardi à vendredi, 9h00 à 12h00/13h00 à 16h30

Tel: (613) 544-8364 / (800) 267-8822 • **Fax:** (613) 544-9731 • **Website:** www.thyroid.ca

Chapter & Area Contacts/Liaisons pour les sections et districts

BRITISH COLUMBIA/COLOMBIE-BRITANNIQUE

Cowichan	(250) 246-4021
Vancouver	(604) 266-0700
Victoria*	(250) 592-1848

ALBERTA

Edmonton	(780) 476-3787

SASKATCHEWAN

Saskatoon	(306) 382-1492

MANITOBA

Winnipeg	(204) 489-8749

QUEBEC/QUÉBEC

Montréal	(514) 482-5266

NEW BRUNSWICK/NOUVEAU BRUNSWICK

Moncton	(506) 855-7462
Saint John	(506) 633-5920

** Area Contact/Contact régionaux*

NOVA SCOTIA/NOUVELLE ÉCOSSE

Halifax	(902) 477-6606

PRINCE EDWARD ISLAND/ÎLE-DU-PRINCE ÉDOUARD

Charlottetown	(902) 566-1259

NEWFOUNDLAND/TERRE NEUVE

Avalon/ St. John's	(709) 368-5068
Gander	(709) 256-3073
Marystown	(709) 279-2499

ONTARIO

Burlington/Hamilton	(905) 549-1464
Kingston	(613) 389-3691
Kitchener/Waterloo	(519) 884-6423
London	(519) 649-5478
Ottawa	(613) 729-9089
Petawawa/Pembroke	(613) 732-1416
Sudbury	(705) 983-2982
Thunder Bay	(807) 625-1419
Toronto	(416) 398-6184

A bequest from the estate of the late Robert T. Mactavish, former *thyrobulletin* editor, and a donation by the Kingston Area Chapter of the proceeds from "The Royal Military College of Canada Band Concert in Scarlets" have underwritten the cost of this issue of *thyrobulletin*.

Thyroid Foundation of Canada
La Fondation canadienne de la Thyroïde
PO BOX/CP 1919 STN MAIN
KINGSTON ON K7L 5J7

Has your membership expired? See Page 15