

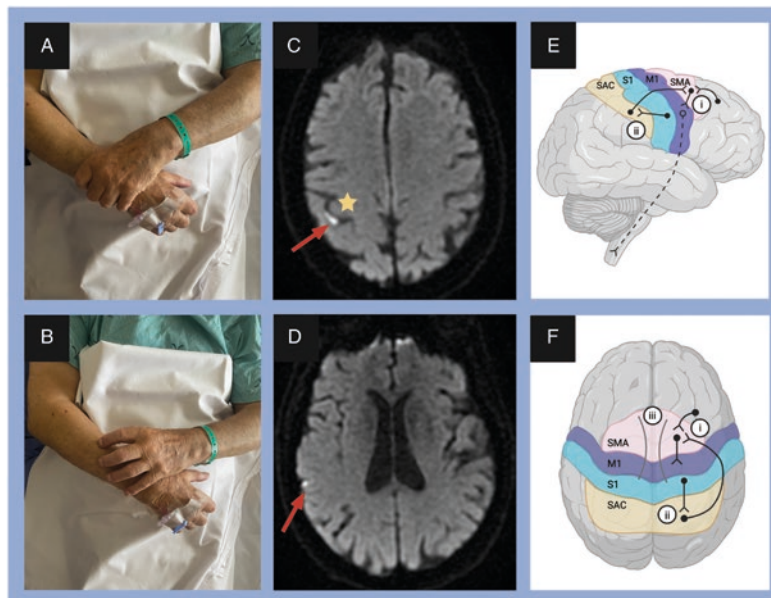


# Canadian Journal of Neurological Sciences



## Journal Canadien des Sciences Neurologiques

Volume 51    Number 2    March 2024



The official Journal of  
**The Canadian Neurological Sciences Federation:**

Canadian Neurological Society  
Canadian Neurosurgical Society  
Canadian Society of Clinical Neurophysiologists  
Canadian Association of Child Neurology  
Canadian Society of Neuroradiology  
Canadian Stroke Consortium



**CAMBRIDGE**  
UNIVERSITY PRESS



**EDITORIAL**

- 151** Building On Our Strengths Toward a Bright Future  
*Tejas Sankar*
- 153** In Memoriam: Dr. William (Bill) Stewart Tucker June 11,  
1943–October 2, 2023  
*J. Max Findlay*

**COMMENTARY**

- 155** Women's Neurology: Why We Need a Subspecialty for Half the  
Population  
*Mimma Anello, Aleksandra Pikula and Esther Bui*
- 157** Cognition in Normal Aging – A Brief Review  
*Andrew Kirk*

**REVIEW ARTICLES**

- 161** Alzheimer's Disease and COVID-19 Pathogenic Overlap:  
Implications for Drug Repurposing  
*Mahdieh Golzari-Sorkheh, Imindu Liyanage, Mark A. Reed and  
Donald F. Weaver*
- 173** Computed Tomography Perfusion for the Diagnosis of Brain  
Death: A Technical Review  
*Abanoub Aziz Rizk, Nahal Farhani and Jai Shankar*

**ORIGINAL ARTICLES**

- 179** Contact Heat in Magnetoencephalography: A Systematic Review  
*Thomas J. Graeme-Drury, Siân F. Worthen, Michelle Maden,  
Jon H. Raphael, Salim Khan, Martin Vreugdenhil and  
Rui V. Duarte*
- 187** Split Phenomenon of Fasciculation between Antagonistic  
Muscles in Amyotrophic Lateral Sclerosis: An Ultrasound Study  
*Nan Hu, Yi Li, Jingwen Liu, Liying Cui and Mingsheng Liu*

- 196** Does E-learning Facilitate Medical Education in Pediatric Neurology?  
*Brittany Curry, Sarah Buttle, Hugh J. McMillan, Richard Webster,  
Deepti Reddy, Aneesh Karir, Stewart Spence, Aleksandra Mineyko,  
Hilary Writer, Heather MacLean and Daniela Pohl*
- 203** Variability in Newborn Screening Across Canada: Spinal  
Muscular Atrophy and Beyond  
*Emilie Groulx-Boivin, Homira Osman, Pranesh Chakraborty,  
Stacey Lintern, Maryam Oskoui, Kathryn Selby, Paul Van Caesele,  
Alexandra Wyatt and Hugh J. McMillan*
- 210** Physician Approaches to Antithrombotic Therapies for Recently  
Symptomatic Carotid Stenosis  
*Aravind Ganesh, Benjamin Beland, Gordon A.E. Jewett,  
David J.T. Campbell, Malavika Varma, Ravinder-Jeet Singh,  
Abdulaziz Al-Sultan, John H. Wong and Bijoy K. Menon*
- 220** A Simplified One-Size-Fits-All Approach to Carotid Stenting  
*Amro Lahlouh, Ruba Kiwan, Jennifer Mandzia and  
Sachin Pandey*
- 226** Direct to Angiosuite in Acute Stroke with Mobile Stroke Unit  
*Radhika Nair, Jeremy Rempel, Khurshid Khan,  
Thomas Jeerakathil, Rene Van Dijk, Brian H. Buck,  
Mahesh P. Kate, Sibi Thirunavukkarasu, Kimberly Gilbertson,  
Sathvika Thermalingem and Ashfaq Shuaib*
- 233** Impact of COVID-19 on Neuro-Ophthalmology in the United  
States: A National Survey  
*Ethan Waisberg, Joshua Ong, Nasif Zaman, Sharif Amit Kamran,  
Alireza Tavakkoli and Andrew G. Lee*
- 238** Patient Safety in Canadian Epilepsy Monitoring Units:  
A Survey of Current Practices  
*Emmanuelle Nguyen, Jimmy Li, Dang Khoa Nguyen and  
Elie Bou Assi*
- 246** Residual Seizure Rate of Intermittent Inpatient EEG Compared  
to a Continuous EEG Model  
*Dave Xie, Darion Toutant and Marcus C. Ng*



- 255** The Development And Applications Of Augmented And Virtual Reality Technology In Spine Surgery Training: A Systematic Review

*Youngkyung Jung, Varun Muddaluru, Pranjan Gandhi, Markian Pahuta and Daipayan Guha*

- 265** Pituitary Dysfunction in Idiopathic Intracranial Hypertension: An Analysis of 80 Patients

*Nandita Prabhat, Kirandeep Kaur, Aastha Takkar, Chirag Ahuja, Deeksha Katoch, Manoj Goyal, Pinaki Dutta, Anil Bhansali and Vivek Lal*

- 272** Repeat CyberKnife Radiosurgery for Trigeminal Neuralgia: Outcomes and Complications

*Albert Guillemette, David Roberge, Sami Heymann, Cynthia Ménard, Jean-Paul Bahary and Marie-Pierre Fournier-Gosselin*

#### NEUROIMAGING HIGHLIGHTS

- 278** Ischemic Stroke Due to Carotid Artery Stenosis in a Patient with Hughes Syndrome

*Yanli Du, Siyang Zheng, Hui Qi and Zongli Han*

- 280** Pac-Man Ghost Sign In Bilateral Hypertrophic Olivary Degeneration

*Camila Abreu-Silveira, Fabiano Reis, Egberto R. Barbosa and Laura Silveira-Moriyama*

- 282** Ultrasound Monitoring of Anterior Ethmoidal Artery: A Practical Clue in Dural Arteriovenous Fistula Treatment

*Marialuisa Zedde, Claudio Moratti and Rosario Pascarella*

#### BRIEF COMMUNICATIONS

- 285** Advance Consent in Acute Stroke Trials: Survey of Canadian Research Ethics Board Chairs

*Rena Seeger, Ubong Udoh, Brian Dewar, Stuart Nicholls, Mark Fedyk, Robert Fahed, Jeff Perry, Michael D. Hill, Bijoy Menon, Richard H. Swartz, Alexandre Y. Poppe, Sophia Gocan, Jamie Brehaut, Katie Dainty, Victoria Shepherd, Dar Dowlatshahi and Michel Shamy*

- 289** Autistic Regression and Exposure to Industrial Chemicals: Preliminary Observations

*Helly Goetz, Charlene C. Nielsen, Sean Bryan, Brenda Clark, Lonnie Zwaigenbaum, Shelby S. Yamamoto and Alvaro R. Osornio-Vargas*

#### CLINICAL NEUROPATHOLOGICAL CONFERENCE

- 293** Clinical Neuropathology Conference: "It's Getting on My Nerves"

*Cathy Meng Fei Li, Alexandra Muccilli, Seth A. Climans, Christen Shoosmith, Sachin Pandey, Cheryl Foster, Shervin Pejhan, Nikhil Sangle and Robert Hammond*

#### HISTORICAL REVIEW

- 300** Anton, Balint, Charles Bonnet, and the Others: The ABC of Cerebral Visual Syndromes (A Historical Guide and an Update)

*Andrew Kertesz*

#### LETTERS TO THE EDITOR: NEW OBSERVATION

- 305** Transient Alien Hand Syndrome: Thinking Beyond Neurodegeneration

*Cait Dmitriew, Alexander Hemy and Ravinder-Jeet Singh*

- 308** Not a Benign Vitamin: Infant with Vitamin A Toxicity and Acute Intracranial Hypertension

*Micheline Lagacé, Maryam Oskoui and Kenneth Myers*

- 310** Persistence of Infantile-Onset Saccade Initiation Delay (Congenital Ocular Motor Apraxia): An Update on a Young Adult

*Michael S. Salman and Martin Bunge*

- 312** Pregnancy in Generalized Dystonia: A Case of DBS Discontinuation

*Ali Abusrair and Veronica Bruno*



- 314** Post-partum Resolution of Bitemporal Hemianopia with Persisting Pituitary Adenoma  
*Amir R. Vosoughi, Felix Tyndel, Suradech Suthiphosuwana and Jonathan A. Micieli*
- 317** Cervical Intramedullary Solitary Fibrous Tumor  
*Elizabeth M. Attia, Sunjay Sharma, Joel Woodley-Cook, Julian Spears and David G. Munoz*
- 320** Herpes Simplex 2 Encephalitis and Acute Retinal Necrosis  
*Maksim Son, Robin Bessemer, Anastasiya Vinokurtseva, Mišo Gostimir, Thomas Sheidow and Sarah A. Morrow*
- 323** Enhancement of Subarachnoid Oculomotor Nerves in Bickerstaff Brainstem Encephalitis  
*Laura Donaldson, Trishal Jeeva-Patel, Daniel Mandell and Edward Margolin*
- 325** Anti-N-Methyl-D-Aspartate Receptor Encephalitis Triggered by Lyme Disease  
*Yiu-Chia Chang, Adrian Budhram and Daniel Wong*
- 328** Persistent Central Hypoventilation Following Probable Remission from Anti-N-methyl-D-aspartate Receptor Encephalitis  
*Samantha Rivet, Liam Durcan and François Dubeau*
- 330** Functional Seizures in the Elderly: Accurate Diagnosis Can Reduce Iatrogenic Harm  
*Gabriela S. Gilmour, Andrea Salmon and Colin B. Josephson*
- 333** Typical Absence Status Epilepticus in Later Life Precipitated by Spirometry  
*José L. Fernández-Torre, Alicia Paramio-Paz, Sandra Campos-Fernández, María Rivera-Sánchez, Pedro Orizaola and Miguel A. Hernández-Hernández*
- 336** Severe Polyneuropathy in Hereditary Transthyretin Amyloidosis Caused by H90D Variant  
*Joshua Pierce, Karam Han, Harry V. Vinters, Jonathan E. Zuckerman and Anasheh Halabi*
- 339** An Unexpected Benefit From Face Masks During COVID-19  
*Gabriel Amorelli, Veronica Bruno, Davide Martino and Sarah Furtado*
- 341** **THANK YOU TO OUR REVIEWERS**
- COVER IMAGE**
- Transient Alien Hand Syndrome: Thinking Beyond Neurodegeneration  
*Cait Dmitriew, Alexander Hemy and Ravinder-Jeet Singh*  
See page 306



# Canadian Journal of Neurological Sciences



## Journal Canadien des Sciences Neurologiques

Volume 51 / Number 2 / March 2024

### *Éditeur-in-Chief/Rédacteur en chef*

Tejas Sankar EDMONTON, AB

### *Associate Editors/Rédacteurs associés*

Robert Hammond LONDON, ON

Philippe Hout MONTREAL, QC

Mahendranath Moharir TORONTO, ON

Manas Sharma LONDON, ON

Amy Yu TORONTO, ON

### *Past Editors/Anciens rédacteurs en chef*

Robert Chen, TORONTO, ON

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)

### *Social Media Editors*

Aleksandra Mineyko, CALGARY, AB

Amit Persad, PALO ALTO, CA

### *Editorial Board/Comité éditorial*

Jorge Burneo, LONDON, ON

Jodie Burton, CALGARY, AB

Colin Chalk, MONTREAL, QC

K. Ming Chan, EDMONTON, AB

Thalia Field, VANCOUVER, BC

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

Nir Lipsman, TORONTO, ON

Stephen Lownie, LONDON, ON

Jian-Qiang Lu, HAMILTON, ON

Patrick McDonald, WINNIPEG, MB

Joseph Megyesi, LONDON, ON

Tiago Mestre, OTTOWA, ON

Sarah Morrow, LONDON, ON

Michael Nicolle, LONDON, ON

Ian Parney, ROCHESTER, MN

Narayan Prasad, LONDON, ON

Alex Rajput, SASKATOON, SK

Kesh Reddy, HAMILTON, ON

Larry Robinson, TORONTO, ON

Ramesh Sahpaul, NORTH VANCOUVER, BC

Dipanka Sarma, TORONTO, ON

Jai Shankar, WINNIPEG, MB

Madeleine Sharpe, MONTREAL, QC

Ashkan Shoamanesh, HAMILTON, ON

Sean Symons, TORONTO, ON

Brian Toyota, VANCOUVER, BC

Brian Weinschenker, ROCHESTER, MN

Sam Wiebe, CALGARY, AB

Jefferson Wilson, TORONTO, ON

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*

Nicole Rozak CALGARY, AB

*CNSF Administration*

### *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

Canadian Stroke Consortium  
Consortium Neurovasculaire Canadien

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

Le secrétariat des six associations et de la Fédération des sciences neu-  
rologiques 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 £187/US\$308. The annual subscription rate for Institutions (electronic) is £247/US\$410. See <cambridge.org/cjn> for full details including taxes; e-mail: subscriptions\_newyork@cambridge.org. Send address changes to Journals Fulfillment Department, Cambridge University Press, One Liberty Plaza, New York, NY 10006 USA; usmemberservices@cambridge.org. The Canadian Journal of Neurological Sciences is included in the Cambridge Core service, which can be accessed at cambridge.org/cjn. For information on other Cambridge titles, visit 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: mjmrivica@mrivica.com.

Le Journal Canadien des Sciences Neurologiques est publié tous les deux mois. Le prix d'abonnement annuel pour les individus (électronique) est 187\$/US\$308. Le prix d'abonnement annuel pour les établissements (électronique) est 247\$/US\$410. Veuillez consulter <cambridge.org/cjn> pour tous les détails, y compris les taxes; email: subscriptions\_newyork@cambridge.org. Envoyer les changements d'adresses aux Journals Fulfillment Department, Cambridge University Press, One Liberty Plaza, New York, NY 10006 USA; usmemberservices@cambridge.org. Le Journal canadien des sciences neurologiques est inclus dans le service Cambridge Journals Online, accessible à cambridge.org/cjn. Pour plus d'informations sur les titres disponible chez Cambridge, veuillez consulter 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: mjmrivica@mrivica.com.

This journal is indexed by / Cette revue est indexée par:  
Adis International, ArticleFirst, BIOBASE, BioLab, BioSci, BIOSIS Previews, 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, Read, RefZb, SCL, SCOPUS, Thomson Reuters, TOCpremier, VINI RAN, Web of Science.

ISSN: 0317-1671  
EISSN: 2057-0155

COPYRIGHT © 2024 by CANADIAN NEUROLOGICAL SCIENCES  
FEDERATION 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 © 2024 du CANADIAN NEUROLOGICAL SCIENCES  
FEDERATION 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).

# INVEST IN YOUR GOALS



**We're dedicated to helping physicians  
and their families reach their financial goals.**

Our MD Advisors\* understand a physician's unique needs. That's why more than 38,000<sup>1</sup> physician families look to us for guidance. Whether you want to buy your dream home, fund a child's education, plan a vacation or secure a comfortable retirement, our Advisors can help you reach your financial goals.

**Discover how MD Financial Management  
can enhance your financial well-being.**

[mdm.ca/investing](https://mdm.ca/investing)

\* MD Advisor refers to an MD Management Limited Financial Consultant or Investment Advisor (in Quebec), or an MD Private Investment Counsel Portfolio Manager. • <sup>1</sup> As of July 2021, more than 38,000 physician households work with the MD Group of Companies (MD Financial Management Inc., MD Management Limited, MD Private Trust Company and MD Life Insurance Company). For a detailed list of these companies, visit [mdm.ca](https://mdm.ca). • MD Financial Management provides financial products and services, the MD Family of Funds and investment counselling services through the MD Group of Companies and Scotia Wealth Insurance Services Inc. For a detailed list of the MD Group of Companies visit [mdm.ca](https://mdm.ca) and visit [scotiawealthmanagement.com](https://scotiawealthmanagement.com) for more information on Scotia Wealth Insurance Services Inc.

