Editorial: Ischemic stroke management: From symptom onset to successful reperfusion and beyond

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Introduction

Fast and complete reperfusion of the occluded vessel territory is the key to every revascularization therapy in stroke patients, no matter if treated with alteplase or endovascular thrombectomy (EVT) (1–4). However, there is room for substantial improvement in time efficiency and techniques to achieve reperfusion [(3, 5), Advani]. This introduction of the Research Topic “Ischemic Stroke Management: From Symptom Onset to Successful Reperfusion and Beyond” left room for a wide variety of topics for articles, which is reflected by a large number of high-quality articles published in this Research Topic (59). The predefined areas of interest included—but were not limited to—the one-stop management of ischemic stroke patients in the angio-suite, novel methods of pre-hospital patient triage, new procedural techniques and software solutions for effective patient triage, clinical consequences of improved time metrics and prediction of functional outcomes following hyperacute reperfusion therapies. The aim of the Research Topic was to investigate the impact of logistical and procedural improvements on the success of reperfusion and the clinical outcome of ischemic stroke patients.

Looking at the studies published in this Research Topic and starting with pre-hospital triage optimization Cabal et al. report that their new prehospital triage test (FAST PLUS) yielded significant reductions of onset-to-groin times in patients receiving EVT, meaning that median onset-to-groin times reduced from 213 to 142 min in their cohort from the Czech Republic. Weissenborn et al. analyzed workflow and outcome metrics of stroke patients undergoing EVT in their German tertiary stroke center as a starting point for optimization. In their analysis, they found several factors leading to a delay in treatment...
Regarding the ongoing debate of intravenous thrombolysis plus EVT vs. EVT alone, Maier et al. report that in patients included in the German Stroke Registry, bridging IVT improved rates of successful reperfusion and long-term functional outcome in mothership patients with anterior circulation large vessel occlusion, which is in line with the results of the recently published SWIFT DIRECT trial. This was further confirmed by a meta-analysis concluding that bridging thrombolysis provides more benefits than EVT alone in terms of clinical functional outcomes without compromising safety in AIS patients with LVOs (Li et al.).

Furthermore, several studies in this article collection further investigated indication criteria in special populations, which were not represented by randomized trials. For example, Kastrup et al. reported that in dependent patients, EVT led to less patients with poor outcomes and smaller infarcts compared to intravenous thrombolysis alone.

Discussion and future challenges

The collection of articles in this Research Topic contributes to the continuous evolution of further defining patient subgroups that will benefit from hyperacute reperfusion therapies. As an example, there are three currently ongoing randomized controlled trials investigating the benefit of EVT in patients with medium vessel occlusions (DISTAL, NCT05029414, ESCAPE-MeVO, NCT05151172, and DISCOUNT, NCT05030142). Defining imaging and clinical characteristics to identify potential EVT candidates within this patient subgroup will help to treat as many stroke patients as possible with the game-changing endovascular thrombectomy but, on the other hand, also help to prevent harming patients, who are very unlikely to benefit. Further logistic and procedural improvements will pave the way toward treating patients even more effectively and in the end find the optimal and fastest therapy for individual stroke patients.

Author contributions

All authors drafted and revised this editorial. All authors contributed to the article and approved the submitted version.

Conflict of interest

The 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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