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Reply:

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REPLY:

We appreciate the comments by Gallerini et al regarding our recently published Clinical Report on patients with minor acute ischemic stroke syndromes and underlying large-vessel occlusion (LVO) in the anterior circulation.

We agree that in most stroke centers today, there is equipoise as to whether to transfer these patients to immediate mechanical thrombectomy (MT) or to offer thrombolysis (if possible) only, monitor the clinical course, and perform MT in case of clinical deterioration. Evidence from the recent randomized MT trials is lacking, and the nonrandomized evidence is scarce. In our experience, rescue MT, compared with immediate MT, may not be optimal in these patients. Haussen et al¹ also compared the impact of immediate MT ($n = 10$) versus initial medical treatment ($n = 22$), including rescue thrombectomy if there was clinical deterioration based on the NIHSS difference from admission to discharge. They found that patients with immediate MT had more NIHSS improvement (-2.5 versus 0 ; $P < .01$) and a nonsignificantly better clinical outcome at 90 days (mRS 0–2: 100% versus 77%; $P = .15$). We showed the same trend favoring immediate MT; good outcomes (mRS 0–2) were higher in patients with immediate MT (75%, $n = 8$) compared with patients with rescue MT (33%, $n = 6$).² However, there are also reports that immediate MT might not be superior to initial best medical management, including rescue MT, or that immediate MT might be associated with an increased risk of symptomatic intracerebral hemorrhage.^{3,4}

With regard to the results of their own cohort we would like to comment, that we believe that patients with isolated proximal carotid or vertebral occlusions and patent intracranial vessels are of a different kind. Emergency stent placement, rather than MT, might be necessary in some cases if insufficient collateral flow is present. Hence, their observed LVO rate of 11/21 (52%) is much higher than that expected for MT candidates. LVO rates for patients with acute ischemic stroke vary according to clinical severity but are present in around 10%–20% of all patients with mild symptoms.⁵ Furthermore, it has been estimated that 1 ICA or M1 occlusion can be detected for every 11.5 patients screened if the NIHSS score is 0–5.⁶ Of those, conditions in 20%–40% of patients may deteriorate rapidly.^{1,7} However, because current guidelines only recommend MT in patients with an NIHSS score of ≤ 6 ,⁸ acute vessel imaging in patients with milder symptoms is not routinely performed; hence, many of these cases are missed by only screening patients presenting with an NIHSS score of > 5 .⁹ We absolutely agree with Gallerini et al that the NIHSS should not be a defining criterion for performing CTA.

Unfortunately, as mentioned by Gallerini et al, PRISMS (NCT02072226; clinicaltrials.gov) will not be able to answer the question of how to proceed with the target population (ie, intracranial anterior or posterior LVO and mild symptoms) because

participants will be randomized in a 1:1 ratio to receive, within 3 hours of last-known-well time, either of the following: 1) one dose of IV alteplase and 1 dose of oral aspirin placebo, or 2) one dose of IV alteplase placebo and 1 dose of oral aspirin, 325 mg). MT is not part of the protocol, and most the patients with LVO will present beyond 3 hours due to their mild symptoms.⁵

To summarize, given the lack of evidence and the conflicting reports of nonrandomized cohorts, a randomized controlled trial in the target population is warranted. Until then, in our opinion, individual treatment decisions, based on local experience, the availability of MT, and individual clinical and radiologic findings, are recommended.

REFERENCES

1. Haussen DC, Bousslama M, Grossberg JA, et al. **Too good to intervene? Thrombectomy for large vessel occlusion strokes with minimal symptoms: an intention-to-treat analysis.** *J Neurointerv Surg* 2016 Sep 2. [Epub ahead of print] CrossRef Medline
2. Messer MP, Schönerberger S, Möhlenbruch MA, et al. **Minor stroke syndromes in large-vessel occlusions: mechanical thrombectomy or thrombolysis only?** *AJNR Am J Neuroradiol* 2017;38:1177–79 CrossRef Medline
3. Dargazani CA, Consoli A, Gory B, et al. **Mechanical thrombectomy for minor and mild stroke patients harboring large vessel occlusion in the anterior circulation: a multicenter case control study.** *J Neuro-radiol* 2017;44:70–72 CrossRef
4. Urra X, San Román L, Gil F, et al; Catalan Stroke Code and Reperfusion Consortium (Cat-SCR). **Medical and endovascular treatment of patients with large vessel occlusion presenting with mild symptoms: an observational multicenter study.** *Cerebrovasc Dis* 2014;38:418–24 CrossRef Medline
5. Heldner MR, Zubler C, Mattle HP, et al. **National Institutes of Health Stroke Scale score and vessel occlusion in 2152 patients with acute ischemic stroke.** *Stroke* 2013;44:1153–57 CrossRef Medline
6. Scheitz JF, Abdul-Rahim AH, MacIsaac RL, et al; SITS Scientific Committee. **Clinical selection strategies to identify ischemic stroke patients with large anterior vessel occlusion: results from SITS-ISTR (Safe Implementation of Thrombolysis in Stroke International Stroke Thrombolysis Registry).** *Stroke* 2017;48:290–97 CrossRef Medline
7. Heldner MR, Jung S, Zubler C, et al. **Outcome of patients with occlusions of the internal carotid artery or the main stem of the middle cerebral artery with NIHSS score of less than 5: comparison between thrombolysed and non-thrombolysed patients.** *J Neurol Neurosurg Psychiatry* 2015;86:755–60 CrossRef Medline
8. Powers WJ, Derdeyn CP, Biller J, et al; American Heart Association Stroke Council. **2015 American Heart Association/American Stroke Association Focused Update of the 2013 Guidelines for the Early Management of Patients With Acute Ischemic Stroke Regarding Endovascular Treatment: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association.** *Stroke* 2015;46:3020–35 CrossRef Medline
9. Maas MB, Furie KL, Lev MH, et al. **National Institutes of Health Stroke Scale score is poorly predictive of proximal occlusion in acute cerebral ischemia.** *Stroke* 2009;40:2988–93 CrossRef Medline

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