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Editorial: Management of acute stroke with large core

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Editorial on the Research Topic
Management of acute stroke with large core

Owing to perceived poor outcomes and limited benefit from reperfusion therapies, acute stroke patients presenting with large infarct core on baseline imaging were consistently excluded from thrombolytic and endovascular therapy trials for the last two decades (1–10). Prioritizing finding an effective treatment for the majority of acute stroke patients has paved the way for the current standard-of-care, and improved survival and functional recovery for a vast number of individuals (11, 12). However, whether thrombolytic and endovascular therapies are safe and provide functional benefits in presence of large infarct cores is still unknown. As acute stroke research continues to expand the indication for both medical and endovascular therapies, management of acute stroke patients with large infarct core becomes the next frontier to explore (13–16).

Elucidating the best management of a recently established or evolving large infarct comes down to three key questions. First, what are the optimal imaging modalities and criteria to identify a "large core"? Second, are attempts at reducing the infarct core size *via* thrombolytic or endovascular reperfusion justified by their risk-benefit balance? And third, how can secondary injury and complications of acute large infarcts be minimized?

This review on the topic of acute strokes with large infarct core examines all three aspects. Koopman et al. present evidence that perfusion imaging is a reliable early biomarker to predict clinical outcome in this patient population. Yang et al. continue the discussion with evidence that patient age and perfusion profile may potentially define a ceiling to treatment benefits (17). To address this complexity of early outcome prediction, Chen et al. propose a model based on demographic and imaging biomarkers (18). As the discussion shifts to acute therapy, Hu et al. suggest a promising role for low-dose tirofiban (19). Meanwhile, Hassan et al. present data from the COMPLETE registry to reaffirm the importance of time in limiting infarct growth and improving clinical outcomes (20). DeHoff and Lau then round off our discussion with a review of medical management of cerebral edema resulting from large hemispheric infarcts (21).

The world of cerebrovascular medicine currently eagerly awaits the outcomes of randomized controlled trials on endovascular therapy for acute strokes with large infarct cores (22–24). While endovascular reperfusion may yet again promise the most effective treatment, the complexity of acute stroke patients presenting with large cores highlights the ongoing need for multi-faceted, collaborative research to optimize their outcomes. It is long overdue.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

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The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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