






Original research


501  Neurological outcomes of untreated brainstem cavernous malformations in a prospective observational cohort and literature review
D Li, J-J Zheng, J-C Weng, P-P Liu, Z-Y Wu, L-W Zhang, J-T Zhang, L Wang, Z Wu

511   Role of depressive symptoms in cardiometabolic diseases and subsequent transitions to all-cause mortality: an application of multistate models in a prospective cohort study
Y Qiao, S Liu, G Li, Y Lu, Y Wu, Y Ding, C Ke

519  Stem cell treatment improves post stroke neurological outcomes: a comparative study in male and female rats
K R Nalamolu, B Chelluboina, C A Fornal, S R Challa, D M Pinson, D Z Wang, J D Klopfenstein, K K Veeravalli

528  sTWEAK is a marker of early haematoma growth and leukoaraiosis in intracerebral haemorrhage
A da Silva-Candal, I López-Dequidt, M Rodriguez-Yañez, P Ávila-Gómez, J M Pumar, J Castillo, T Sobrino, F Campos, R Iglesias-Rey, P Hervella

536  Predicting long-term outcomes in acute intracerebral haemorrhage using delayed prognostication scores
R Lun, V Yogendrakumar, T Ramsay, M Shamy, R Fahed, M H Selim, D Dowlatshahi

542  Decline in subarachnoid haemorrhage volumes associated with the first wave of the COVID-19 pandemic
T N Nguyen, D C Haussen, M M Qureshi, H Yamagami, T Fujinaka, O Y Mansour, M Abdalkader, M Frankel, Z Qiu, A Taylor, P Lylyk, O F Eker, L Mechtouff, M Piotin, F O Lima, F Mont'Alverne, W Izzath, N Sakai, M Mohammaden, A R Al-Bayati, L Renieri, S Mangiafico, D Ozretic, V Chalumeau, S Ahmad,

U Rashid, S I Hussain, S John, E Griffin, J Thornton, J A Fiorot, R Rivera, N Hammami, A M Cervantes-Arslanian, H H Dasenbrock, H L Vu, V Q Nguyen, S Hetts, R Bourcier, R Guile, M Walker, M Sharma, D Frei, P Jabbour, N Herial, F Al-Mufti, A O Ozdemir, O Aykac, D Gandhi, C Chugh, C Matouk, P Lavoie, R Edgell, A Beer-Furlan, M Chen, M Killer-Oberpfalzer, V M Pereira, P Nicholson, V Huded, N Ohara, D Watanabe, D H Shin, P SC Magalhaes, R Kikano, S Ortega-Gutierrez, M Farooqui, A Abou-Hamden, T Amaro, R Yamamoto, A Weeks, E A Cora, R Sivan-Hoffmann, R Crosa, M Möhlenbruch, S Nagel, H Al-Jehani, S A Sheth, V S Lopez Rivera, J E Siegler, A F Sani, A S Puri, A L Kuhn, G Bernava, P Machi, D G Abud, O M Pontes-Neto, A K Wakehloo, B Voetsch, E Raz, S Yaghi, B P Mehta, N Kimura, M Murakami, J S Lee, J M Hong, R Fahed, G Walker, E Hagashi, S M Cordina, H G Roh, K Wong, J F Arenillas, M Martinez-Galdamez, J Blasco, A Rodriguez Vasquez, L Fonseca, M L Silva, T Y Wu, S John, A Brehm, M Psychogios, W J Mack, M Tenser, T Todaka, M Fujimura, R Novakovic, J Deguchi, Y Sugiyura, H Tokimura, R Khatri, M Kelly, L Peeling, Y Murayama, H S Winters, J Wong, M Teleb, J Payne, H Fukuda, K Miyake, J Shimbo, Y Sugimura, M Uno, Y Takenobu, Y Matsumaru, S Yamada, R Kono, T Kanamaru, M Morimoto, J Iida, V Saini, D Yavagal, S Bushnaq, W Huang, I Linfante, J Kirmani, D S Liebeskind, V Szeder, R Shah, T G Devlin, L Birnbaum, J Luo, A Churojana, H E Masoud, C Y Lopez, B Steinfurt, A Ma, A E Hassan, A Al Hashmi, M McDermott, M Mokin, A Chehl, O Kargiotis, G Tsvigoulis, J G Morris, C J Eskey, J Thon, L Rebello, D Altschul, O Cornett, V Singh, J Pandian, A Kulkarni, P M Lavados, V V Olavarria, K Todo, Y Yamamoto, G S Silva, S Geyik, J Johann, S Multani, A Kaliaev, K Sonoda, H Hashimoto, A Alhazzani, D Y Chung, S A Mayer, J T Fifi, M D Hill, H Zhang, Z Yuan, X Shang, A C Castonguay, R Gupta, T G Jovin, J Raymond, O O Zaidat, R G Nogueira, SVIN COVID-19 Registry, the Middle East North Africa Stroke and Interventional Neurotherapies Organization (MENA-SINO), Japanese Society of Vascular and Interventional Neurology Society (JVIN)

Editor in Chief

Yongjun Wang (China)

Honorary Editors

Louis Caplan (USA)
 Marc Fisher (USA)
 S Claiborne Johnston (USA)
 Jizong Zhao (China)

Deputy & Managing Editor

David Wang (USA)

Associate Editors

Qiang Dong (China)
 Yi Dong (China)
 Xinyi Leng (China)
 Liping Liu (China)
 Lee H Schwamm (USA)
 J David Spence (Canada)
 Yi Sui (China)
 Zefeng Tan (China)
 Joanna Wardlaw (UK)
 Xia Wang (Australia)
 Yilong Wang (China)
 Anding Xu (China)
 Huaguang Zheng (China)

Associate Editor of Neurobiology

Qionghai Dai (China)

Associate Editor in Neurosurgery

Giuseppe Lanzino (USA)
 Li-Mei Lin (USA)
 Wenjun Tu (China)

Associate Editors in Basic Science

Krishna Veeravalli (USA)
 Guohua Xi (USA)
 Guo-Yuan Yang (China)

Associate Editor for

Neurointerventional Surgery

Ashutosh P Jadhav (USA)
 Zhongrong Miao (China)
 Zeguang Ren (USA)

Associate Editors of Statistics

Gaifen Liu (China)
 Haipeng Shen (China)

Assistant Editors

Steven Davis (Australia)
 Lawrence Wechsler (USA)
 Yun Xu (China)

Manager of Editorial Office

Hao Li (China)

Deputy Manager of Editorial Office

Xin Dou (China)

Assistant Manager of Editorial Office

Michelle Lee (China)

Disclaimer: The Editor of SVN has been granted editorial freedom and SVN is published in accordance with editorial guidelines issued by the World Association of Medical Editors and the Committee on Publication Ethics. SVN 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 SVN does not imply endorsement. Neither CSA nor BMJ Publishing Group Limited shall have any liability for any loss, injury or damage howsoever arising from SVN (except for liability which cannot be legally excluded).

Copyright: © 2021 Chinese Stroke Association. All rights reserved; no part of this publication may be reproduced in any form without permission. SVN is published by BMJ Publishing Group Ltd, typeset by Exeter Private Limited, Bengaluru & Chennai, India. Stroke and Vascular Neurology (ISSN 2059-8688) is published quarterly by BMJ Publishing Group.

Editorial Board

Harold Adams (USA)
 Craig Anderson (Australia)
 Philip Bath (UK)
 Gavin W Brits (USA)
 Seemant Chaturvedi (USA)
 Christopher Chen (Singapore)
 Jeff W Chen (USA)
 Jieli Chen (USA)
 Kangning Chen (China)
 Sherry Chou (USA)
 Alexander Lewis Coon (USA)
 Antonio Culebras (USA)
 Yuchuan Ding (USA)
 Wuwei Feng (USA)
 Mark Fisher (USA)
 Nancy Futrell (USA)
 Junbo Ge (China)
 Keun-Sik Hong (Korea)
 Bo Hu (China)
 Judy Huang (USA)
 Yong Huo (China)
 Weijian Jiang (China)
 Walter Kernan (USA)
 Giuseppe Lanzino (USA)
 Julius Gene S Latorre (USA)
 Enrique C Leira (USA)
 Junfa Li (China)
 David Liebeskind (USA)

Yan Liu (China)
 Min Lou (China)
 Benyan Luo (China)
 Xianli Lv (China)
 Bijoy Menon (Canada)
 Chaoyu Miao (China)
 Jiangyong Min (USA)
 Bin Peng (China)
 John H Pula (USA)
 Jinma Ren (USA)
 Xuefang (Sophie) Ren (USA)
 Peter Rothwell (UK)
 Fudong Shi (China)
 Aneesh B Singhal (USA)
 Sarah Song (USA)
 Dingfeng Su (China)
 Gene Yong Sung (USA)
 Beisha Tang (China)
 Krishna Veeravalli (USA)
 Michael F Waters (USA)
 Chunxue Wang (China)
 Guijing Wang (USA)
 James Wang (USA)
 Jian Wang (USA)
 Junling Wang (China)
 Ning Wang (China)
 Shaoshi Wang (China)
 Shuo Wang (China)
 Xin Wang (China)

KS Lawrence Wong (China)
 Ying Xian (USA)
 Peng Xie (China)
 Zhigang Xiong (USA)
 Jindong Xu (USA)
 Weihai Xu (China)
 Yuming Xu (China)
 Mengzhou Xue (China)
 Shaohua Yang (USA)
 Qingwu Yang (China)
 Yi Yang (China)
 Shouzheng Ye (Taiwan)
 Jinsheng Zeng (China)
 Tong Zhang (China)
 Yonghua Zhang (USA)
 Gang Zhao (China)
 Heng Zhao (USA)
 Xihai Zhao (China)
 Xinquan Zhao (China)
 Yihua Zhou (USA)
 Dongya Zhu (China)
 Li Zhu (China)

Editorial Office

Stroke and Vascular Neurology
 BMJ Journals
 BMA House, Tavistock Square
 London, WC1H 9JR, UK
 E: info.svn@bmj.com

- 553** Impact of aspiration catheter size on first-pass effect in the combined use of contact aspiration and stent retriever technique
 OPEN ACCESS
C Pérez-García, C Maegerlein, S Rosati, C Rüther, C Gómez-Escalonilla, C Zimmer, J Arrazola, M T Berndt, M Moreu
- 561** Plasma from healthy donors protects blood–brain barrier integrity via FGF21 and improves the recovery in a mouse model of cerebral ischaemia
 OPEN ACCESS
M Mamtilahun, L Jiang, Y Song, X Shi, C Liu, Y Jiang, L Deng, H Zheng, H Shen, Y Li, Z Zhang, Y Wang, Y Tang, G-Y Yang
- 572** Endovascular treatment in anterior circulation stroke beyond 6.5 hours after onset or time last seen well: results from the MR CLEAN Registry
 OPEN ACCESS
L Dekker, E Venema, F A V Pirson, C B L M Majoie, B J Emmer, I G H Jansen, M J H L Mulder, R Lemmens, R J B Goldhoorn, M J H Wermer, J Boiten, G J Lycklama à Nijeholt, Y B W E M Roos, A C G M van Es, H F Lingsma, D W J Dippel, W H van Zwam, R J van Oostenbrugge, I R van den Wijngaard, on behalf of the MR CLEAN Registry investigators
- 581** Cumulative burden of lipid profiles predict future incidence of ischaemic stroke and residual risk
 OPEN ACCESS
L Dai, J Xu, Y Zhang, A Wang, Z Chen, J Mo, H Li, X Meng, S Wu, Y Wang
- 589** Metabolic syndrome, intracranial arterial stenosis and cerebral small vessel disease in community-dwelling populations
 OPEN ACCESS
M-J Shu, F-F Zhai, D-D Zhang, F Han, L Zhou, J Ni, M Yao, S-Y Zhang, L-Y Cui, Z-Y Jin, H-J Zhu, Y-C Zhu
- 595** Association between coexisting intracranial artery and extracranial carotid artery atherosclerotic diseases and ipsilateral cerebral infarction: a Chinese Atherosclerosis Risk Evaluation (CARE-II) study
 OPEN ACCESS
C Jiang, J Zhang, J Zhu, X Wang, Z Wen, X Zhao, C Yuan, On behalf of CARE-II Investigators
- 603** Effectiveness of intravenous r-tPA versus UK for acute ischaemic stroke: a nationwide prospective Chinese registry study
 OPEN ACCESS
X Wang, X Li, Y Xu, R Li, Q Yang, Y Zhao, F Wang, B Sheng, R Wang, S Chen, L Wang, L Shen, X Hou, Y Cui, D Wang, B Peng, C S Anderson, H Chen, On behalf of INTRECIS Investigators
- 610** Deep learning for automatically predicting early haematoma expansion in Chinese patients
 OPEN ACCESS
J Zhong, Y Jin, Z Song, B Lin, X Lu, F Chen, L Tong
- 615** Incidence and prevalence of moyamoya disease in urban China: a nationwide retrospective cohort study
 OPEN ACCESS
Y Sun, G Zhou, J Feng, L Chen, G Liu, J Wang, Q Wang, J Yu, X Yang, Z Yang, P Gao, S Wang, S Zhan
- 624** Effects and safety of aspirin use in patients after cerebrovascular bypass procedures
 OPEN ACCESS
J Lu, G Shi, Y Zhao, R Wang, D Zhang, X Chen, H Wang, J Z Zhao
- 631** Clinical imaging factors of excellent outcome after thrombolysis in large-vessel stroke: a THRACE subgroup analysis
 OPEN ACCESS
N Riou-Comte, B Gory, M Soudant, F Zhu, Y Xie, L Humbertjean, G Mione, C Oppenheim, F Guillemin, S Bracard, S Richard, on behalf of the THRACE investigators
- 640** Off-hour effect is not significant in endovascular treatment for anterior circulation large vessel occlusion in a multicentre registry
 OPEN ACCESS
M Zha, Q Yang, S Liu, K Huang, X Zhang, M Wu, H Cai, Q Lv, R Liu, D Yang, X Liu
-
- Reviews**
- 649** Advances in mechanical thrombectomy for acute ischaemic stroke from large vessel occlusions
 OPEN ACCESS
X Guo, Z Miao
- 658** Mechanisms of fibrinolysis resistance and potential targets for thrombolysis in acute ischaemic stroke: lessons from retrieved stroke emboli
 OPEN ACCESS
W Brinjikji, O Madalina Mereuta, D Dai, D F Kallmes, L Savastano, Y Liu, S M Nimjee, R G Nogueira, M Abbasi, R Kadirvel
-
- Case report**
- 668** Cerebral venous sinus thrombosis after ChAdOx1 nCov-19 vaccination with a misleading first cerebral MRI scan
 OPEN ACCESS
B Ikenberg, A F Demleitner, T Thiele, B Wiestler, K Götze, G Mößmer, P Lingor
-
- Letter**
- 671** Is more evidence needed for thrombectomy in basilar artery occlusion? The BASICS and BEST meta-analytical approaches
 OPEN ACCESS
D J F Solla, F C Argolo, K P Budohoski, A G Kolias, J G M P Caldas, J Oliveira-Filho