The Microenvironment

August 2016

THE CANADIAN HEMATOLOGY SOCIETY

SOCIÉTÉ CANADIENNE D'HÉMATOLOGIE

C H S C H

NEWSLETTER

Inside this Issue...

2016 CHS Executive Committee

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MESSAGE FROM THE PRESIDENT

Dr. Lynn Savoie
President, CHS

It is a beautiful Sunday afternoon in August as I write this and it feels very much like a time of renewal.

For us in the medical profession "school" starts a bit early with the arrival of the new residents into our programs.

The infusion of fresh, eager learners is always so stimulating! We are doing our best to recruit these budding hematologists to the CHS. To do so we dispatched our new chief resident **Zachary Liederman** to this year's Jerry Scott retreat with some new applications already coming in. Thanks Zach! Not that he had far to go as the retreat is held yearly in Toronto and Zach hails from the University of Toronto program.

Otherwise in academia ASH abstracts were due a few days ago. There was certainly a flurry of activity at my center including from residents. This is a good time to remind everyone of the resident ASH abstract competition as well as the Paper of the Year award, both to be presented at ASH in San Diego.

Our web portal remains very active, please do not delete the emails you receive from us as I'm sure you will find the cases and image challenges either very educational or, even better, reassuring that your knowledge is up to date.

There is a lot going on in the world right now what with "Brexit" and the US election, terrorist attacks and police shootings. But, there are also the Olympics and summer holidays to enjoy, as I know I have. Canada will take its place on the world hematology stage in September of 2018 when Vancouver hosts the International Society of Hematology meeting. I hope many of you will make it there. In the meantime see you in San Diego for our chance to learn.

Le message du Président

Dr. Lynn Savoie
Président

En ce beau dimanche après-midi en Août, j'écris ceci, et le temps du renouveau est dans l'air. Pour nous, dans la profession medical, «l'école» commence un peu plus tôt avec l'arrivée des nouveaux résidents dans nos programmes.

L'infusion de ces nouveaux apprenants avides est toujours aussi stimulante! Nous faisons de notre mieux pour recruter ces hématologues en herbe à la SCH. Pour se faire nous avons envoyé notre nouveau chef résident **Zachary Liederman** à la retraite Jerry Scott de cette année avec des nouvelles applications déjà reçues. Merci Zach! Ce n'est pas comme s'il devait faire un grand voyage, car cette retraite annuelle se tient à Toronto et Zach est originaire du programme de l'Université de Toronto.

Ailleurs dans le milieu académiques, les résumés pour ASH étaient dûs il y a quelques jours. Il y avait certainement un tourbillon d'activités à mon centre, y compris par les résidents. Ceci est un bon moment pour rappeler à chacun de la competition de résumés pour ASH, et également la competition du Papier de l'Année, don't les résultats seront annoncés à San Diego.

Notre portail Web reste très actif, alors s'il vous plaît ne pas supprimer les e-mails que vous recevez de nous car je suis certaine que vous trouverez les cas et les défis de l'image très éducatif ou, mieux encore, rassurant que vos connaissances sont à jour.

Il y a beaucoup de nouvelles dans le monde en ce moment, en autre, "Brexit" et l'élection américaine, les attaques terroristes et les tirs sur les membres du corps policier. Mais, il faut aussi profiter des Jeux olympiques et les vacances d'été, comme moi j'ai fait. Le Canada prendra sa place sur la scène d'hématologie mondiale en Septembre 2018 lorsque Vancouver accueillera " l'International Society of Hematology". J'espère que vous serez nombreux. Dans l'attente de vous voir à San Diego pour notre chance d'améliorer nos connaissances.

Dr. Lynn Savoie,
Président, SHC

WANTED: Editor for The Microenvironment

The Canadian Hematology Society is looking for a new Editor for its newsletter, *The Microenvironment*.

Under the guidance of the CHS Executive, the Editor is responsible for soliciting and providing content for the newsletter that is published three times yearly – Spring, Summer and Fall. The newsletter focuses on Canadian research and educational issues of interest to CHS members. It continues to be a primary mode of communication for Canadian hematologists, hematopathologists and scientists with an interest in the discipline.

Anyone interested in fulfilling this important role for the hematology community in Canada can contact the Canadian Hematology Society offices in Ottawa (cag@cagcanada.ca) or the current editor of *The Microenvironment*, Dr. Thomas Nevill (tnevill@bccancer.bc.ca) .

UPDATE: ISH-CHS 2018 VANCOUVER

The joint meeting of the Canadian Hematology Society and the International Society of Hematology is scheduled for September 13 to 15, 2018.

The venue is the Vancouver Convention Centre, located in one of the world's most beautiful settings on the downtown waterfront with a dramatic mountain background.

A great social program and post congress tours will be featured. Want to cruise the inland waterway? You can do it ! Join us for a great time.

Plan now to be there then.

Vancouver 2018.

The program for ISH 2018 in Vancouver will highlight both Canadian and International activities and will include:

- **Educational and *"Meet-the-Professor"* Sessions**
- **Simultaneous Scientific Symposia covering all hematology disciplines**
- **Plenary and poster abstract presentations**
- **A full Social Program with President's Welcome Reception and Congress Dinner**

Please send suggestions for scientific program articles to the Chair of the Scientific Program, Dr. Tom Nevill.

Email: TNevill@bccancer.bc.ca

HISTORY CORNER: Dr. Charles R. Drew (1904-1950)

Young physician surmounts racial obstacles, pioneers blood preservation research work

Dr. Charles R. Drew (1904—1950)

Charles Richard Drew was born into a middle class African American family in Washington, DC on June 3, 1904.

He was a standout multi-sport athlete who, after graduating from high school in 1922, was offered an athletic scholarship to attend Amherst College in Massachusetts. An average student, he excelled in track and football and was named an All-American in the latter.

He graduated in 1926 and, after requiring medical care for a football injury and watching his eldest sister die of tuberculosis and influenza, began to develop an interest in medicine.

However, young Charles did not have enough money to attend medical school and accepted a dual position as biology teacher and Athletic Director at Morgan State University in Baltimore, MD. He excelled in both roles and was accepted into medicine at Harvard University in 1928.

The decision by Harvard to defer his acceptance for one year ended up being fortuitous for Canadian hematology history! Unwilling to wait another year and aware of its reputation for favourable treatment of minorities, Charles Drew applied to McGill University Medical School in Montreal and was accepted. He was both a successful student and a star athlete at McGill and graduated 2nd in a class of 137 students in 1933.

While a medical student, he worked closely with Dr. John Beattie, a visiting professor from England who was renowned for his interest in blood chemistry. They worked together investigating the use of fluid treatments, including blood transfusion, as therapy for shock.

Dr. Drew did his internship and began an Internal Medicine Residency at Montreal General Hospital and the Royal Victoria Hospital but fate intervened in 1935. His father died that year and he returned to the United States to care for his family.

Despite his accomplishments, Charles Drew faced a different environment after his return home. He sought out positions at the Mayo Clinic and at Columbia University but was turned down by both institutions. Dr. Allen O. Whipple, the Head of Surgery at Columbia (and the surgeon for whom the pancreatic cancer procedure is named), told Dr. Drew that he was "*the wrong race and economic class to treat the most wealthy and privileged of American citizens*".

Remarkably, Charles Drew persevered and ultimately won over Whipple although his relatively light skin colour and engaging personality both played important roles. He obtained a Rockefeller Foundation Research Scholarship to study at Columbia in 1938, received a full training experience and, in 1940, was the first African American to obtain a Doctor of Medical Science degree.

Genesis of Blood Banking

At Columbia, Dr. Drew again became interested in research on blood transfusions. His dissertation was on "Banked blood", based on his experience with an experimental blood bank at NY Presbyterian Hospital. He had discovered that separating the components of blood into red cells and plasma could prolong its shelf life. He extended this work to refrigeration and drying

Charles R. Drew University of Medicine & Science, LA

...continued

HISTORY CORNER: Dr. Charles R. Drew

techniques that would allow long-term preservation of plasma which he realized had the advantage of not having to be given to ABO- compatible recipients. This work was the genesis of blood banking and Charles Drew was named Supervisor of the Blood Transfusion Association for New York City in 1939. However, it was an old relationship from McGill University and the preeminent event of the 20th century that would truly launch Charles Drew into the limelight.

Stamp issued in 1981, by the US Postal Service in honour of Dr Drew.

With the outbreak of WW II in Europe, Britain hoped to solicit blood donation for use in the battlefield. Dr. John Beattie was selected to spearhead the program – "Blood for Britain"—but was unable to make the program successful. Instead, Dr. Beattie recommended that Dr. Drew run the program. By setting up central collection and mobile facilities and bringing in skilled technicians for safe handling and testing of products, he was able to arrange 15,000 donations over a 5-month period.

This effort spawned his appointment in 1941 as the Director of the American Red Cross Blood Bank but his reign was marred by great (and regrettable) controversy.

In November 1941, it was announced that African Americans would not be allowed to donate blood, a decision that was only modified after considerable outrage from black leaders.

However, when the United States War Department issued the modified directive – blood from white donors and black donors would be segregated – Dr. Drew resigned. He stated: "*I feel that the recent ruling of the US Army and Navy regarding the refusal of coloured blood donors is an indefensible decision from any point of view…there is no scientific basis for the separation of the bloods of different races except on the basis of the individual blood types or groups*".

In 1941, Charles Drew returned to Howard University and its affiliated teaching hospital (Freedman's Hospital) as the Head of Surgery and the Chief of Staff and Medical Director. That same year, he became the first African American to be appointed an examiner for the American Board of Surgery.

In 1944, he was awarded the Spingarn Medal by the National Association for Advancement of Coloured People for his work with blood plasma. Dr. Drew received honorary Doctor of Science degrees from Virginia State College (1945) and his alma mater, Amherst College (1947). He was elected a Fellow of the International College of Surgeons in 1946 and appointed a Surgery Consultant for the US Army's European Theatre of Operations in 1949.

On April 1, 1950, while on his way to an annual free clinic in Tuskegee, AL after a long day's work, Charles Drew was killed in a car accident; he was only 45 years old.

Charles Drew was married in 1939 and had four children. The Charles R. Drew University of Medicine and Science opened in Los Angeles, CA in 1966 and there are health centres and laboratories named after him in four other states. In 1981, the US Postal Service issued a 35 cent stamp in his honour.

Dr. Drew was not forgotten in the Canadian city where he spent seven years at the beginning of his medical career -- Parc Charles-Drew in Southwest Montreal proudly bears his name.

Reference: Lawrence Hill, Blood: The Stuff of Life (House of Anansi Press Inc, 2013)

Parc Charles—Drew, Montreal, Quebec

CHS Chief Resident 2016 - 2017

New CHS Chief Canadian Hematology Resident Announced

Dr. Zachary Liederman
University of Toronto

The CHS is pleased to announce the appointment of Dr. Zachary Liederman as the second Canadian Chief Hematology Resident.

"*On behalf of the CHS Executive Committee, I am delighted to welcome Zach to our team*," Dr Lynn Savoie, President of the CHS stated in a recent announcement.

The term for this position is from July 1, 2016 to June 30, 2017. As the Chief Canadian Hematology Resident, Zachary will be part of the CHS executive and will provide the voice and perspective of hematology trainees across the country. Zach is excited to represent hematology residents as the Canadian Chief Hematology Resident. He is currently a resident in Adult Hematology at the University of Toronto and previously served as the Chief Medical Resident at Queen's University.

Throughout his residency he has been active in clinical teaching as well as medical education scholarship. Zach plans to build on these experiences to expand the CHS online curriculum and create novel and innovative teaching resources. In order to best serve CHS members he invites members to share their ideas and looks forward to collaborating on new projects.

The Chief Resident sits on the CHS Executive Committee and works with the executive to develop novel educational material including content for the CHS posting on the CHS Web Portal.

Do you know the diagnosis?

A 64-year-old man presented to the ER after a fall precipitated by light-headedness.

He had been found to have moderate aortic stenosis on echocardiogram one year previously, a test that was performed after the incidental finding of a systolic ejection murmur on routine physical examination.

Past medical history was unremarkable aside from a six-month history of an uncomfortable mass on the surface of his tongue that had been biopsied and felt to be inflammatory in nature. Review of systems was negative for any other symptomatology.

- Physical examination revealed moderate pallor and a grade III/VI systolic ejection murmur with an S4 gallop.
- Blood work showed a hemoglobin of 67 g/L, WBC of 3.4 x 10^9/L, ANC of 0.2 x 10^9/L (with no abnormal cells seen on smear) and a platelet count of 46 x 10^9/L.
- Bone marrow exam revealed 10% cellularity with no dysplasia and no abnormal infiltrates; karyotype was normal male.
- Serum protein electrophoresis (Figure 1) and
- Chest X-ray (Figure 2) are shown.

Do you know the diagnosis?

Answer Page 12

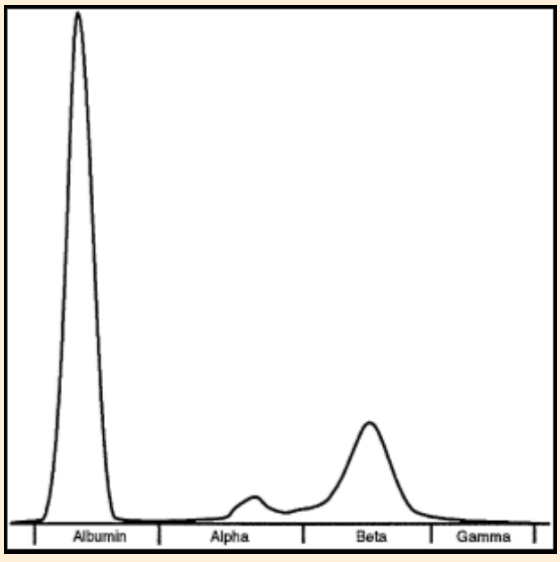


Figure 1

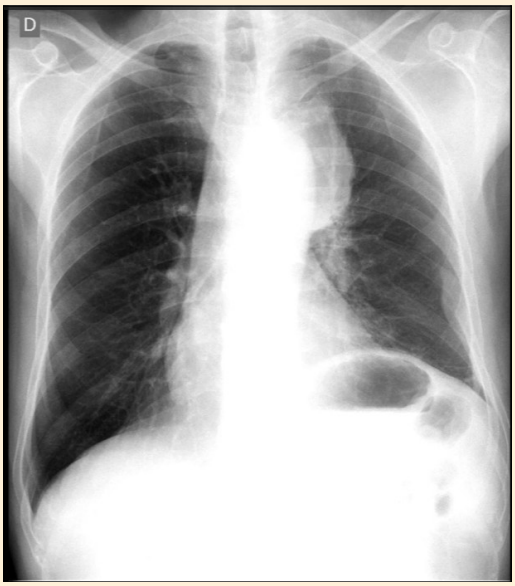
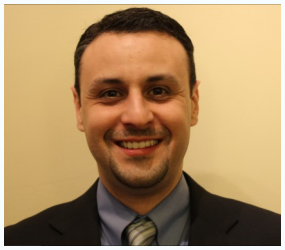


Figure 2

Congratulations!

R.K. Smiley 2016 Research Grant Winners

Neonatal Outcomes after Transfusion of ABO Non-Identical Blood



Dr. Ziad Solh

Transfusion Medicine
Canadian Blood Services
McMaster University
Hamilton, ON

Dr. Solh's proposal is a retrospective study of mortality rate and transfusion-associated necrotizing enterocolitis in very low birth-rate neonates in the intensive care unit at McMaster Children's Hospital between 2008 and 2016.

Recent evidence suggests that adult blood group A patients have an increased risk of in-hospital mortality when given O red cell transfusions. However, many neonatal ICUs routinely give group O red cells to their neonates, regardless of native blood group.

This exploratory study will examine the above outcomes for group A, B and AB neonates given group O blood with group O neonates acting as the control group. This analysis will rely upon data from two key sources – (1) a transfusion registry (TRUST) containing RBC product information, patient demographics, diagnosis, length of hospital stay and outcome and (2) the Canadian Neonatal Network (CNN) database containing information on neonatal birth weight, gestational age, morbidities and mortality.

Next Generation Sequencing of Circulating Tumour DNA (ctDNA) for Minimal Residual Disease (MRD) and Monitoring of Clonal Evolution in Multiple Myeloma

Dr. Signy Chow

MSc Student, Department of Medical Biophysics University of Toronto
Toronto, ON

Dr. Chow's project focuses on the known cytogenetic aberrations that characterize plasma cell dyscrasias and the subsequent non-linear genetic alterations that give rise to genetic heterogeneity with a complex hierarchy.

In this study, MRD measurements will be performed on serial ctDNA samples from a cohort of multiple myeloma patients from the MRCN-001 clinical trial and compared to multiparameter flow cytometry and Hevylite techniques. The proposal involves the use of a targeted 20-gene panel with known associations with prognosis, therapeutic resistance and clonal evolution along with single nucleotide variant probes to detect copy number aberrations. It is hoped that the newer ctDNA method of detecting and monitoring recurrent mutations will add to the understanding of clonal evolution during therapy in multiple myeloma, allowing for earlier detection of these clones and more timely treatment interventions.

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By Dr. Tom NEVILL

CANADIANS AT EHA 2016

The European Hematology Society held its 26th Annual Meeting June 8-12, 2016 in Copenhagen, Denmark. It was a highly attended meeting with a great deal of new data presented from a wide array of attendees. Once again, Canada was well-represented in the program and the most significant contributions are summarized below and on the following page.

Dynamics of non-BCR/ABL somatic mutations detected in other myeloid neoplasms in response to TKI therapy in CML

Dr. Taehyung Kim
University of Toronto
Toronto Centre for Cellular and Biochemical Research
Toronto, Ontario

In this study, deep sequencing targeting 92 genes mutated in other myeloid neoplasms were examined at diagnosis and following TKI therapy in 100 patients with chronic myeloid leukemia. Overall survival in the entire cohort was excellent – 92.6% at 5 years.

However, only 74% of patients had an "optimal" response according to ELN guidelines. An additional 18% of patients were TKI "failures" but remained in first stable phase. Finally, 8% progressed to accelerated or blast phase disease. Molecular testing revealed 64 gene variants in 37 patients with the most frequent being mutations in ASXL1 (9 patients), TET2 (6 patients) and ABL1 (6 patients).

The investigators noted 5 distinct patterns of mutation acquisition – (1) Present at diagnosis and follow-up (occurred in TKI responders and felt to be independent of BCR/ABL); (2) Mutation developing during treatment (ABL1 mutations and all patients failed TKI therapy); (3) Present at diagnosis but decreased/resolved during follow-up (outcome was mixed in this group); and (4-5) Pre-leukemic mutations that were of uncertain influence on outcomes.

Chemo-genomic interrogation of primary AML with biallelic CEBPA mutations reveal recurrent CSF3R mutations and sensitivity to JAK inhibitors

Dr. Vincent-Phillipe Lavalée
Institute for Research in Immunology and Cancer
Université de Montrèal
Montrèal, QC

CEBPA mutations in AML are "typically" N-terminal frameshift and C-terminal in-frame mutations; other mutations are considered "atypical". The researchers set out to interrogate the transcriptomic and mutational landscape of 7 typical and 7 atypical biallelic CEBPA AMLs. The typical patients demonstrated 95 differentially expressed genes that formed a defined gene expression profile (GEP).

Of the 7 atypical CEBPA AMLs, 4 clustered with the GEP seen in typical patients. However, 3 of the atypical patients had a different profile (GEP-) that included a >300 fold median HOXA9 expression. In the second portion of this study, biallelic CEBPA AMLs were examined for other mutations and 23 relevant abnormalities were found.

A T618I mutation in the CSF3R gene was the most frequent change and was found in 29% of patients (compared to <1% of all other forms of AML). This was not surprising in that this gene codes for the G-CSF receptor, a direct target of CEBPA. WT1 and GATA2 mutations were the next most frequent, each being present in 21% of patients.

Most intriguing was the discovery that all CSFR3 mutated samples showed *in vitro* sensitivity to JAK inhibitors, suggesting a potential therapeutic avenue.

Phase IB/II study of Selinexor in combination with backbone therapies for treatment of relapsed/refractory multiple myeloma

Dr. Nizar Bahlis; Southern Alberta Cancer Research Institute, Calgary, AB


Dr. Nizar Bahlis

Multiple myeloma is one of a number of malignancies that overexpresses nuclear export protein 1 (XPO1). Selinexor is an oral selective inhibitor of nuclear export (SINE) that forces retention and reactivation of tumour suppressor genes (e.g. NFKB and p53) along with reduction of many proto-oncogenes (e.g. MYC). Pre-clinical data supports Selinexor is active in combination with Bortezomib, Lenalidomide and Pomalidomide and induces autophagy of myeloma cells. This study was a preliminary report of a dose-escalation of Selinexor (given once or twice weekly with Dexamethasone 20 mg) in three treatment arms – (1) Bortezomib (1-2 times weekly), (2) Lenalidomide 25 mg or (3) Pomalidomide 4 mg. To date, 4 patients have received arm 3 and both evaluable patients have responded (1 VGPR and 1 MR). Ten patients have received arm 1 and 5/7 evaluable patients have responded (3PR and 2MR). Impressively, 2 of the PR patients in this arm were Bortezomib-refractory patients with del(17p) suggesting Selinexor may have a unique activity spectrum in multiple myeloma.

Ibrutinib plus Bendamustine/Rituxan versus Placebo plus BR in previously treated CLL/SLL: 2-year follow-up and MRD outcomes from the Phase III HELIOS study

Dr. Graeme Fraser; Juravinski Cancer Centre, McMaster University, Hamilton, ON


Dr. Graeme Fraser

The investigators in this study set out to determine if Ibrutinib plus BR produced deeper responses than BR in long-term follow-up of the randomized HELIOS study. Inclusion criteria for this trial included previously treated non-del(17p) CLL/SLL patients and 289 patients were randomized to each arm. Median follow-up has now reached 25.4 months and 2-year progression-free survival (PFS) was 74.8% in the Ibrutinib plus BR arm versus 20.9% in the BR arm; 2-year overall survival (OAS) was 86.2% versus 81.5%, respectively (P=0.058). Of significance, the CR or CR with incomplete recovery (CRi) rate was 33.9% in the Ibrutinib plus BR arm compared to 7.2% in the BR arm. Furthermore, MRD negativity was achieved in 18% versus 4.8%, respectively (p<0.0001). This study update clearly shows improving PFS, better CR/CRi and MRD rates and an evolving OAS superiority in the Ibrutinib plus BR arm.

Bioclinical prognostic model predicts outcome to salvage therapy in relapsed/refractory diffuse large B cell lymphoma: results from a CTG LY12 correlative science study

Dr. Doug Stewart; Tom Baker Cancer Centre and the University of Calgary, Calgary, AB


Dr. Doug Stewart

This study was a correlative science spinoff of the NCIC LY12 study comparing R-GDP to R-DHAP salvage prior to autologous stem cell transplantation (ASCT) in DLBCL. From the LY12 cohort, 91 patients underwent immunohistochemistry (IHC) and gene expression profiling (GEP) to examine for predictors of outcome. Cell-of-origin (germinal centre versus activated B cell) was not predictive of outcome in this subgroup. However, both MYC overexpression (10% versus 41%, p=0.007) and BCL2 overexpression (25% versus 41%, p=0.029) by IHC were associated with inferior 3-year survival. Most telling was the fact that overexpression of both (seen in 22 patients) was associated with a 0% survival. GEP testing yielded similar results to IHC testing. Patients that were p53-positive also had an inferior 3-year EFS (11% versus 36%, p=0.034). In multivariable analysis for survival, four factors were predictive of inferior survival – primary refractory disease, elevated LDH at relapse, MYC overexpression and BCL2 overexpression. 3-year EFS for those with 0-1 factors was 55% but was only 16% for those with 2 or more factors. For the 54 patients with chemosensitive disease that actually underwent ASCT, the same four factors were predictive of 3-year EFS – 68% for 0-1 factors and 34% for 2 or more factors.

REPORT FROM THE 36TH CONGRESS OF THE INTERNATIONAL SOCIETY OF HEMATOLOGY

April 18-21, 2016: Glasgow, Scotland
By Dr Tom Nevill

The International Society of Hematology (ISH) held its 36th Congress in Glasgow Scotland in April of this year, a meeting that was hosted by the British Society for Haematology. ISH was formed in November 1946 and the organization has a biennial conference with the host city alternating between the Inter-American, European-African and the Asian-Pacific divisions. The next (37th) ISH Congress will be hosted by the Canadian Hematology Society in Vancouver, British Columbia from September 13-16, 2018.

The next (37th) ISH International Congress will be hosted by the Canadian Hematology Society in Vancouver, British Columbia from September 13-16, 2018.

The recent meeting in Glasgow had many educational and research highlights. The opening ceremony on Monday April 18 began with welcoming speeches from Bailie Baker from Glasgow City Council, Professor Adrian Newland, President of ISH and Dr. Paddy Carrington, President of BSH. It ended with the transfer of the ISH flag to Professors Gail Rock and Thomas Nevill, the Organizational and Scientific Chairs for ISH 2018 in Vancouver.

IMPRESSIVE SCIENTIFIC PROGRAM

After the ceremonies, the impressive Scientific Program began with a joint BSH-ASH-ISH Symposium entitled Hematological Diseases in the Post-Genomic Era. Featured were excellent talks on Germline Predisposition to Leukemia by Dr. Kevin Shannon (UCSF Cancer Center, California, USA), Epi-typing by Dr. Stephan Beck (University College, London, UK) and Stem Cell Gene Therapy by Dr. David Williams (Dana-Farber Cancer Center, Boston, USA).

Monday afternoon, Tuesday, Wednesday and Thursday morning consisted of thirteen 90-minute Simultaneous Sessions (SS). Each SS contained four hematology lectures from internationally recognized speakers and over the four days, an amazing array of hematology topics were presented in 47 talks.

Professors John Porter (UK) and Guenter Weiss (Austria) gave state-of-the-art talks in the Iron Metabolism session on Investigation of Hyperferritinemia and Pathways of Iron Loading Beyond Hemochromatosis and Blood Transfusions, respectively. A series of lectures on Obstetrical Hematology were highlighted by presentations by Professor Beverley Hunt (UK) on Thrombotic Microangiopathies and Pregnancy and by Professor Jane Apperley (UK) on CML in Pregnancy.

Professor Peter Hillmen (UK) provided results from the randomized phase III study of Ibrutinib versus Chlorambucil in patients ≥65 years with treatment-naïve CLL/SLL. This was followed by Dr. Charlotte Pawlyn (UK) reporting on the benefit of quadruple (Carfilzomib-Cyclophosphamide-Revlimid-Dexamethasone) versus sequential triplet induction to maximize

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Report from 36th ISH Congress, Glasgow

The *Kelvingrove Art Gallery* was the setting the ISH Congress Gala Dinner in Glasgow. Built in the Spanish Baroque style, the building was opened in 1901.

response in transplant-eligible, newly-diagnosed multiple myeloma (the NCRI Myeloma XI Trial).

An ITP SS was well-received and included an overview on the Approach to ITP by Dr. Francesco Zaja (Italy), a discussion on the Role of Splenectomy in this disorder by Professor Adrian Newland (UK) and a superb presentation on New Treatment Options in ITP by Dr. David Kuter (USA). Transfusion issues were well-represented at the meeting: Professor Tim Walsh (UK) gave a strong talk on Red Cell Transfusion of the Critically Ill.

The Glengoyne whisky Distillery, Dumgoyne, north of Glasgow, Scotland, has been in continuous operation since its founding in 1833.

Dr. Jeanie Callum (Canada) summarized the North American experience with the Choosing Wisely campaign in a presentation entitled "***Transfusing Wisely***".

The Glasgow Congress introduced Meet-the-Expert opportunities for attendees and these included, among others, Dr. David Steensma, USA (How I Treat Difficult Forms of MDS), Dr. Gail Roboz, USA (How I Use Molecular Genetics to Guide Treatment of AML), Dr. Keith Stewart, USA (Dilemmas in the Treatment of Multiple Myeloma) and Dr. Craig Moscovitiz, USA (Employing Novel Agents in Hodgkin Lymphoma).

Over 530 abstracts were submitted to the 36th Congress and over 400 were accepted for presentation. Posters sessions were held in the Exhibition Hall and the best submissions were awarded with oral presentations.

The best abstracts were presented in a Tuesday morning session and included The Role of a Next Generation Sequencing 16-gene Iron Regulation Panel in Hemochromatosis (Dr. Patricia Bignell, UK); Results of a Double-blind Randomized Trial of Idelalisib plus Bendamustine/Rituxan (BR) versus BR in Relapsed/Refractory CLL (Dr. Andrew Zelenetz, USA); and Idarucizumab Reversal of Anticoagulation in Dabigatran-treated Patients (Dr. Steve Austin, UK).

The ISH 2016 organizers provided ample time for congress attendees to interact with their colleagues in the Exhibition Hall and at the Conference Gala Dinner. The latter was held Tuesday night at the Kelvingrove Art Gallery and featured local food, including Scotland's world-famous haggis, and local entertainment in the form of a Glasgow choir.

The City of Glasgow had many sights to see and those that were willing to wander further afar could visit the historic city of Edinburgh, the beautiful Scottish Highlands or the local Scotch distilleries. The Vancouver 2018 organizers were appropriately impressed with the 36th ISH Congress and congratulate the BSH and its organizers for such an outstanding meeting. The Organizational and Scientific Chairs for the 37th ISH Congress are determined to meet the high standards that have been set by previous ISH Congresses.

Upcoming Events

Canadian Apheresis Group Annual Meeting
Sept.16—18, 2016
Gatineau, Quebec, Canada
Contact: cag@cagcanada.ca

Canadian Hematology Society (CHS)
Annual Reception, Dinner & Awards Evening
Sunday, December 4, 2016
San Diego, CA
Contact: chs@uniserve.com

American Society of Hematology (ASH)
56th Annual Meeting
December 3—6, 2016
San Diego, CA
Details: http://www.hematology.org/

Conference of the Canadian Society for Transfusion Medicine (CSTM)
April 20—23, 2017
Ottawa, ON Canada
Details: http://www.transfusion.ca/

American Society for Apheresis (ASFA)
May 3 - 6, 2017
Annual Meeting: Fort Lauderdale, Florida, USA
Details: http://www.apheresis.org/

21st European Hematology Association (EHA)
Jun 22 - 25, 2017
Madrid, Spain
Details: http://www.ehaweb.org/congress-and-events/22nd-congress/key-information/

Joint Congress:
Canadian Hematology Society (CHS)
&
37th World Congress of the International Society of Hematology (ISH)
Sept 13-17, 2018
Vancouver Convention Centre
Website: http://www.ish2018.com/
Contact: chs@uniserve.com

The DIAGNOSIS? Answer:

(from Page 6)

Serum protein electrophoresis shows hypogammaglobulinemia; serum IgG was quantitated at 3.6 g/L, IgA was 0.52 g/L and IgM was 0.25 g/L. Lymphocyte flow cytometry revealed a 1:1 T4:T8 cell ratio with virtual absence of B lymphocytes. Chest X-ray suggested a mediastinal mass that was confirmed on CT scan.

He went on to a thoracotomy and a 16 cm thymoma, WHO type AB, was completely resected. Biopsy of the tongue was consistent with pyoderma gangrenosum; monthly IVIg replacement was commenced.

This patient has Good's syndrome – Dr. Robert Good first described an association between thymoma and hypogammaglobulinemia in 1954. It is a rare cause of adult-onset combined B- and T-cell immunodeficiency whose pathogenesis and cause are unknown. Symptoms typically develop in the mid-50s and mean age at diagnosis is 62 years.

Due to impaired T-cell responses, affected individuals are at risk for opportunistic viral infection (CMV, HSV, VZV), PJP pneumonia and mucocutaneous *Candidal* infection. As a consequence of absent B-cells, sinopulmonary infections secondary to encapsulated bacteria (especially *Hemophilus influenza*) may produce considerable morbidity. Diarrhea occurs in 50% of patients and may be secondary to CMV, *Salmonella, Campylobacter* or *Giardia*.

Patients with Good's syndrome may present with symptoms secondary to the thymoma mass, myasthenia gravis, autoimmune disease (diabetes mellitus or pernicious anemia), recurrent infection or paraproteinemia.

Anemia and leucopenia are present in >50% of patients and thrombocytopenia in ~20%. Treatment of Good's syndrome is surgical resection of the thymoma and completeness of resection determines the prognosis.

In aggressive-histology thymoma, combination chemotherapy and/or radiation may be required. Surgery does not correct the immunologic defects and monthly IVIg replacement are important in preventing recurrent infections.

CHS Paper of the Year

- The Canadian Hematology Society is now accepting nominations for ***"the best hematology paper in Canada"***.
  - Individuals may nominate themselves or may nominate others.

Please include:

- A PDF of the paper
- A one-paragraph description of the work and its significance to hematology

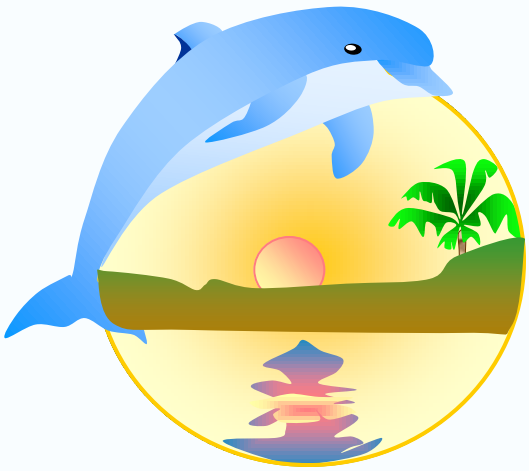
Eligibility requirements:

- Papers must have been published **between August 31, 2015 to August 31 2016**.
- Nominated individuals must be CHS members in good standing.
- The recipient or designate must be available to accept the award.
- Awards will be presented at the at ASH, December 4, 2016 in San Diego, California.
- Papers addressing clinical or lab-based hematology research will be considered.
- Applicants of all levels are encouraged to apply.

Nominations:

- Are now open
- Material must be submitted to the Canadian Hematology Society office by email to chs@uniserve.com
- **by the deadline,**
- **September 30, 2016**.

Save the Date!



San Diego, 2016

Canadian Hematology Society

Annual Reception, Awards Presentations & Dinner

at ASH

Sunday, December 4th, 2016, at 7:00 pm

HOTEL SOLAMAR, 435 6TH AVE.
SAN DIEGO, CALIFORNIA

Hope you can join us!

Dr. Lynn Savoie
President, CHS

Fellowships / Opportunities

LEUKEMIA/BONE MARROW TRANSPLANTATION FELLOWSHIP VANCOUVER

The Leukemia/Bone Marrow Transplantation Program of British Columbia offers 1 or 2 Year fellowships to provide advanced training in the management of adults with hematological malignancies including all aspects of allogeneic and autologous hematopoietic stem cell transplantation (HSCT).

Candidates should be registered in, or completed a recognized hematology or oncology training program.

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

For more information: leukemiabmtprogram.org

Interested candidates should submit a CV and names of three references to:

Dr. Donna Forrest, Fellowship Director Leukemia/BMT Program, BC Cancer Agency
& Vancouver General Hospital
Phone: (604) 875-4089
FAX: (604) 875-4763
Email: dforrest@bccancer.bc.ca

McGill University Thrombosis Fellowship 2017-18

McGill University Thrombosis Fellowship 2017-18 at Jewish General Hospital in Montreal, Quebec.

Hôpital général juif
Jewish General Hospital

The JGH Thrombosis Program is currently accepting applications for a one year fellowship (July 1, 2017 - June 30, 2018) to acquire and consolidate expertise in Thrombosis.

Specific areas of clinical activity include the Thrombosis Clinic, Anticoagulation Clinic and In-patient Thrombosis Consultation Service. Our Thrombosis Program also encompasses a broad range of research activities that relate to diagnosis, risk factors and treatment of venous and arterial thromboembolic disease.

To obtain more information please contact Dr. Vicky Tagalakis or Maureen Morganstein 514-340-7587 maureen.morganstein@ladydavis.ca.

More details about these opportunities can be found on the CHS website - http://canadianhematologysociety.org/

Division of Hematology, Department of Medicine, The Ottawa Hospital and the Faculty of Medicine, University of Ottawa

Thrombosis Clinician Scientists

The Division of Hematology is seeking a Clinician Scientist in Thrombosis.

Hematologist or Internist at an Assistant Professor level or higher; Bilingualism (French and English) an asset; Masters/PhD in Epidemiology an asset; Eligible for licensure in Ontario. All qualified candidates are encouraged to apply; however, Canadian citizens and permanent residents will be given priority.

The Ottawa Hospital
L'Hôpital d'Ottawa

uOttawa

For application details:
Dr. Marc Rodger
mrodger@ohri.ca

Division of Hematology, Department of Medicine, The Ottawa Hospital and the Faculty of Medicine, University of Ottawa

HEMATOLOGISTS

We seek hematologists to join in our expansion and to lead in clinical care, education and/or research in Malignant Hematology and Benign Hematology and Thrombosis.

Hematologist at an Assistant Professor level or higher; Bilingualism (French & English) an asset; Masters in Epidemiology or Education an asset; Eligible for licensure in Ontario. All qualified candidates are encouraged to apply: Canadian citizens & permanent residents will be given priority.

The Ottawa Hospital
L'Hôpital d'Ottawa

uOttawa

For application details:
Dr. Marc Rodger
mrodger@ohri.ca

thinkOttawaMedicine.ca
DEPARTMENT OF MEDICINE

Opportunities

Department of Medicine, Providence Health Care
Vancouver, British Columbia

Providence HEALTH CARE

Providence Health Care invites applications for a

HEMATOLOGIST

0.7 FTE clinical hematologist based at St. Paul's Hospital, a University of British Columbia affiliated teaching hospital.

The successful candidate will have a FRCPC in Internal Medicine and a Certificate of Special Competence in Hematology and must be eligible for licensure in the Province of British Columbia.
We encourage all qualified persons to apply: Canadians and permanent residents of Canada will be given priority.

Please submit a letter of application, current curriculum vitae and the names of three referees by Sept 15, 2016 to:

Dr. Lynda Foltz
Head, Division of Hematology
490-1144 Burrard St
Vancouver BC, V6Z 2A5
lfoltz@providencehematology.com

PRINCE EDWARD ISLAND
CANCER TREATMENT CENTER

Locum - Medical Oncology or Hematology

Health PEI is seeking a Locum Medical Oncologist or Hematologist to join the small multidisciplinary oncology team at the center. Either specialty will be considered for this position, and some cross coverage will be required.

The successful candidate must have certification by the Royal College of Physicians and Surgeons of Canada (RSCPC), or equivalent training considered acceptable to the RSCPC. US Board exams are acceptable.

CONTACT:
Dr. Philip Champion
philip.champion@mac.com
902-894-2027

Live Island Style
healthjobspei.ca
Prince Edward Island CANADA Health and Wellness

BENEFITS OF CHS MEMBERSHIP

- **Attend reception and awards dinner** at American Society of Hematology (ASH)
- **Compete** for (best abstracts presented at ASH) **CHS Education Awards**
- **Compete** for **RK Smiley Research Grant**
- **Compete for CHS Paper of the Year Award**
- **Access the members-only interactive Web Portal**
- **Keep up to date on CHS news, events, opportunities, and much more by receiving the CHS Newsletter, *The Microenvironment*.**

The mission of the Canadian Hematology Society (CHS) is to lead and influence hematology clinical practice and research in Canada through being a recognized and valued voice of the Canadian hematology community.

MEMBERSHIP APPLICATION FORMS

are available through the office or on the website
http://www.canadianhematologysociety.org

CONTACT INFORMATION
Canadian Hematology Society
199-435 St. Laurent BLVD
Ottawa, Ontario
K1K 2Z8
Phone: 613-748-9613
Fax: 613-748-6392
http://canadianhematologysociety.org/
Email: chs@uniserve.com

CHS CH

Your Canadian Hematology Society
Société Canadienne d' Hématologie Newsletter

Membership Matters

The Canadian Hematology Society has represented all physicians and scientists with an interest in the discipline in Canada since it was founded in 1971, and currently has over 400 members.

Active Membership

- Physicians in the practice of clinical or laboratory hematology in Canada
- Scientists with PhD degrees making continuing contributions to research related to hematology in Canada
- Allied Health Professionals with university degrees making sustained contributions to clinical or laboratory hematology practice or hematology research in Canada.

Only active members shall:

- **vote**
- **hold office**
- **receive CHS grants, and**
- **pay dues.**

Associate Members

- Residents and fellows engaged in hematology training
- Masters and PhD graduate students
- Post-doctoral fellows engaged in hematology research

Associate members will not be required to pay dues until completion of their training.

Emeritus Members

- All individuals who have retired from full time hematology practice or research, or those who were active members and request a transfer of status with adequate reason.

Honorary Membership

- Non-members may be invited to become Honorary Members of the corporation by virtue of their outstanding contributions to any discipline which is of importance to hematology.

CHS members are reminded ... that dues for the year 2016, are now due.

Your $75. annual dues payment may be made online at the CHS website: **www.canadianhematologysociety.org**

Or by mail to: **Canadian Hematology Society, 199-435 St. Laurent Blvd., Ottawa, Ontario K1K 2Z8**
Please provide the following information with your payment:

2016 Membership Renewal / Address Change: Canadian Hematology Society

Membership Status

Active ☐
Associate ☐
Emeritus ☐

Has your status changed?

Yes ☐
No ☐

Name: _____
Title: _____
Email: _____
Work Address: _____
_____
Work Phone: _____
Work Fax: _____