



Cover caption: Primary neurointerventionalist in a separate workstation operating a robotic arm from the manuscript by Pereira VM *et al*

Editor-in-Chief
Felipe C. Albuquerque

Deputy Editors
David Fiorella
Joshua Hirsch

Commissioning Editor
Michael Chen

Associate Editors
Alessandra Biondi
Kyle Fargen
Jens Fiehler
Ashutosh Jadhav
William Mack
James Milburn
J Mocco
Gabor Toth
Philip White

Associate Editors, Basic Science
Matthew Gounis
David Steinman

Assistant Editors, Social Media
Dorothea Altschul
Reade DeLeacy
Andrew Ducruet
Michael Levitt

Assistant Editors, Technical Videos
Waleed Brinjikji
Maxim Mokni

Editor Emeritus
Robert 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@bmj.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: The Editor of *Journal of NeuroInterventional Surgery* has been granted editorial freedom and *Journal of NeuroInterventional Surgery* is published in accordance with editorial guidelines issued by the World Association of Medical Editors and the Committee on Publication Ethics. *Journal of NeuroInterventional Surgery* is primarily intended for healthcare professionals and its content is for information only. The Journal is published without any guarantee as to its accuracy or completeness and any representations or warranties are expressly excluded to the fullest extent permitted by law. Readers are advised to independently verify any information on which they choose to rely. Acceptance of advertising by *Journal of NeuroInterventional Surgery* does not imply endorsement. Neither SNIS nor BMJ Publishing Group Limited shall have any liability for any loss, injury or damage howsoever arising from *Journal of NeuroInterventional Surgery* (except for liability which cannot be legally excluded).

Copyright: © 2020 Society of NeuroInterventional Surgery. All rights reserved; no part of this publication may be reproduced in any form without permission. *Journal of NeuroInterventional Surgery*, ISSN 1759-8478, 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.

Editor's column

333 Robotics in neurointervention: the promise and the reality
F C Albuquerque, J A Hirsch, M Chen, D Fiorella

Commentary

335 Another version of the truth
M Levitt

New Devices and Techniques

338 First-in-human, robotic-assisted neuroendovascular intervention
V Mendes Pereira, N M Cancelliere, P Nicholson, I Radovanovic, K E Drake, J-M Sungur, T Krings, A Turk

341 Robotic assisted carotid artery stenting for the treatment of symptomatic carotid disease: technical feasibility and preliminary results
R G Nogueira, R Sachdeva, A R Al-Bayati, M H Mohammad, M R Frankel, D C Haussen

345 Endovascular robotic: feasibility and proof of principle for diagnostic cerebral angiography and carotid artery stenting
K C Sajja, A Sweid, F Al Saiegh, N Chalouhi, M B Avery, R F Schmidt, S I Tjoumakaris, M R Gooch, N Herial, R Abbas, H Zazour, V Romo, R Rosenwasser, P Jabbar

Ischemic Stroke

350 Mechanical thrombectomy in patients with acute ischemic stroke and ASPECTS ≤6: a meta-analysis
F Cagnazzo, I Derraz, C Dargazanli, P-H Lefevre, G Gascou, C Riquelme, A Bonafe, V Costalat

356 National trends in endovascular therapy for acute ischemic stroke: utilization and outcomes
L Stein, S Tuhim, J Fifi, J Mocco, M Dhamoon

363 A 10% blood pressure drop from baseline during mechanical thrombectomy for stroke is strongly associated with worse neurological outcomes
A Valent, A Sajadhoussen, B Maier, B Lapergue, M-A Labeyrie, P Reiner, A Consoli, M Fischler, E Gayat, M Leguen

370 Emergency medical systems education may improve knowledge of pre-hospital stroke triage protocols
E L DiBiasio, M V Jayaraman, L Oliver, G Paolucci, M Clark, C Watkins, K DeLisi, A Wilks, S Yaghi, M Hemendinger, G L Baird, J A Oostema, R A McTaggart

374 Peri-procedural stroke or death in stenting of symptomatic severe intracranial stenosis
S Yaghi, P Khatri, A de Havenon, S Yeatts, A D Chang, S Cutting, B Mac Grory, T Burton, M V Jayaraman, R A McTaggart, D Fiorella, C Derdeyn, O O Zaidat, S Dehkharghani, S Amin-Hanjani, K Furie, S Prahbakaran, D Liebeskind

380 Submaximal angioplasty in the treatment of patients with symptomatic ICAD: a systematic review and meta-analysis
S M Seyedasaadat, Y U Yolcu, A Neuhaus, A Rizvi, M Alzuabi, M H Murad, W Brinjikji, M Bydon, D F Kallmes

386 First pass effect with contact aspiration and stent retrievers in the Aspiration versus Stent Retriever (ASTER) trial
C Ducroux, M Piotin, B Gory, J Labreuche, R Blanc, M Ben Maacha, B Lapergue, R Fahed, for the ASTER Trial investigators

392 Blind exchange with mini-pinning technique for distal occlusion thrombectomy
D C Haussen, A R Al-Bayati, B Eby, K Ravindran, G M Rodrigues, M R Frankel, R G Nogueira

396 Direct thromboaspiration efficacy for mechanical thrombectomy is related to the angle of interaction between the aspiration catheter and the clot
G Bernava, A Rosi, J Boto, O Brina, Z Kulcsar, C Czarnetzki, E Carrera, K Schaller, K-O Lovblad, P Machi

401 Evaluation of the radiosurgical treatment of cerebral arteriovenous malformations: a retrospective single-center analysis of three decades
D Hirschmann, P Goebel, F H Witte, B Gatterbauer, W-T Wang, P Dodier, G Bavinszki, A Ertl, W Marik, A Mallouhi, T Roetzer, C Dorfer, W Eisner, A Gruber, K Kitz, J M Frischer

MORE CONTENTS ►



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/>



Member since 2009 JMO4666

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

<http://publicationethics.org/>



When you have finished with this please recycle it

Hemorrhagic Stroke

- 407** Diffusion weighted image documented cerebral ischemia in the postprocedural period following pipeline embolization device with shield technology treatment of unruptured intracranial aneurysms: a prospective, single center study

S Pileis, G Mantziaris, V Mamalis, K Barkas, A Tsanis, S Lyra, K Karkoulas, T Petrosyan, E Archontakis

- 412** A systematic review of non-trunk basilar perforator aneurysms: is it worth chasing the small fish?

M F Granja, A Monteiro, G J Agnoletto, S Jamal, E Sauvageau, A Aghaebrahim, R Hanel

Review

- 417** Automatic radiomic feature extraction using deep learning for angiographic parametric imaging of intracranial aneurysms

A R Podgorsak, R A Rava, M M Shiraz Bhurwani, A R Chandra, J M Davies, A H Siddiqui, C N Ionita

Socioeconomics

- 422** Outcomes associated with endovascular treatment among patients with acute ischemic stroke in the USA

A T Rai, C Crivera, E Kottenmeier, I Kalsekar, R Kumari, N Patino, F Chekani, R Khanna

Head and Neck

- 427** Left transradial access for cerebral angiography

G Barros, D I Bass, J W Osburn, S H Chen, M-C Brunet, E C Peterson, M Walker, C M Kelly, M R Levitt

- 431** Feasibility of repeat transradial access for neuroendovascular procedures

S H Chen, M-C Brunet, S Sur, D R Yavagal, R M Starke, E C Peterson

Technical video

- 436** Transradial embolization of the left middle meningeal artery and accessory middle meningeal artery for treatment of subacute–chronic subdural hematoma

G B Rajah, M K Tso, R Dossani, K Vakharia, A H Siddiqui