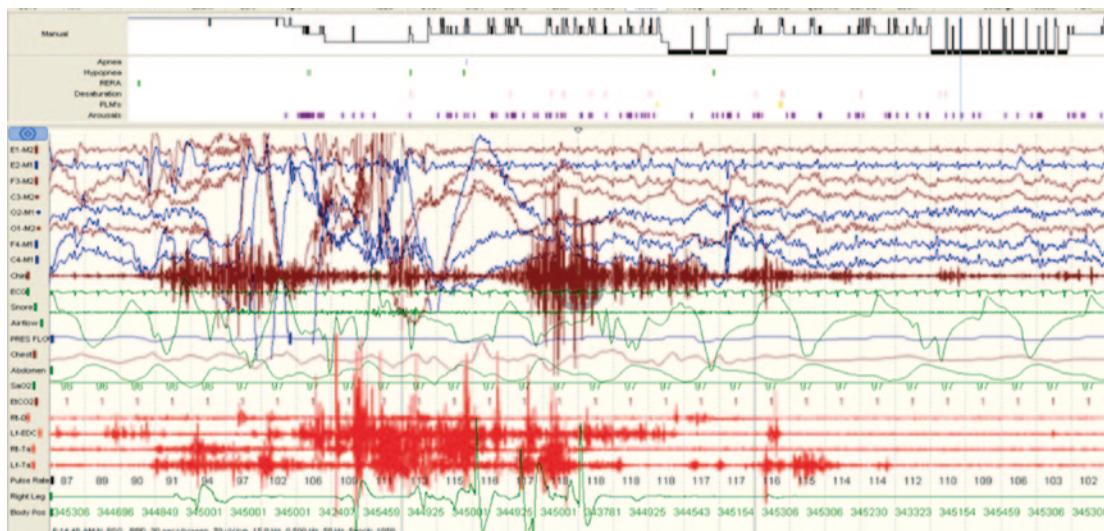




# The journal

Canadian Journal of Neurological Sciences

Volume 47 Number 1 January 2020



## Rapid Eye Movement (REM) Sleep Behavior Disorder and REM Sleep without Atonia in the Young

Garima Shukla, Anupama Gupta, Kamalesh Chakravarty, Angela Ann Joseph, Aathira Ravindranath, Manju Mehta,

Sheffali Gulati, Madhulika Kabra, Afsar Mohammed, Shivani Poornima

Can J Neurol Sci. 2020;47:104

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, and The Canadian Society of Neuroradiology



## Your daily connection to neurosciences

Free, independent and unbiased scientific content.

The screenshot shows the Neurodiem homepage. At the top, there's a banner with the text "Stay up-to-date on the latest developments in neuroscience." and a "Sign up for Neurodiem!" button. Below this is a section titled "Latest publications" with a grid of news cards. One card is visible, showing a woman in a blue shirt and the headline "Benefits of deep brain stimulation on quality of life in Parkinson's disease". To the right of the publications is a video player showing a man in glasses. The video has a play button and the caption "Recovery in patients with aphasia after stroke is". The top navigation bar includes links for Home, Conferences, Talks, All Topics, About, and a search icon.

## NEWS

- **Daily abstracts** of selected major publications in neurosciences
- **Exclusive articles** written by leading experts
- **Full-text articles** from more than 25 internationally recognized scientific journals

## CONFERENCES

- **Highlights** of the major conferences in neurology (AAN, EAN, AAIC, IHC, EANO, ECTRIMS...)

## TALKS

- **Expert talks** and scientific presentations by local and international clinicians and scientists

**Sign up for free!**  
[www.neurodiem.ca](http://www.neurodiem.ca)

Neurodiem is a service provided by Biogen MA Inc. The medical information presented on Neurodiem shall in no way be sorted, modified or transformed by Biogen.

Neurodiem does not contain any promotional content.



Volume 47 / Number 1 / January 2020

#### REVIEW ARTICLES

- 1** Does Resetting the Immune System Fix Multiple Sclerosis?  
*Gauruv Bose, Simon D. X. Thebault, Harold L. Atkins, Mark S. Freedman*
- 11** Cannabis in the Treatment of Traumatic Brain Injury: A Primer for Clinicians  
*Karl Grenier, Fallon Ponnambalam, David Lee, Rebecca Lauwers, Shree Bhalerao*
- 18** Nervous System Hemangiopericytoma  
*Or Cohen-Inbar*
- 30** Falls in Synucleinopathies  
*Stephen Jozza, Richard Camicioli, Fang Ba*

#### ORIGINAL ARTICLES

- 44** Case-Control Study of Endovascular Thrombectomy in a Canadian Stroke Center  
*Sherry X. Hu, Karim Virani, Jai J. S. Shankar, Christine A. Christian, Kara J. Matheson, Huiling Cao, Wendy L. Simpkin, Stephen J. Phillips*
- 50** A Cost-Utility Analysis of Endovascular Thrombectomy in a Real-World Setting  
*Prosper S. Koto, Sherry X. Hu, Karim Virani, Wendy L. Simpkin, Christine A. Christian, Huiling Cao, Jai J. S. Shankar, Stephen J. Phillips*

- 61** Implementation of Epilepsy Multigene Panel Testing in Ontario, Canada  
*David A. Dyment, Asuri N. Prasad, Kym M. Boycott, Grace U. Ediae, Taila Hartley, Ayman Hassan, Katherine E. Muir, Murray Potter, Lysa Boisse Lomax, Olga Jarinova, Bekim Sadikovic, Dimitri J. Stavropoulos, O. Carter Snead III*

- 69** Testing for *N*-methyl-D-aspartate Receptor Autoantibodies in Clinical Practice  
*John Brooks, Melanie L. Yarbrough, Robert C. Bucelli, Gregory S. Day*
- 77** Isolated, Subtle Neurological Abnormalities in Mild Cognitive Impairment Types  
*Cecilia Camarda, Rosolino Camarda, Carmela Pipia, Delia Azzarello, Emanuele Grassedonio, Gianluca Sottile, Giovanna Cilluffo, Paola Torelli*
- 92** Hyperbaric Oxygen for Radiation Necrosis of the Brain  
*Jayson Co, Marcus Vinicius De Moraes, Rita Katzenelson, A. Wayne Evans, David Shultz, Normand Laperriere, Barbara-Ann Millar, Alejandro Berlin, Paul Kongkham, Derek S. Tsang*
- 100** Rapid Eye Movement (REM) Sleep Behavior Disorder and REM Sleep without Atonia in the Young  
*Garima Shukla, Anupama Gupta, Kamalesh Chakravarty, Angela Ann Joseph, Aathira Ravindranath, Manju Mehta, Sheffali Gulati, Madhulika Kabra, Afsar Mohammed, Shivani Poornima*
- 109** Canadian Multiple Sclerosis Pregnancy Study (CANPREG-MS): Rationale and Methodology  
*A. Dessa Sadovnick, Robert Carruthers, Maria Houtchens, Alice Schabas, Penelope Smyth*

#### NEUROIMAGING HIGHLIGHTS

- 115** Putaminal Diffusion Restriction in a Case of Methanol Toxicity with Clinical Recovery  
*Matthew P. Quinn, Lulu LCD Bursztyn, Manas Sharma*
- 117** Haemorrhagic Transformation of a MELAS Stroke-Like Lesion  
*Mohamed Reda Bensaïdane, Marie-Christine Camden, Martin Savard*

Volume 47 / Number 1 / January 2020

- 119** Chronic Sixth Nerve Palsy due to Compression by the Anterior Inferior Cerebellar Artery

*Bhranavi Arulratnam, Daniel M. Mandell, Jonathan A. Micieli*

- 121** Unusual Presentation and Imaging Findings of a Rare Supratentorial Neurenteric Cyst

*Eduardo Portela de Oliveira, John Woulfe, Carlos Torres, Nader Zakhari*

- 124** MRI Diagnosis of Obesity-Related Spinal Epidural Lipomatosis

*Paolo Spinnato, Federico Ponti, Silvia de Pasqua*

#### BRIEF COMMUNICATIONS

- 126** Vestibular Exercises as a Fall Prevention Strategy in Patients with Cognitive Impairment

*Brenda Varriano, Shaleen Sulway, Curtis Wetmore, Wanda Dillon, Karen Misquitta, Namita Multani, Cassandra Anor, Maria Martinez, Elena Cacchione, John Rutka, Maria Carmela Tartaglia*

#### LETTERS TO THE EDITOR

- 131** Thrombectomy for Wake-Up Stroke in a Patient with Mild Symptoms and in an Adolescent

*Nicola Rifino, Marco Giuseppe Filizzolo, Davide Sangalli, Paola Basilico, Vittorio Mantero, Chiara Scaccabarozzi, Andrea Salmaggi*

- 134** Rapid Formation of Cerebral Microbleeds in Reversible Cerebral Vasoconstriction Syndrome

*Ashkan Shoamanesh, Christine Hawkes, Andreas Charidimou, Mukul Sharma, Kelvin H. Ng*

- 137** Levodopa-Induced Hyperventilation Observed in a Parkinson's Disease Patient

*Anri Hattori, Taiji Tsunemi, Tomoyo Shimada, Emi Nakagawa, Nobutaka Hattori*

- 139** Optic Nerve Atrophy in N-methyl-D-aspartate (NMDA) Encephalitis

*David C. Schulz, Sachin K. Pandey, Lulu L.C.D. Bursztyn*

- 142** Papilledema and Bilateral Optic Neuropathy: Dual Mechanism for Visual Loss in a Patient with Leptomeningeal Carcinomatosis

*Henry Liu, Edward Margolin*

- 145** Central Nervous System Burkitt Lymphoma Presenting as Atypical Guillain–Barre Syndrome

*Nataly Pesin, Cindy Lam, Edward Margolin*

- 148** Papillary Craniopharyngioma in a Young Child: The Importance of BRAF Mutational Testing

*Shino Magaki, Ravi Raghavan, Tanya Minasian, Kenneth De Los Reyes, Thomas Kelly, Shadi Farzin-Gohar, Jeremy K. Deisch*

#### ERRATUM

- 151** CD8 Encephalitis in a Treatment-Naive and a Virologically Suppressed Patient with HIV – ERRATUM

*Ali Cheema, Kristen Mathias, Christine Bui, Steven Richard Dunham, J. Clay Goodman, Hana M. El Sahly*



Volume 47 / Number 1 / January 2020

**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, OTTAWA, ON

Julia Keith, TORONTO, ON

Nir Lipsman, TORONTO, ON

Stephen Lownie, LONDON, ON

Jian-Qiang Lu, HAMILTON, ON

Patrick McDonald, VANCOUVER, BC

Joseph Megyesi, LONDON, ON

Tiago Mestre, OTTAWA, 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  
Madeleine Sharpe, MONTREAL, QC  
Sean Symons, TORONTO, ON  
Brian Toyota, VANCOUVER, BC  
Brian Weinshenker, 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*

**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 secrétariat 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 £149/US\$245. The annual subscription rate for Institutions (electronic) is £197/US\$327. 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: 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 149£/245US\$. Le prix d'abonnement annuel pour les établissements (électronique) est 197£/327US\$. 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 disponibles 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: mjmrvica@mrvica.com.

This journal is indexed by / Cette revue est indexée par:  
*Adis International, ArticleFirst, BIOBASE, Biolab, BiolSci, 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, RefZb, SCI, SCOPUS, Thomson Reuters, TOCPrem, VINITI RAN, Web of Science.*

ISSN: 0317-1671

EISSN: 2057-0155

COPYRIGHT © 2020 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.

COPYRIGHT © 2020 du THE CANADIAN JOURNAL OF NEUROLOGICAL SCIENCES I 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.