



Cover image: Virtual reality depiction of MRI-guided drug delivery to tumor from the manuscript by Zawadzki *et al.*

Editor

Felipe C. Albuquerque

Commissioning Editor

Michael Chen

Associate Editors

Alessandra Biondi

Christophe Cognard

Lucas Eljovich

David Fiorella

Joshua Hirsch

William Mack

J Mocco

Laurent Pierot

Associate Editors, Basic Science

Matthew Gounis

Tomoki Hashimoto

Assistant Editors, Social Media

Reade DeLeacy

Andrew Ducruet

Kyle Fargen

Ashutosh Jadhav

Editor Emeritus

Robert W. Tarr

SNIS Executive Director

Marie Williams

Editorial Office

Journal of NeuroInterventional Surgery BMJ

Publishing Group Ltd

BMA House

Tavistock Square

London, WC1H 9JR, UK

E: info.jnis@bmjgroup.com

Guidelines for authors and reviewers

Full instructions are available online at <http://JNIS.bmj.com/fora>. Articles must be submitted electronically <http://mc.manuscriptcentral.com/jnis>. Authors retain copyright but are required to grant JNIS an exclusive licence to publish <http://JNIS.bmj.com/fora/licence.dtl>

ISSN: 1759-8478 (print)

ISSN: 1759-8486 (online)

Twitter: @JNIS_BMJ

Disclaimer: While every effort is made by the publishers and editorial board to see that no inaccurate or misleading data, opinions, or statements appear in this Journal, they wish to make it clear that the data and opinions appearing in the articles and advertisements herein are the responsibility of the contributor or advertiser concerned.

Accordingly, the publishers and the Society of NeuroInterventional Surgery, the editorial committee and their respective employees, officers and agents, accept no liability whatsoever for the consequences of any such inaccurate or misleading data, opinion or statement. While every effort is made to ensure that drug doses and other quantities are presented accurately, readers are advised that new methods and techniques involving drug usage, described within this Journal, should only be followed in conjunction with the drug manufacturer's own published literature.

Copyright: © 2019 Society of NeuroInterventional Surgery. All rights reserved, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior permission.

Journal of NeuroInterventional Surgery, ISSN 1759-8478, is published monthly by BMJ Publishing Group Ltd, BMA House, Tavistock Square, London WC1H 9JR, UK. The US annual subscription price is \$272. Airfreight and mailing in the USA by agent named Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Periodicals Postage Paid at Jamaica NY 11431.

US Postmaster: Send address changes to Journal of NeuroInterventional Surgery, Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Subscription records are maintained at: BMJ, 12th Floor, Southgate House, Wood Street, Cardiff CF10 1GH, UK. Air Business Ltd is acting as our mailing agent.

Editors column

- 733** Neuroendovascular surgery: a modern family
W J Mack

Ischemic Stroke

- 735** Impact of blood pressure levels within first 24 hours after mechanical thrombectomy on clinical outcome in acute ischemic stroke patients

D Cernik, D Sanak, P Divisova, M Kocher, F Cihlar, J Zapletalova, T Veverka, A Pruchova, D Ospalik, M Cerna, P Janousova, M Kral, T Dornak, V Prasil, D Franc, P Kanovský

- 740** Firstline a direct aspiration first pass technique versus firstline stent retriever for acute basilar artery occlusion: a systematic review and meta-analysis

G Ye, J Lu, P Qi, X Yin, L Wang, D Wang

- 747** Stentriever salvage after failed manual aspiration thrombectomy

D A Tonetti, S M Desai, S Casillo, B M Zussman, A Jadhav, B T Jankowitz, T G Jovin, B A Gross

- 751** Revalidation of the RACE scale after its regional implementation in Catalonia: a triage tool for large vessel occlusion

D Carrera, M Gorchs, M Querol, S Abilleira, M Ribó, M Millán, A Ramos, P Cardona, X Urta, A Rodríguez-Campello, L Prats-Sánchez, F Purroy, J Serena, D Cánovas, J Zaragoza-Brunet, J A Krupinski, X Ustrell, J Saura, S García, M À Mora, X Jiménez, A Dávalos, N Pérez de la Ossa, on behalf of the Catalan Stroke Code and Reperfusion Consortium (Cat-SCR)

- 757** Efficacy of 'drive and retrieve' as a cooperative method for prompt endovascular treatment for acute ischemic stroke

T Osanai, Y Ito, S Ushikoshi, T Aoki, M Kawabori, K Fujiwara, K Ogasawara, K Tokairin, K Maruichi, N Nakayama, K Kazumata, K Ono, K Houkin

- 762** Effect of routing paradigm on patient centered outcomes in acute ischemic stroke

M H Zhou, A P Kansagra

- 768** Utilization rates of tissue plasminogen activator and mechanical thrombectomy in patients with acute stroke and underlying malignancy
L Rinaldo, H J Cloft, L Rangel Castilla, A A Rabinstein, W Brijnjekj

- 772** Evaluating the effectiveness and safety of the carotid Casper-RX stent for tandem lesions in acute ischemic stroke
B Bartolini, F Puccinelli, P J Mosimann, S D Hajdu, L Veunac, P Michel, G Saliou

- 775** Validation studies of virtual reality simulation performance metrics for mechanical thrombectomy in ischemic stroke
R Crossley, T Liebig, M Holtmannspoetter, J Lindkvist, P Henn, L Lonn, A G Gallagher

- 781** A competitive clinical environment improves procedural times in endovascular stroke treatment
J Mertens, R Singh, A Reich, S Dekeyzer, M Wiesmann, O Nikoubashman

- 785** The 100 most cited articles in the endovascular management of acute ischemic stroke
K Ravindran, D Kurda, J Maingard, K Phan, H K Kok, V Thijs, J A Hirsch, M J Lee, R V Chandra, D M Brooks, H Asadi

Hemorrhagic Stroke

- 790** Comparative analysis of coil embolization in posterior and anterior communicating artery aneurysms
H H Choi, Y D Cho, D H Yoo, S H Lee, E K Yeon, H-S Kang, W-S Cho, J E Kim, M H Han

- 796** Transradial approach for flow diversion treatment of cerebral aneurysms: a multicenter study
S H Chen, B M Snelling, S S Shah, S Sur, M C Brunet, R M Starke, D R Yavagal, J W Osburn, E C Peterson



This article has been chosen by the Editor to be of special interest or importance and is freely available online.



This article has been made freely available online under the BMJ Journals open access scheme. See <http://authors.bmj.com/open-access/>

C O P E

Member since 2009

This journal is a member of and subscribes to the principles of the Committee on Publication Ethics

<http://publicationethics.org/>

equator network

recycle
When you have finished with this please recycle it

New Devices and Techniques

- 801** Neuroform Atlas Stent System for the treatment of intracranial aneurysms: primary results of the Atlas Humanitarian Device Exemption cohort
B T Jankowitz, R Hanel, A P Jadhav, D N Loy, D Frei, A H Siddiqui, A S Puri, A Khaldi, A S Turk, A M Malek, E Sauvageau, S W Hetts, O O Zaidat
- 807** Clipping of recanalized intracerebral aneurysms initially treated by the Woven EndoBridge device
L Pierot, C Bannery, V Batchinsky-Parrou, J-C Kleiber, S Soize, C F Litre
- 812** WEB embolization versus stent-assisted coiling: comparison of complication rates and angiographic outcomes
C Kabbasch, L Goertz, E Siebert, M Herzberg, J Borggreffe, B Kricshek, P Stavrinou, F Dorn, T Liebig
- 817** Periprocedural complications of second-generation flow diverter treatment using Pipeline Flex for unruptured intracranial aneurysms: a systematic review and meta-analysis
K D Bhatia, H Kortman, E Orru, J M Klostranec, V M Pereira, T Krings

Open Surgery

- 825** Outcomes of Multimodality In situ Recanalization in Hybrid Operating Room (MIRHOR) for symptomatic chronic internal carotid artery occlusions
W-j Jiang, A-F Liu, W Yu, H-C Qiu, Y-Q Zhang, F Liu, C Li, R Wang, Y-L Zhao, J Lv, T-X Li, C Liu, J Zhou, J-Z Zhao

Socioeconomics

- 833** Racial and economic disparities in the access to treatment of unruptured intracranial aneurysms are persistent problems
L Rinaldo, A A Rabinstein, H J Cloft, J M Knudsen, G Lanzino, L R Castilla, W Brinjikji

Neuroimaging

- 837** Validation of an extrinsic compression and early ambulation protocol after diagnostic transfemoral cerebral angiography: a 5-year prospective series
D A Tonetti, C Ferari, J Perez, A Ozpinar, A P Jadhav, T C Jovin, B A Gross, B T Jankowitz

Clinical Neurology

- 841** Endovascular treatment of debilitating tinnitus secondary to cerebral venous sinus abnormalities: a literature review and technical illustration
I-H Yang, V M Pereira, S Lenck, P Nicholson, E Orru, J M Klostranec, T Krings, A C O Tsang
- 847** Using machine learning to optimize selection of elderly patients for endovascular thrombectomy
A Alawieh, F Zaraket, M B Alawieh, A R Chatterjee, A Spiotta

Basic Science

- 853** Differences in hemodynamic characteristics under high packing density between the porous media model and finite element analysis in computational fluid dynamics of intracranial aneurysm virtual treatment
Y Jiang, L Ge, R Di, G Lu, L Huang, G Li, X Leng, S Zhang, H Wan, D Geng, J Xiang, X Zhang

Electronic pages

- e3** Republished: Real-time MRI guidance for intra-arterial drug delivery in a patient with a brain tumor: technical note
M Zawadzki, J Walecki, B Kostkiewicz, K Kostyra, M S Pearl, M Solaiyappan, P Walczak, M Janowski
- e4** Republished: Transradial approach in the treatment of a sacral dural arteriovenous fistula: a technical note
E Orru, C O A Tsang, J M Klostranec, V M Pereira