

# Disputes & Debates: Editors' Choice

Steven Galetta, MD, FAAN, Editor  
Aravind Ganesh, MD, DPhil, FRCPC, Deputy Editor  
Ariane Lewis, MD, Deputy Editor  
James E. Siegler III, MD, Deputy Editor

## Editors' Note: Hyperacute Perfusion Imaging Before Pediatric Thrombectomy: Analysis of the Save ChildS Study

In "Hyperacute Perfusion Imaging Before Pediatric Thrombectomy: Analysis of the Save ChildS Study," Lee et al. reported the use of perfusion imaging in 15 children who underwent thrombectomy for acute stroke. The authors found that perfusion imaging did not delay time from symptom onset to recanalization. Siegler and Nguyen questioned whether there was any difference from arrival time to groin puncture or recanalization. They also noted that based on guidance from the American Heart Association and the Society of Vascular and Interventional Neurology, perfusion imaging may not be necessary in pediatric patients who present <6 hours after symptom onset. Lee responded that the use of perfusion imaging did not affect time from arrival to recanalization; however, the time of groin puncture was not recorded. The author also noted that there is a need for additional research on prethrombectomy imaging in pediatric patients, including the use of perfusion imaging, the selection between CT and magnetic resonance imaging, and the optimal Alberta Stroke Program Early CT (ASPECT) score.

Ariane Lewis, MD, and Steven Galetta, MD  
*Neurology*® 2023;100:842. doi:10.1212/WNL.0000000000207293

## Reader Response: Hyperacute Perfusion Imaging Before Pediatric Thrombectomy: Analysis of the Save ChildS Study

James E. Siegler (Camden, NJ) and Thanh N. Nguyen (Boston)  
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We applaud the Save ChildS investigators for investigating whether perfusion imaging in pediatric stroke patients would delay thrombectomy.<sup>1</sup> The investigators reported no difference in recanalization times, although last known well (LKW) to recanalization was marginally slower in the perfusion group (median delay 36 minutes,  $p = 0.16$ ).

The investigators also reported marginal delays from LKW to admission in the perfusion group (median 60 minutes,  $p = 0.12$ ), but the question as to whether perfusion imaging delays treatment (e.g., arrival to skin puncture or arrival to recanalization) remains unclear. Presumably there are no differences in these intervals, but could the authors report these data to better elucidate workflow times?

Separately, perfusion imaging has been recommended in the late window (6–24 hours) according to the 2019 American Heart Association guidelines, but not required in the early <6 hours window.<sup>2</sup> The 2022 Society of Vascular and Interventional Neurology stated patients could be selected in the late window using noncontrast CT (NCCT) without perfusion imaging,<sup>3</sup> according to more recent data.<sup>4</sup> Considering the additional radiation dose with perfusion imaging added to NCCT or delays due to imaging acquisition, the question of its necessity in pediatric patients with a favorable NCCT and LVO is raised.

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Author disclosures are available upon request (journal@neurology.org).

1. Lee S, Mlynash M, Christensen S, et al. Hyperacute perfusion imaging before pediatric thrombectomy: analysis of the Save ChildS study. *Neurology*. 2023;100(11):e1148-e1158.
2. Powers WJ, Rabinstein AA, Ackerson T, et al. Guidelines for the early management of patients with Acute Ischemic Stroke: 2019 update to the 2018 guidelines for the early management of Acute Ischemic Stroke: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke*. 2019;50(12):e344-e418.
3. Nguyen TN, Castonguay AC, Siegler JE, et al. Mechanical thrombectomy in the late presentation of anterior circulation large vessel occlusion stroke: a guideline from the Society of Vascular and Interventional Neurology Guidelines and Practice Standards committee. *Stroke Vasc Interv Neurol*. 2023;3(1):2022.
4. Nguyen TN, Abdalkader M, Nagel S, et al. Noncontrast computed tomography vs computed tomography perfusion or magnetic resonance imaging selection in late presentation of stroke with large-vessel occlusion. *JAMA Neurol*. 2022;79(1):22.

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## Author Response: Hyperacute Perfusion Imaging Before Pediatric Thrombectomy: Analysis of the Save ChildS Study

Sarah Lee (Stanford, CA)

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We thank Drs. Siegler and Nguyen for their insightful comments on our article.<sup>1</sup> We found no significant difference in median admission to recanalization times in the perfusion imaging group (1.5 hours, interquartile range [IQR] 1.0–2.5) compared with the nonperfusion group (1.5 hours, IQR 1.0–1.9,  $p = 0.455$ ). Time of skin puncture was not collected in the Save ChildS study, but will be an important data point for future studies.

We agree that routine use of CT perfusion should be avoided in young patients, although it may be useful for a subset of older children with confirmed large vessel occlusion and a moderate Alberta Stroke Program Early CT Score (ASPECTS). MRI is preferred over CT in most acute pediatric stroke protocols,<sup>2</sup> although it is admittedly more time-consuming, costly, and less widely available. Noncontrast CT (NCCT) may be a reasonable alternate option for late selection when access to perfusion is limited; however, NCCT ASPECTS has significant inter-rater variability<sup>3</sup> that may be even less reliable in pediatric centers where ASPECTS is rarely scored. Furthermore, there is no consensus on the optimal ASPECTS threshold for thrombectomy selection in adults.

Imaging criteria for thrombectomy selection in pediatric stroke has not been established and merits further investigation, with the goal of minimizing unnecessary procedures, exposures, and adverse events while optimizing favorable outcome to the extent possible.

1. Lee S, Mlynash M, Christensen S, et al. Hyperacute perfusion imaging before pediatric thrombectomy: analysis of the Save ChildS study. *Neurology*. 2023;100(11):e1148-e1158. doi:10.1212/WNL.0000000000201687
2. Harrar DB, Benedetti GM, Jayakar A, et al. Pediatric acute stroke protocols in the United States and Canada. *J Pediatr*. 2022;242:220-227.e7.
3. Farzin B, Fahed R, Guilbert F, et al. Early CT changes in patients admitted for thrombectomy: intrarater and interrater agreement. *Neurology*. 2016;87(3):249-256.

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## Association of Endovascular Thrombectomy With Functional Outcome in Patients With Acute Stroke With a Large Ischemic Core

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In the Research Article entitled “Association of Endovascular Thrombectomy With Functional Outcome in Patients With Acute Stroke With a Large Ischemic Core” by Garcia-Esperon et al.,<sup>1</sup> the fifth sentence of the Results section of the Abstract should read “The benefit was seen predominantly in those with 70–100 mL of core volume (71/135 [52.6%] EVT-treated), with 45.3% in the EVT-treated vs 21% in the non-EVT group achieving a fair outcome (aOR 2.5, 95% CI 1–6.2,  $p = 0.005$ ).” The authors regret the error.

### Reference

1. Garcia-Esperon C, Bivard A, Johns H, et al. Association of endovascular thrombectomy with functional outcome in patients with acute stroke with a large ischemic core. *Neurology*. 2022;99(13):e1345-e1355.

## Association Between Dietary Habits in Midlife With Dementia Incidence Over a 20-Year Period

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In the printed short-form version of the Research Article entitled, “Association Between Dietary Habits in Midlife With Dementia Incidence Over a 20-Year Period” by Glans et al.,<sup>1</sup> the third sentence of the Results and Study Limitations section should read: “Adherence to the modified Mediterranean diet did not lower the risk of developing all-cause dementia (HR 0.93 0.75–1.15), AD (HR 0.90, 0.68–1.19), or VaD (HR 1.00, 0.65–1.55).” The editorial office regrets the error.

### Reference

1. Glans I, Sonestedt E, Nägga K, et al. Association between dietary habits in midlife with dementia incidence over a 20-year period. *Neurology*. 2023;100(1):e28-e37. doi:10.1212/WNL.0000000000201336

## Normobaric Hyperoxia Combined With Endovascular Treatment for Patients With Acute Ischemic Stroke

A Randomized Controlled Clinical Trial

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In the Research Article entitled “Normobaric Hyperoxia Combined With Endovascular Treatment for Patients With Acute Ischemic Stroke: A Randomized Controlled Clinical Trial” by Li et al.,<sup>1</sup> the sixth sentence of the second-to-last paragraph should read as follows: “The PROOF study<sup>46</sup> (Penumbra Rescue by Normobaric O=O Administration in Patients With Acute Ischemic Stroke and Target Mismatch ProFile; NCT03500939) was initiated by Professor Sven Poli and others in Europe, which is an RCT study and planned to include 460 patients.” The authors regret the errors.

### Reference

1. Li W, Qi Z, Ma Q, et al. Normobaric hyperoxia combined with endovascular treatment for patients with acute ischemic stroke: a randomized controlled clinical trial. *Neurology*. 2022;99(8):e824-e834.

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