

---

# Journal of Stroke and Cerebrovascular Diseases

---

OFFICIAL JOURNAL OF THE JAPAN STROKE SOCIETY

## Contents

Volume 28, Number 6

June 2019

### REVIEW ARTICLE

---

- 1413 **Targets, Treatments, and Outcomes Updates in Diabetic Stroke**  
*Mostafa M. Elgebaly, Jennifer Arreguin, and Niko Storke*

### ORIGINAL ARTICLES

---

- 1421 **Factors Influencing Oral Intake Improvement and Feeding Tube Dependency in Patients with Poststroke Dysphagia**  
*Janina Wilmskoetter, Leonardo Bonilha, Bonnie Martin-Harris, Jordan J. Elm, Janet Horn, and Heather S. Bonilha*
- 1431 **The CADASIL Scale-J, A Modified Scale to Prioritize Access to Genetic Testing for Japanese CADASIL-Suspected Patients**  
*Takashi Koizumi, Ikuko Mizuta, Akiko Watanabe-Hosomi, Mao Mukai, Ai Hamano, Jun Matsuura, Tomoyuki Ohara, and Toshiki Mizuno*
- 1440 **Endovascular Thrombolysis or Thrombectomy for Cerebral Venous Thrombosis: Study of Nationwide Inpatient Sample 2004-2014**  
*Fazeel M. Siddiqui, Matthew W. Weber, Sudepta Dandapat, Steve Scaife, Michael Buhnerkempe, Santiago Ortega-Gutierrez, Nazan Aksan, Augusto Elias, and Jonathan M. Coutinho*
- 1448 **Pneumonia and Risk of Serious Adverse Outcomes in Hospitalized Strokes in Thailand**  
*Raphael S. Barlas, Allan B. Clark, Joao H. Bettencourt-Silva, Kittisak SawanyaWisuth, Kannikar Kongbunkiat, Narongrit Kasemsap, Somsak Tiamkao, and Phyo Kyaw Myint*
- 1455 **Autonomic Nervous System Modifications During Wakefulness and Sleep in a Cohort of Patients with Acute Ischemic Stroke**  
*Valerio Brunetti, Catello Vollono, Elisa Testani, Fabio Pilato, and Giacomo Della Marca*

## CONTENTS

- 1463 **Systematic Review on Effectiveness of shoulder taping in Hemiplegia**  
*Hariharasudhan Ravichandran, Balamurugan Janakiraman, Subramanian Sundaram, Berihu Fisseha, Tsiwaye Gebreyesus, and Asmare Yitayeh Gelaw*
- 1474 **The Significance of Contrast Density of the Computed Tomography-Angiographic Spot Sign and its Correlation with Hematoma Expansion**  
*Omar Hussein, Khalid Sawalha, Joel Fritz, Ahmed Abd Elazim, Mohammad Hamed, Lai Wei, and Shraddha Mainali*
- 1483 **Transcranial Optical Monitoring of Cerebral Hemodynamics in Acute Stroke Patients during Mechanical Thrombectomy**  
*Rodrigo M. Forti, Christopher G. Favilla, Jeffrey M. Cochran, Wesley B. Baker, John A. Detre, Scott E. Kasner, Michael T. Mullen, Steven R. Messé, W. Andrew Kofke, Ramani Balu, David Kung, Bryan A. Pukenas, Neda I. Sedora-Roman, Robert W. Hurst, Omar A. Choudhri, Rickson C. Mesquita, and Arjun G. Yodh*
- 1495 **Atrial Fibrillation: An Underestimated Cause of Ischemic Monocular Visual Loss?**  
*Angeliki Zarkali, Suk Fun Cheng, Agnes Dados, Robert Simister, and Arvind Chandratheva*
- 1500 **Reduced Ischemic Lesion Growth with Heparin in Acute Ischemic Stroke**  
*Eva A. Rocha, Ruijun Ji, Hakan Ay, Zixiao Li, Ethem Murat Arsava, Gisele S. Silva, Alma Gregory Sorensen, Ona Wu, and Aneesh B. Singhal*
- 1509 **Determinants Influencing the Prestroke Health Behaviors and Cardiovascular Disease Risk of Stroke Patients: A Cross-Sectional Study**  
*Beena P. Parappilly, Thalia S. Field, William B. Mortenson, Brodie M. Sakakibara, and Janice J. Eng*
- 1519 **Preliminary Screening Recommendations for Patients at Risk of Depression and/or Anxiety more than 1 year Poststroke**  
*David J. Unsworth, Jane L. Mathias, and Diana S. Dorstyn*
- 1529 **Social Inequality by Income in Short- and Long-Term Cause-Specific Mortality after Stroke**  
*Klaus Kaae Andersen, and Tom Skyhøj Olsen*

## CONTENTS

- 1537 **Inherited Thrombotic Thrombocytopenic Purpura Revealed by Recurrent Strokes in a Male Adult: Case Report and Literature Review**  
*Diane Beauvoais, Laura Venditti, Olivier Chassin, Bérangère Joly, Alain Ameri, Pierre Boisseau, Olivier Lambotte, Paul Coppo, Agnès Veyradier, and Christian Denier*
- 1540 **The Relevance of Vascular Endothelial Growth Factor, Hypoxia Inducible Factor-1 Alpha, and Clusterin in Carotid Plaque Instability**  
*Jelena Basic, Stefan Stojkovic, Afshin Assadian, Sabine Rauscher, Nikolaus Duschek, Christoph Kaun, Johann Wojta, and Jürgen Falkensammer*
- 1546 **Comparison of Therapeutic Ultrasound and Radial Shock Wave Therapy in the Treatment of Plantar Flexor Spasticity After Stroke: A Prospective, Single-blind, Randomized Clinical Trial**  
*Hojjat Radinmehr, Nouredin Nakhostin Ansari, Soofia Naghdi, Azade Tabatabaei, and Ehsan Moghimi*
- 1555 **The Claw Sign: An angiographic Predictor of Recanalization After Mechanical Thrombectomy for Cerebral Large Vessel Occlusion**  
*Yuki Yamamoto, Nobuaki Yamamoto, Yasuhisa Kanematsu, Masaaki Korai, Kenji Shimada, Yuishin Izumi, and Yasushi Takagi*
- 1561 **DEFENSIVE Stroke Scale: Novel Diagnostic Tool for Predicting Posterior Circulation Infarction in the Emergency Department**  
*Shinichiro Yamada, Keizo Yasui, Yu Kawakami, Yasuhiro Hasegawa, and Masahisa Katsuno*
- 1571 **Predictors of Left Atrial Thrombi and Spontaneous Echocardiographic Contrast in the Acute Phase After Cardioembolic Stroke in Patients With Atrial Fibrillation**  
*Hideyuki Kishima, Takanao Mine, Eiji Fukuhara, Kenki Ashida, Kazutaka Uchida, Shinichi Yoshimura, and Masaharu Ishihara*
- 1578 **The Effectiveness of Fluidotherapy in Poststroke Complex Regional Pain Syndrome: A Randomized Controlled Study**  
*Didem Sezgin Ozcan, Hilmi Umut Tatli, Cemile Sevgi Polat, Oznur Oken, and Belma Fusun Koseoglu*
- 1586 **Influence of Age Ranges on Relationship of Complex Aortic Plaque With Cervicocephalic Atherosclerosis in Ischemic Stroke**  
*Qi Kong, Xin Ma, Chen Wang, Wuwei Feng, Bruce Ovbiagele, Yuren Zhang, Xiangying Du, and Xianghua Fang*

## CONTENTS

- 1597 **Leukoaraiosis Predicts Short-term Cognitive But not Motor Recovery in Ischemic Stroke Patients During Rehabilitation**  
*Muhib Khan, Heather Heiser, Nathan Bernicchi, Laurel Packard, Jessica L. Parker, Matthew A. Edwardson, Brian Silver, Kost V. Elisevich, and Nils Henninger*
- 1604 **Relationships between Alcohol Intake and Ischemic Stroke Severity in Sex Stratified Analysis for Japanese Acute Stroke Patients**  
*Hiroyuki Shiotsuki, Yasuaki Saijo, Yoichi Ogushi, and Shotai Kobayashi, The Japan Standard Stroke Registry Study Group*
- 1618 **External Validation of START nomogram to predict 3-Month unfavorable outcome in Chinese acute stroke patients**  
*BaiLi Song, XiangLiang Chen, Dan Tang, Mako Ibrahim, YuKai Liu, Linda Nyame, Teng Jiang, Wei Wang, Xiang Li, Chao Sun, Zheng Zhao, Jie Yang, JunShan Zhou, and JianJun Zou*
- 1623 **Factors Influencing Quality of Life in Stroke Patients: Focus on Eating Habits**  
*Reina Chiba, Saya Tominaga, Kasumi Mikami, Maiko Kitajima, Mayumi Urushizaka, Toshiko Tomisawa, Junko Chiba, Joji Hagii, Minoru Yasujima, and Tomohiro Osanai*
- 1629 **Risk Factors for Acute Heart Failure and Impact on In-Hospital Mortality after Stroke**  
*Shogo Shima, Masaki Shinoda, Osamu Takahashi, Akihiko Unaki, Tetsuya Kimura, Yoshikazu Okada, and Yasunari Niimi*
- 1636 **The Fragility Index in Randomized Controlled Trials for Patent Foramen Ovale Closure in Cryptogenic Stroke**  
*Mehmet Akif Topcuoglu, and Ethem Murat Arsava*
- 1640 **Constraint Induced Movement Therapy as a Rehabilitative Strategy for Ischemic Stroke—Linking Neural Plasticity with Restoration of Skilled Movements**  
*Sibin Mathew Nesar, K.R. Sabitha, Anupam Gupta, and T.R. Laxmi*
- 1654 **Plasma Levels of miR-125b-5p and miR-206 in Acute Ischemic Stroke Patients After Recanalization Treatment: A Prospective Observational Study**  
*Xin-Wei He, Yan-Hui Shi, Rong Zhao, Yi-Sheng Liu, Ge-Fei Li, Yue Hu, Wei Chen, Guo-Hong Cui, Jing-Jing Su, and Jian-Ren Liu*

## CONTENTS

- 1662 **Infratentorial Developmental Venous Abnormalities and Inflammation Increase Odds of Sporadic Cavernous Malformation**  
*Shivram Kumar, Giuseppe Lanzino, Waleed Brinjikji, Kate W. Hocquard, and Kelly D. Flemming*
- 1668 **High Stress Hyperglycemia Ratio Predicts Poor Outcome after Mechanical Thrombectomy for Ischemic Stroke**  
*Xingyu Chen, Zhaoji Liu, Jiayin Miao, Weihong Zheng, Qingwei Yang, Xiaowen Ye, Xiaorong Zhuang, and Feng Peng*
- 1674 **Association of Hyponatremia and Risk of Short- and Long-Term Mortality in Patients with Stroke: A Systematic Review and Meta-Analysis**  
*Zhongyun Chen, Qingxia Jia, and Chunyan Liu*
- 1684 **Arterial Spin Labeling Magnetic Resonance Imaging for Differentiating Acute Ischemic Stroke from Epileptic Disorders**  
*Yuka Kanazawa, Shuji Arakawa, Takafumi Shimogawa, Noriko Hagiwara, Sei Haga, Takato Morioka, Hiroaki Ooboshi, Tetsuro Ago, and Takanari Kitazono*
- 1691 **Clinical and Radiological Characteristics of Intracranial Artery Dissection Using Recently Proposed Diagnostic Criteria**  
*Yuki Nakamura, Yoshitaka Yamaguchi, Naoki Makita, Yoshiaki Morita, Toshihiro Ide, Shinichi Wada, Tadataka Mizoguchi, Hajime Ikenouchi, Kaori Miwa, Kenichiro Yi, Kenichi Irie, Shun Shimohama, Masafumi Ihara, Kazunori Toyoda, and Masatoshi Koga*
- 1703 **Lipid Lowering Therapy, Low-Density Lipoprotein Level and Risk of Intracerebral Hemorrhage – A Meta-Analysis**  
*Conor Judge, Sarah Rutledge, Maria Costello, Robert Murphy, Elaine Loughlin, Alberto Alvarez-Iglesias, John Ferguson, Sarah Gorey, Aoife Nolan, Michelle Canavan, Martin O'Halloran, and Martin J. O'Donnell*
- 1710 **Cortical Vein Opacification for Risk Stratification in Anterior Circulation Endovascular Thrombectomy**  
*Haydn Hoffman, Robert Ziechmann, Amar Swarnkar, Hesham E. Masoud, and Grahame Gould*
- 1718 **Sex-specific Association of Matrix Metalloproteinases with Secondary Injury and Outcomes after Intracerebral Hemorrhage**  
*Matthew D. Howe, J. Weldon Furr, Liang Zhu, Nancy J. Edwards, Louise D. McCullough, and Nicole R. Gonzales*

## CONTENTS

- 1726 **Cardiac Biomarkers Predict Large Vessel Occlusion in Patients with Ischemic Stroke**  
*Andrew Chang, Brittany Ricci, Brian Mac Grory, Shawna Cutting, Tina Burton, Katarina Dakay, Mahesh Jayaraman, Alexander Merkler, Michael Reznik, Michael P. Lerario, Christopher Song, Hooman Kamel, Mitchell S.V. Elkind, Karen Furie, and Shadi Yaghi*
- 1732 **Association of Angiotensin-Converting Enzyme Insertion/Deletion Polymorphism with the Risk of Atherosclerosis**  
*Man-Man Xia, Mingxu Wang, Hong Jiang, Yan Liu, Le Ma, Chao Lu, and Wei Zhang*
- 1744 **Effects of capsaicin on swallowing function in stroke patients with dysphagia: A randomized controlled trial**  
*Zhuo Wang, Lingling Wu, Qi Fang, Meifen Shen, Lulu Zhang, and Xueyun Liu*
- 1752 **Asymptomatic Intracerebral Hemorrhage May Worsen Clinical Outcomes in Acute Ischemic Stroke Patients Undergoing Thrombectomy**  
*Fang Jiang, Wenbo Zhao, Chuanjie Wu, Zhen Zhang, Chuanhui Li, Ruiwen Che, Jian Chen, Weiming Hu, Haiqing Song, Jianguang Duan, and Xunming Ji*
- 1759 **A Qualitative Study of Risks Related to Interhospital Transfer of Patients with Nontraumatic Intracranial Hemorrhage**  
*Emily B. Finn, Meredith J. Campbell Britton, Alana P. Rosenberg, John E. Sather, Evie G. Marcolini, Shelli L. Feder, Kevin N. Sheth, Charles C. Matouk, Laura T.L. Pham, Andrew S. Ulrich, Vivek L. Parwani, Beth Hodshon, and Arjun K. Venkatesh*
- 1767 **Lacunar Stroke in Cryptococcal Meningitis: Clinical and Radiographic Features**  
*Daniel Vela-Duarte, Eric Nyberg, Stefan Sillau, Amy Pate, Paula Castellanos, Daniel B. Chastain, Carlos Franco-Paredes, and Andrés F. Henao-Martínez*
- 1773 **Adequate Adherence to Direct Oral Anticoagulant is Associated with Reduced Ischemic Stroke Severity in Patients with Atrial Fibrillation**  
*Kazuo Yamashiro, Naohide Kurita, Ryota Tanaka, Yuji Ueno, Nobukazu Miyamoto, Kenichiro Hira, Sho Nakajima, Takao Urabe, and Nobutaka Hattori*



Please note that articles with an “e” page designation are available only in the online version of the Journal at [www.strokejournal.org](http://www.strokejournal.org).

**E-ONLY CASE REPORTS**

---

- e53**      **Left Thalamus Arteriovenous Malformation Secondary to Radiation Therapy of Original Vermian Arteriovenous Malformation: Case Report**  
*Carlos Torres-Quinones, Matthew J. Koch, Scott B. Raymond, and Aman Patel*
- e60**      **Cerebral Venous Sinus Incision for Surgical Thrombectomy Combined with Thrombolysis During Decompressive Craniectomy for Malignant Cerebral Venous Sinus Thrombosis Complicated with Cerebral Hernia**  
*Yan'gang Wang, Yang Wang, Junjie Zhang, Shunli Du, and Jiabin Wu*
- e64**      **Stroke in Association with Thyroid Goitre: A Case Report**  
*Linford Fernandes, and Ahamad Hassan*
- e66**      **Spinal Cord Infarction due to Fibrocartilaginous Embolism: A Report of 3 Cases**  
*Jeffrey N. Quinn, Hannah Breit, and Rima M. Dafer*
- e68**      **Thrombolysis in Ischemic Stroke Patients with Isolate Pulmonary Arteriovenous Malformations**  
*Gaoping Lin, Peng Jiang, and Min Lou*
- e71**      **Spontaneous Dissection of Both Vertebral Arteries Diagnosed with Three-Dimensional T1-Weighted Image**  
*Takanori Iwamoto, Naoki Oyama, Takaya Kitano, Toshiaki Goda, Junichi Uemura, and Yoshiki Yagita*
- e73**      **Rapidly Progressive Intracranial Vasculopathy in Graft Versus Host Disease**  
*Theodore Bowen, Shawn A. Silver, and Cathy Sila*
- e75**      **Mechanical Thrombectomy for Acute Ischemic Stroke in Pregnancy**  
*Richard Blythe, Azza Ismail, and Aaizza Naqvi*

CONTENTS

- e77 **Rare Case of Absent Common Carotid Artery Likely Associated with Intracranial Aneurysm Development**  
*Youngseok Kwak, Man Kyu Choi, Ki Hong Kim, and Jae Hoon Cho*

**CORRESPONDENCE**

---

- 1781 **Barometric Pressure in Cerebral Amyloid Angiopathy: A Pressure to Bleed?**  
*George K. Vilanilam, Abha E. John, Mohammed K. Badi, Phani K. Surapaneni, and Neethu Gopal*
- 1782 **Authors' Response to "Barometric Pressure in Cerebral Amyloid Angiopathy: A Pressure to Bleed?"**  
*Rajeev Kumar Garg, Bichun Ouyang, Vishal Pandya, Raquel Garcia-Cano, Ivan Da Silva, Deborah Hall, Sayona John, Thomas Pritchett Bleck, and Max Berkelhammer*
- 1783 **Letter to Editor on "Lacunar Stroke in Cryptococcal Meningitis: Clinical and Radiographic Features"**  
*Ajay K. Mishra, Anu A. George, Kamal K. Sahu, Amos Lal, and Cijoy K. Kuriakose*
- 1785 **Response to Ajay Kumar Mishra, et al. Lacunar strokes in Cryptococcal meningitis.**  
*Daniel Vela-Duarte, Eric Nyberg, Stefan Sillau, Amy Pate, Paula Castellanos, Daniel B. Chastain, Carlos Franco-Paredes, and Andrés F. Henao-Martínez*