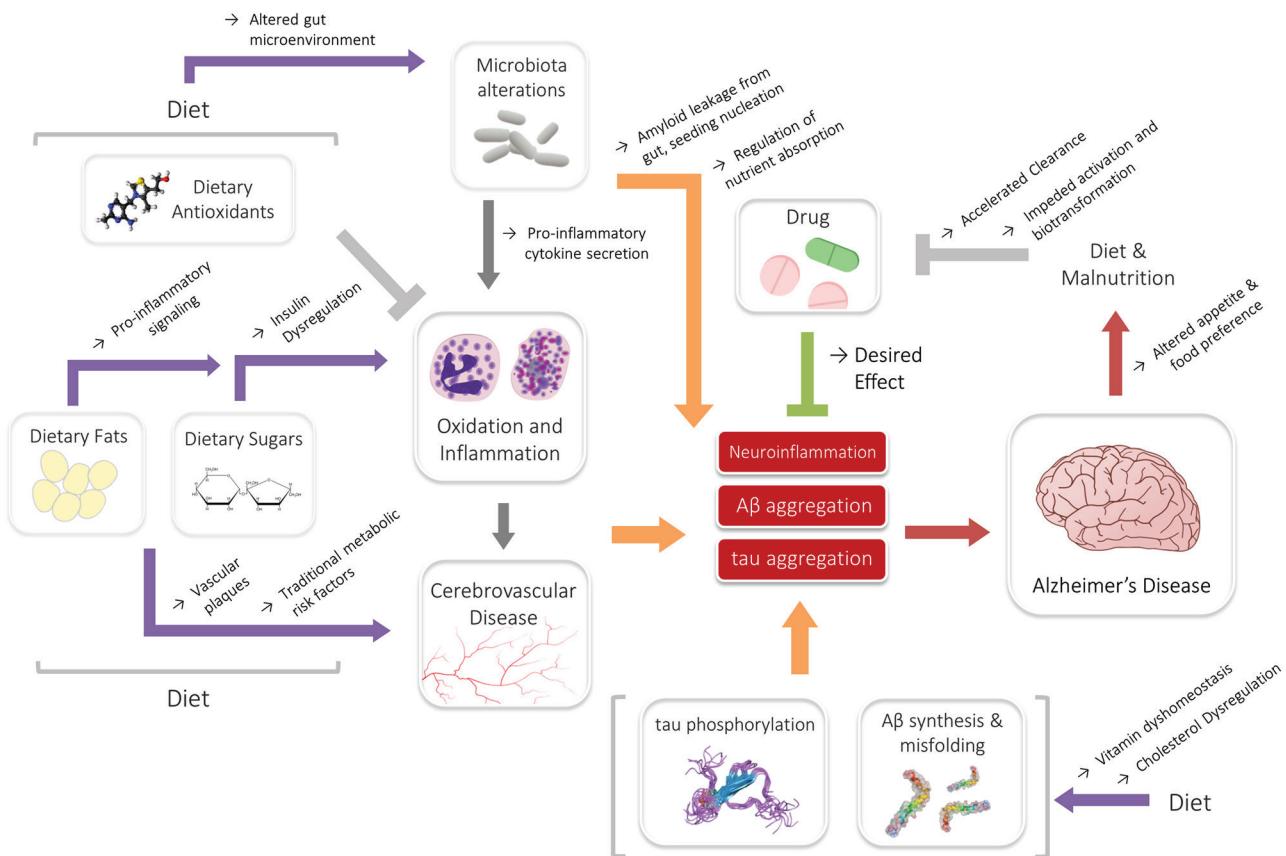




# The journal

Canadian Journal of Neurological Sciences

Volume 46 Number 1 January 2019



## Nutrients in Alzheimer's Disease: The Interaction of Diet, Drugs and Disease

S. Imindu Liyanage, Prachi Vilekar, Donald F. Weaver

*Can J Neurol Sci.* 2019;46:29

AN INTERNATIONAL JOURNAL PUBLISHED BY THE CANADIAN NEUROLOGICAL SCIENCES FEDERATION

*The official Journal of:* The Canadian Neurological Society, The Canadian Neurosurgical Society, The Canadian Society of Clinical Neurophysiologists, The Canadian Association of Child Neurology, The Canadian Society of Neuroradiology

## EDITORIAL

- 1** Through the Skin, To the Nerves: Subcutaneous Immunoglobulin for Neuromuscular Diseases

*Hans D. Katzberg*

- 3** Persistent Headache Attributed to Traumatic Injury to the Head: Can We Do Better?

*Werner J. Becker*

- 5** Training and Regulating Clinical Scientists in Canada: Online Training for Intraoperative Neuromonitoring?

*Jonathan Norton*

## REVIEW ARTICLES

- 7** Development of Criteria for Epilepsy Genetic Testing in Ontario, Canada

*Puneet Jain, Danielle Andrade, Elizabeth Donner, David Dyment, Asuri N. Prasad, Sharan Goobie, Kym Boycott, Matthew Lines, O. Carter Snead III*

- 14** Narrative Review of the Pathophysiology of Headaches and Photosensitivity in Mild Traumatic Brain Injury and Concussion

*Christopher Mares, Jehane H. Dagher, Mona Harissi-Dagher*

- 23** Nutrients in Alzheimer's Disease: The Interaction of Diet, Drugs and Disease

*S. Imindu Liyanage, Prachi Vilekar, Donald F. Weaver*

## COMMENTARY

- 35** Applying Behavioral Economics and Neuroeconomics to Medical Education and Clinical Care

*Gustavo Saposnik*

## ORIGINAL ARTICLES

- 38** Evaluation of a Personalized Subcutaneous Immunoglobulin Treatment Program for Neurological Patients

*Adam Suleiman, Lynda Theoret, Pierre Bourque, Elizabeth Pringle, D. William Cameron, Juthaporn Cowan*

- 44** Links Between Strokes and Hereditary Hemorrhagic Telangiectasia: A Population-Based Study
- Farah N. Chowdhury, G. Sanjaya Chandrarathne, Kristopher D. Masilamani, Jennifer T. N. LaBranche, Shaun Malo, Lawrence W. Svenson, Thomas Jeerakathil, Dilini P. Vethanayagam*
- 51** Reducing Door-to-Needle Times for Ischaemic Stroke to a Median of 30 Minutes at a Community Hospital
- Noreen Kamal, Elaine Shand, Robert Swanson, Michael D. Hill, Thomas Jeerakathil, Oje Imoukhuede, Irvin Heinrichs, Jackie Bakker, Carol Stoyberg, Laura Fowler, Sandy Duckett, Scott Holsworth, Balraj Mann, Shelley Valaire, Jennifer Bestard*
- 57** Adherence to Guidelines at a Stroke Prevention Clinic: A Follow-up Study
- Bing Yu Chen, Heather Perkins, Eric Ehrensparger, Jeffrey Minuk, Lucy Vieira, Theodore Wein, Robert Côté*
- 64** Co-existence of Rolandic and 3 Hz Spike-Wave Discharges on EEG in Children with Epilepsy
- Anita N. Datta, Laura Wallbank, Peter K. H. Wong*
- 71** Modified Visual Magnetic Resonance Rating Scale for Evaluation of Patients with Forgetfulness
- Betul Z. Yalciner, Melek Kandemir, Sencan Taskale, Savas M. Tepe, Devrim Unay*
- 79** Ultrasound-Assisted Lumbar Puncture in a Neuromuscular Clinic has a High Success Rate and Less Pain
- Alon Abraham, Ari Breiner, Hans D. Katzberg, Leif E. Lovblom, Vera Bril*
- 83** Geographic Disparities in the Surgical Management of Hemifacial Spasm in Canada
- Mohamed Somji, Anthony M. Kaufmann*
- 87** Utilization of Spinal Intra-operative Three-dimensional Navigation by Canadian Surgeons and Trainees: A Population-based Time Trend Study
- Daipayan Guha, Ali Moghaddamjou, Zaneen H. Jiwani, Naif M. Alotaibi, Michael G. Fehlings, Todd G. Mainprize, Albert Yee, Victor X.D. Yang*

Volume 46 / Number 1 / January 2019

- 96** Patient Predictors of Surgical Candidacy in Elective Spine Disorders  
*Michael M.H. Yang, Godefroy Hardy St-Pierre, Stephan DuPlessis*

## NEUROIMAGING HIGHLIGHTS

- 102** Profound Leptomeningeal and Intramedullary Abnormalities in Bing-Neel Syndrome  
*Joy Zhuo Ding, Ryan Gotfrid, Santanu Chakraborty*

## BRIEF COMMUNICATIONS

- 105** Evidence of Concomitantly Increasing Stroke and Dementia Prevalence among those 80 Years and Older in Ontario, Canada, 2003-04 to 2012-13  
*Joshua O. Cerasuolo, Mahmoud Reza Azarpazhooh, Moira K. Kapral, Lauren E. Cipriano, Vladimir Hachinski*

- 108** Magnetoencephalographic Source Localization of the Eye Area of the Motor Homunculus  
*Richard Wennberg, Luis Garcia Dominguez, J. Martin del Campo*

## CLINICAL NEUROPATHOLOGICAL CONFERENCE

- 115** Looking Glass Syndromes: Two Sides of the Same Gene  
*Ryan G. Taylor, Basma Alyamany, Sachin Pandey, Andrew Kertesz, Lee C. Ang, Elizabeth Finger*

## REFLECTIONS

- 121** The Neurologist's Oath  
*Donald F. Weaver*

## LETTERS TO THE EDITOR

- 122** Cerebrovascular Neurosurgery in Canada  
*Richard Leblanc*

- 123** Reply to Richard Leblanc's Letter to the Editor, "Cerebrovascular Neurosurgery in Canada: An Historical Review"  
*Suresh Ramnath*
- 124** A Case of a Cardiac Cephalgia  
*Ryan MacIsaac, Scott Jarvis, Kevin Busche*
- 127** Diagnosing Unusual Presentations of Dopa-Responsive Conditions: Thinking on your Feet  
*Soumya Sharma, Aditya Murgai, Mandar S. Jog*
- 130** Deep Brain Stimulation as a Rescue When Duodenal Levodopa Infusion Fails  
*Nabeela Nathoo, Tejas Sankar, Oksana Suchowersky, Fang Ba*
- 132** Progressive Supranuclear Palsy-like Syndrome from Possible Cerebral Amyloid Angiopathy  
*Aakash Shetty, Richard Camicioli, Fang Ba*
- 137** An Acute Clinical Presentation Associated with Hypertrophic Olivary Degeneration  
*Calvin Howard, Alexander Arnold, Tyson Brust*
- 140** Emergency Embolization of Artery of Adamkiewicz Pseudoaneurysm Following Methylenedioxymethamphetamine Abuse  
*Manraj K.S. Heran, James P. Nugent, Mostafa Fatehi, Charles S. Haw*
- 145** Ischemic Stroke in a Transgender Woman Receiving Estrogen Therapy  
*Priscilla Kwan, Aleksandra Pikula*
- 147** Myelitis with Hypoglycorrachia due to Herpes Simplex Virus 2 in an Immunocompetent Man  
*Christine Tomkinson, Crystal Fong, Kanjana Perera*

## ERRATUM

- 149** Training and Regulating Clinical Scientists in Canada: Online Training for Intraoperative Neuromonitoring?  
 - ERRATUM  
*Jonathan Norton*



Canadian Journal of Neurological Sciences

Volume 46 / Number 1 / January 2019

**Editor-in-Chief/Rédacteur en chef**

Robert Chen TORONTO, ON

**Associate Editors/Rédacteurs associés**

Robert Hammond LONDON, ON

Philippe Hout MONTREAL, QC

Mahendranath Moharir TORONTO, ON

Tejas Sankar EDMONTON, AB

Manas Sharma LONDON, ON

Jeanne Teitelbaum MONTREAL, QC

Richard Wennberg TORONTO, ON

**Past Editors/Anciens rédacteurs en chef**

G. Bryan Young LONDON, ON

Douglas W. Zochodne CALGARY, AB

James A. Sharpe TORONTO, ON

Robert G. Lee CALGARY, AB

Robert T. Ross WINNIPEG, MB

(Emeritus Editor, Founding Editor)

**Editorial Board/Comité éditorial**

Jorge Burneo, LONDON, ON

Jodie Burton, CALGARY, AB

Colin Chalk, MONTREAL, QC

K. Ming Chan, EDMONTON, AB

Alan Goodridge, ST. JOHN'S, NL

Mark Hamilton, CALGARY, AB

Michael Hill, CALGARY, AB

Alan C. Jackson, WINNIPEG, MB

Draga Jichici, HAMILTON, ON

Suneil Kalia, TORONTO, ON

Daniel Keene, OTTOWA, ON

Julia Keith, TORONTO, ON

Stephen Lownie, LONDON, ON

Jian-Qiang Lu, HAMILTON, ON

Patrick McDonald, VANCOUVER, BC

Joseph Megyesi, LONDON, ON

Tiago Mestre, OTTOWA, ON

Sarah Morrow, LONDON, ON

Michael Nicolle, LONDON, ON

Narayan Prasad, LONDON, ON

Alex Rajput, SASKATOON, SK

Kesh Reddy, HAMILTON, ON

Ramesh Sahpaul, NORTH VANCOUVER, BC

Dipanka Sarma, TORONTO, ON

Sean Symons, TORONTO, ON

Brian Toyota, VANCOUVER, BC

Brian Weinshenker, ROCHESTER, MN

Sam Wiebe, CALGARY, AB

Eugene Yu, TORONTO, ON

**Journal Staff/Effectif du Journal**

Dan Morin CALGARY, AB

*Chief Executive Officer*

Donna Irvin CALGARY, AB

*CNSF Membership Services /*

*Communications Officer*

**The official journal of: / La Revue officielle de:**

**The Canadian Neurological Society  
La Société Canadienne de Neurologie**

**The Canadian Neurosurgical Society  
La Société Canadienne de Neurochirurgie**

**The Canadian Society of Clinical Neurophysiologists  
La Société Canadienne de Neurophysiologie Clinique**

**The Canadian Association of Child Neurology  
L'Association Canadienne de Neurologie Pédiatrique**

**The Canadian Society of Neuroradiology  
La Société Canadienne de Neuroradiologie**

The permanent secretariat for the five societies and the Canadian Neurological Sciences Federation is at:

Le sécrétariat des cinq associations et de la Fédération des sciences neurologiques du Canada est situé en permanence à :

143N – 8500 Macleod Trail SE  
Calgary, Alberta T2H 2N1 Canada  
CNSF (403) 229-9544  
Fax (403) 229-1661

The Canadian Journal of Neurological Sciences is published bi-monthly. The annual subscription rate for Individuals (electronic) is £141/US\$233. The annual subscription rate for Institutions (electronic) is £187/US\$311. See <cambridge.org/cjn> for full details including taxes; e-mail: [subscriptions\\_newyork@cambridge.org](mailto:subscriptions_newyork@cambridge.org). The Canadian Journal of Neurological Sciences is included in the Cambridge Core service, which can be accessed at [cambridge.org/cjn](http://cambridge.org/cjn). For information on other Cambridge titles, visit [www.cambridge.org](http://www.cambridge.org). For advertising rates contact M. J. Mrvica Associates, 2 West Taunton Avenue, Berlin, NJ 08009; Phone: 856-768-9360; Fax: 856-753-0064; Email: [mjmrvica@mrvica.com](mailto:mjmrvica@mrvica.com).

Le Journal Canadien des Sciences Neurologiques est publié tous les deux mois. Le prix d'abonnement annuel pour les individus (électronique) est 141£/221US\$. Le prix d'abonnement annuel pour les établissements (électronique) est 187£/311US\$. Veuillez consulter <cambridge.org/cjn> pour tous les détails, y compris les taxes; email: [subscriptions\\_newyork@cambridge.org](mailto:subscriptions_newyork@cambridge.org). Le Journal canadien des sciences neurologiques est inclus dans le service Cambridge Journals Online, accessible à [cambridge.org/cjn](http://cambridge.org/cjn). Pour plus d'informations sur les titres disponibles chez Cambridge, veuillez consulter [www.cambridge.org](http://www.cambridge.org). Pour les tarifs de publicité, contacter M. J. Mrvica Associates, 2 West Taunton Avenue, Berlin, NJ 08009; Téléphone: (1)856-768-9360; Email: [mjmrvica@mrvica.com](mailto:mjmrvica@mrvica.com).

This journal is indexed by / Cette revue est indexée par:  
*Adis International, ArticleFirst, BIOBASE, BioLab, Biolab, BIOSIS Prev, Centre National de la Recherche Scientifique, CSA, CurAb, CurCont, De Gruyter Saur, E-psyche, EBSCO, Elsevier, EMBASE, FRANCIS, IBZ, Internationale Bibliographie der Rezensionen Geistes- und Sozialwissenschaftlicher Literatur, MEDLINE, MetaPress, National Library of Medicine, OCLC, PE&ON, Personal Alert, PsycFIRST, PsycINFO, PubMed, Reac, RefZh, SCI, SCOPUS, Thomson Reuters, TOCPrem, VINITI RAN, Web of Science.*

ISSN: 0317-1671  
EISSN: 2057-0155

COPYRIGHT © 2019 by THE CANADIAN JOURNAL OF NEUROLOGICAL SCIENCES INC. All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopying, or otherwise, without permission in writing from Cambridge University Press. Policies, request forms and contacts are available at: <http://www.cambridge.org/about-us/rights-permissions>. Permission to copy (for users in the U.S.A.) is available from Copyright Clearance Center: <http://www.copyright.com>, email: [info@copyright.com](mailto:info@copyright.com).

COPYRIGHT © 2019 du THE CANADIAN JOURNAL OF NEUROLOGICAL SCIENCES INC. Tous droits réservés.  
Aucune partie de cette publication ne peut être reproduite, sous quelque forme ou par quelque procédé que ce soit, électronique ou autre, y compris la photocopie, sans l'accord écrit de Cambridge University Press. Les politiques, les formulaires de demande et les contacts sont disponibles à: <http://www.cambridge.org/about-us/rights-permissions>. La permission de copier (pour les utilisateurs aux États-Unis) est disponible auprès Copyright Clearance Center: <http://www.copyright.com>, email: [info@copyright.com](mailto:info@copyright.com).