

2018 Guidelines for the Early Management of Patients With Acute Ischemic Stroke

Karen L. Furie, MD, MPH; Mahesh V. Jayaraman, MD

Given the seismic changes we have seen in stroke care over the past 5 years, the stroke community has been eagerly anticipating the 2018 updated Acute Ischemic Stroke Guideline.¹ This comprehensive document defines state-of-the-art acute stroke management. We highlight a few selected areas of change relevant to stroke systems of care, imaging, thrombectomy eligibility, postprocedure management, and secondary prevention.

Most current stroke systems of care are designed to have Emergency Medical Services transport suspected stroke patients to the closest stroke center, regardless of its infrastructure and subspecialty expertise. Unlike intravenous alteplase, the successful delivery of mechanical thrombectomy requires specialized services unavailable at most hospitals. An important area of future study will be if there is a benefit to bypassing a closer hospital without thrombectomy capabilities to transport patients directly in the field to a Comprehensive Stroke Center, where thrombectomy can be performed more expeditiously. As the authors summarize, there is insufficient evidence to recommend one field severity scale over another, but the implementation of a severity-based algorithm such as the Mission: Lifeline Severity-Based Stroke Triage Algorithm for Emergency Medical Services (<http://www.heart.org/missionlifelinestroke>) has the potential to increase access to thrombectomy. Hopefully, future research can determine the optimal methods for triaging patients appropriately from the field.

Imaging is central to the management of the acute stroke patient. Historically, parenchymal imaging with noncontrast CT scan has been the mainstay of imaging. However, as the authors report, there has recently been an increasing use of vessel imaging with CT angiography (CTA). Moving forward, the use of vessel imaging should become routine at most centers. An important new recommendation is that it is reasonable to expect that all Primary Stroke Centers are able to perform CTA on stroke patients, and do so without delaying alteplase administration. The availability of CTA is more widespread, and most community hospitals have the capability to perform CTA in a rapid fashion. As the

authors summarize, in most cases, the combination of the noncontrast CT and CTA provides sufficient information to determine eligibility for thrombectomy in the first 6 hours from stroke onset. An additional benefit of performing vessel imaging with CTA at the Primary Stroke Center would be to more efficiently triage transfers for endovascular therapy. In some series, less than half of transferred patients receive thrombectomy because of lack of intracranial vessel occlusion. Such futile transfers are resource intensive and may overwhelm Comprehensive Stroke Centers. We also commend the authors for reaffirming the low incidence of contrast-induced nephropathy, and suggesting that waiting for a serum creatinine should not delay CTA in patients who would be potential thrombectomy candidates.

Two important trials, DAWN (Diffusion Weighted Imaging [DWI] or Computerized Tomography Perfusion [CTP] Assessment With Clinical Mismatch in the Triage of Wake Up and Late Presenting Strokes Undergoing Neurointervention) and DEFUSE-3 (Endovascular Therapy Following Imaging Evaluation for Ischemic Stroke 3), have shed light on the benefit of mechanical thrombectomy in anterior circulation large-vessel occlusion stroke beyond 6 hours from symptom onset. Both trials showed that in patients who are carefully selected using advanced imaging, using either CT perfusion or magnetic resonance imaging, thrombectomy dramatically improves outcomes even up to 24 hours from onset. These results also have implications for patients at Primary Stroke Centers and Acute Stroke Ready Hospitals. These centers will need to ensure that their workflow can identify potential candidates for thrombectomy beyond 6 hours and rapidly transfer them to a Comprehensive Stroke Center. Again, using CTA at the Primary Stroke Center or Acute Stroke Ready Hospitals to ensure that there is a vessel occlusion before transfer would likely be an optimal workflow and could minimize futile transfers.

There has been a palpable shift toward more focused cost-effective recommendations for laboratory and cardiac testing. The message is clear: more is not necessarily better. The new Guideline emphasizes a targeted approach to the diagnostic evaluation and the institution of secondary stroke preventive interventions. Although the role of antiplatelet agents and statins remains relatively unchanged in this update, consideration of dual antiplatelet agents has been added as a new recommendation, albeit with limited evidence.

To quote Thoreau, "When any real progress is made, we unlearn and learn anew what we thought we knew before."² The stroke field has made enormous progress in the past 5 years, and this Guideline will elegantly serve as a primer for updating our knowledge.

The opinions expressed in this article are not necessarily those of the editors or of the American Heart Association.

From the Rhode Island Hospital (K.L.F., M.V.J.), Miriam Hospital (K.L.F.), and Bradley Hospital (K.L.F.), Warren Alpert Medical School, Brown University, Providence, RI.

Correspondence to Karen L. Furie, MD, MPH, Rhode Island Hospital, 593 Eddy St, APC-5th Floor, Room 521, Providence, RI 02903. E-mail karen_furie@brown.edu

(*Stroke*. 2018;49:509-510.)

DOI: 10.1161/STROKEAHA.118.020176.)

© 2018 American Heart Association, Inc.

Stroke is available at <http://stroke.ahajournals.org>

DOI: 10.1161/STROKEAHA.118.020176

Disclosures

None.

References

1. Powers WJ, Rabinstein AA, Ackerson T, Adeoye OM, Bambakidis NC, Becker K, et al. 2018 guidelines for the early management of patients

with acute ischemic stroke: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke*. 2018;49:e46–e110. doi: 10.1161/STR.000000000000158.

2. Torrey B, ed. *The Writings of Henry David Thoreau*. New York, NY: Houghton Mifflin and Company; 1906.

KEY WORDS: Editorials ■ algorithm ■ creatinine ■ incidence ■ thrombectomy ■ workflow

2018 Guidelines for the Early Management of Patients With Acute Ischemic Stroke

Karen L. Furie and Mahesh V. Jayaraman

Stroke. 2018;49:509-510; originally published online January 24, 2018;

doi: 10.1161/STROKEAHA.118.020176

Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231

Copyright © 2018 American Heart Association, Inc. All rights reserved.

Print ISSN: 0039-2499. Online ISSN: 1524-4628

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://stroke.ahajournals.org/content/49/3/509>

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in *Stroke* can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the [Permissions and Rights Question and Answer](#) document.

Reprints: Information about reprints can be found online at:
<http://www.lww.com/reprints>

Subscriptions: Information about subscribing to *Stroke* is online at:
<http://stroke.ahajournals.org/subscriptions/>