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Commentary

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The JCBFM Symposium at BRAIN 2019

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Abstract

A symposium dedicated to the readership of the *Journal of Cerebral Blood Flow and Metabolism* was organized by the Journal's editorial team at the BRAIN 2019 meeting in Yokohama, Japan. The JCBFM Symposium offered excellent presentations by two top-cited authors and two Associate Editors, with topics ranging from basic science to clinical studies, followed by stimulating discussion with the audience. Hence, the JCBFM Symposium was a great example of committed participation of authors, editors and readers of the Journal, who all contribute to the advancement of translational neurovascular research.

Keywords

Cerebrovascular disease, glymphatic system, intracerebral/intracranial hemorrhage, neurovascular unit, spreading depolarization

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At this year's International Symposium on Cerebral Blood Flow, Metabolism and Function (BRAIN 2019) in Yokohama, Japan, the editorial team of the Journal organized a symposium dedicated to the Journal's readership. The JCBFM symposium took place on 7 July 2019 and was opened by the Editor-In-Chief, Dr Jun Chen, who gave an overview of the Journal's standing. Dr Chen presented several performance metrics that reflected the Journal's strong status, such as an Impact Factor of 6.040 for 2018. A total of 703 original articles were submitted in 2018, of which 169 articles were accepted for publication. The success of the Journal is critically dependent on peer reviews from members of the Editorial Board, and in his presentation Dr Chen specifically acknowledged over 20 top reviewers who had accepted all their review invitations and provided excellent review reports in 2018. Lastly, Dr Chen mentioned the improvement of geographic and gender diversity within the Editorial Board as an important goal for the coming years.

After the opening by Dr Chen, the JCBFM Symposium was continued with presentations from two top-cited authors and two Associate Editors. The first speaker, Dr Jens Dreier from Charité University Medicine (Germany), is the last author of the publication "*The continuum of spreading depolarizations in acute cortical lesion development: Examining Leão's legacy*" by Hartings et al.,[1] which was the most cited paper from 2017 or 2018, together with a publication by Erdő et al.[2] These papers had 27 citations in 2018. In his presentation, Dr Dreier highlighted the significance of Dr Aristides Leão's historic discoveries of spreading depression and asphyxial/anoxic depolarization. Leão's findings have been critical for the understanding of cortical lesion development after acute brain injury, and are now defined within a continuum of spreading depolarizations, as outlined in the paper by Hartings et al. Dr Dreier underlined the importance of translational research in this field. The pathophysiologic effects associated with spreading depolarizations, which have been mainly studied in animal models, may lie at the basis of early and secondary

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Figure 1. Active discussion between the audience and the invited speakers in the JCBFM Symposium.

damage in patients with different types of acute brain injury.

Dr Iben Lundgaard from Lund University (Sweden) was the second speaker in the JCBFM Symposium. Her paper, titled "*Glymphatic clearance controls state-dependent changes in brain lactate concentration*",[3] had 25 citations in 2018, which made it one of the three top-cited original articles published in 2017 or 2018 (together with publications by Jiang et al.[4] and Jin et al.[5]) Dr Lundgaard presented original results from her research as a post-doc at the University of Rochester (NY, USA) in Dr Maiken Needergaard's group. Her studies in mice, which involved various experimental manipulations to suppress glymphatic function, demonstrated that lactate clearance in the brain during sleep is dependent on the glymphatic–lymphatic system. In her presentation, she further elaborated on the potential relationship between brain energy metabolism and glymphatic–lymphatic fluid transport, based on her novel findings.

Dr Guohua Xi and Dr Patrick Lyden, Associate Editors of the Journal, were the two final speakers in the JCBFM Symposium.

Dr Xi (University of Michigan, MI, USA) gave a presentation about his latest work on epiplexus cell activation and its role in development of hydrocephalus after subarachnoid hemorrhage (title: "*Epiplexus cells in brain hemorrhage and hydrocephalus"*). He and his colleagues have recently demonstrated that early development of hydrocephalus in spontaneous hypertensive rats may result from epiplexus macrophage activation and choroid plexus cell death.[6] They also found that activation of epiplexus cells is associated with hydrocephalus development after subarachnoid hemorrhage and intraventricular hemorrhage.[7] Whether epiplexus cell activation participates in, or is a result of, hydrocephalus development following brain hemorrhage needs further investigation.

Dr Lyden's (Cedars-Sinai Medical Center, CA, USA) presentation, titled *"Differential vulnerability in the neurovascular unit: implications for designing 'neuro' protection"*, shed light on possible causes of variability in clinical stroke outcome, based on experimental studies in his laboratory. Using in vitro and in vivo models, his research team demonstrated that elements of the neurovascular unit—neurons, astrocytes, endothelial cells and pericytes—react very differently to injury (oxygen–glucose deprivation or thrombin toxicity).[8] Further, they found that astrocytic protective mechanisms are induced by injury, but can be blocked by treatments (e.g. hypothermia) that target neuronal protection. In his presentation, Dr Lyden proposed alternative strategies for brain cytoprotection that take advantage of the differential response to injury among different elements of the neurovascular unit.

After their presentations, the four speakers were invited to return to the podium to answer questions, which resulted in an active discussion with the audience (see Figure 1).

The well-attended JCBFM Symposium offered excellent presentations of top-level research recently published in the Journal, which was followed by stimulating on- and off-site discussions. Hence, the JCBFM Symposium was a great reflection of the committed participation of the Journal's authors, editors and readers. As chair of the JCBFM Symposium, and on behalf of the entire editorial team, I once again thank the speakers and the audience for a very successful symposium.

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