Ischemic Stroke Management

{{rss>https://pubmed.ncbi.nlm.nih.gov/rss/search/1j5cNbPuzU_-1Qwe28Fquq29sKFt-gAw16yJgK9z3FP8c9kMa4/?limit=15&utm_campaign=pubmed-2&fc=20250710174943} ===== Key concepts ===== Level I ((Powers WJ, Rabinstein AA, Ackerson T, 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)). ● [[Medical history]]/[[physical examination]]: include [[stroke scales]] (preferrably [[NIHSS]]) ● ✔ [[blood glucose]]: essential lab to obtain in case IV tPA is indicated ● noncontrast brain CT: the usual initial diagnostic tool of choice (image in ≤ 20 mins) ○ to rule out: hemorrhage (SAH, ICH, EDH, SDH), mass (tumor, abscess…) ○ to calculate ASPECTS (to identify candidates for thrombectomy) ● [[CTA]] for patients with NIHSS score ≥ 10 (correlates with [[large vessel occlusion]] [LVO]) to identify candidates for thrombectomy (do not delay IV tPA to get CTA) ● thrombectomy is the standard of care for eligible patients: cerebral ischemia (including infarct) caused by LVO of the ICA or M1 segment of the MCA, 1) when it can be initiated within 6 hours of symptom onset, or 2) if perfusion studies identify viable tissue 6–24 hours from onset ● IV tPA (tissue plasminogen activator, alteplase) ○ within 4.5 hours of onset when thrombectomy not being done immediately or for patients who are not thrombectomy candidates ○ goal:“door-to-needle” (DTN) time ≤ 60 minutes ===== Rapid initial evaluation/management ===== Upon presentation of a patient with symptoms of a potential stroke. 1. history & physical exam: key components a) onset or last known well (LKW) time (the last time the patient was seen to be normal): stroke on awakening (“wake-up stroke”) may require additional considerations for management b) c) current deficit and clinical presentation ★ NIH Stroke Scale score (or Canadian Neurological Scale) assessed and recorded (Level I) 2. laboratories: a) ★ blood glucose is the only essential lab to get immediately since it affects eligibility for IV tPA (Level I) b) see Admitting orders for subsequent detailed labs (including cardiac troponins…) 3. imaging: a) ★ STAT noncontrast head CT scan: AHA goal: image the brain in ≤ 20 minutes of arrival in the E/R in ≥ 50% of eligible patients (Level I1). In most cases this provides the necessary informa- tion for management (Level I). ● rule out hemorrhage (ICH, SAH, subdural, epidural…) or other lesions (e.g., tumor). ● determine Alberta stroke program early CT score (ASPECTS) b) a noninvasive intracranial vascular study (usually a CTA) is obtained in potential candidates for endovascular therapy (EVT) (viz. patients with large vessel occlusion (LVO)) who are best dentified by the NIHSS score: • NIHSS score ≥ 10: is 73% sensitive & 74% specific for LVO • NIHSS score ≥ 6: is 87% sensitive and 52% specific for LVO This study should not delay IV tPA if indicated; the CTA can be obtained ASAP after IV tPA. It is reasonable to image the extracranial carotid and vertebral circulations in addition to intracranial vessels in potential candidates for EVT to help determine patient eligibility and to plan the procedure (Level II). intervention: depending on results of above a) candidates for EVT (essentially mechanical thrombectomy or IA tPA) should be taken immediately to angio suite b) if there is going to be a delay, or if the patient is not eligible for EVT, IV tPA is given if indicated ---- ====== 2018 Guidelines for the Early Management of Patients With Acute Ischemic Stroke ====== In a Clinical Practice Guideline Powers et al. (American Heart Association Stroke Council, various U.S. centers) published in the Stroke Journal to update and standardize recommendations for the early (pre-hospital and emergency) management of acute ischemic stroke patients across healthcare settings. They provides evidence-based algorithms covering rapid recognition, IV thrombolysis, mechanical thrombectomy, imaging, blood pressure/glucose management, and systems of care to optimize early stroke outcomes. ===== Critical Review ===== * **Scope & Methodology:** Anchored in a robust literature review and expert consensus. However, grading of evidence for certain recommendations (e.g., advanced imaging selection, perfusion thresholds) relies heavily on smaller trials and registries, limiting universal applicability. * **Clarity & Usability:** Strongly organized with clear flowcharts (e.g., IV tPA eligibility, thrombectomy criteria), though the density of algorithmic detail may challenge

timely ED implementation without pre-existing stroke pathways. * **Balance of Strength vs. Risk:** Generally robust; recommendations on BP management before thrombolysis (permissive hypertension) are evidence-backed. Some newer domains – such as anesthesia strategies during thrombectomy – are treated briefly with class IIb recommendations. * **Innovation & Evidence Gaps:** Notable improvement over 2013 guidelines. Highlights recent trials (e.g., DAWN, DEFUSE-3) extending EVT window. Still, identification of salvageable penumbra via perfusion imaging lacks uniform thresholds across centers. * **Criticisms:** * Evidence for wake-up stroke treatment remains underrepresented since key trials (WAKE-UP) were published shortly after guideline cut-off. * Recommendations on rural/underserved systems of care emphasize telestroke but lack concrete frameworks for implementation. * No clear guidance on system-level quality benchmarks (e.g., door-to-needle time accountability), which are critical in stroke systems. ===== Final Verdict ===== A vital, practical guideline that significantly enhances stroke management protocols—though adoption demands local adaptation, and emerging late-breaking trials must be integrated in future updates. ===== Takeaway for the Practicing Neurosurgeon ===== Ensure your stroke pathway incorporates rapid triage, IV tPA protocol, and mechanical thrombectomy criteria; invest in imaging and telestroke infrastructure; and stay alert to new data on wake-up strokes and perfusion-guided treatment windows. ===== Bottom Line ===== A comprehensive and up-to-date framework that sharpens early stroke care—essential reading, but should not supplant local protocols or upcoming trial data. ===== Score ===== 8.0 / 10 — Strong, evidence-based, with areas for future refinement. <blogcategory>Guidelines, Stroke, AcuteCare</blogcategory> <tag>acute ischemic stroke, IV tPA, thrombectomy, stroke guidelines, AHA/ASA, early management</tag> -- *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*, Powers WJ et al. Stroke 2018 Mar;49(3):e46-e110. Published online 24 Jan 2018. Corresponding author contact available via neurosurgerywiki.com internal directory. PMID: 29367334 DOI: 10.1161/STR.0000000000000158 ---- ---- ====== Updates to AHA/ASA Stroke Guidelines (2019 & 2024) ====== ===== 2019 Focused Update – Early Management of Acute Ischemic Stroke ===== **Reference:** *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.* *Stroke*. 2019;50(12):e344–e418. doi:10.1161/STR.0000000000000211 PMID: 31662037 **Key Updates:** - Expanded criteria for **mechanical thrombectomy (6–16 h)** in patients selected by perfusion imaging (based on DAWN and DEFUSE-3). - Clarified use of **IV alteplase in wake-up strokes** and strokes of unknown onset, integrating MRI-based selection (DWI-FLAIR mismatch). - Emphasized **prehospital triage systems** and **telemedicine** to streamline stroke identification and transfer. - Updated evidence levels (Class of Recommendation / Level of Evidence) to reflect recent trials. - Provided **flowcharts and decision pathways** for ED teams to facilitate early thrombolysis and thrombectomy decisions. **Summary:** A technical refinement of the 2018 guideline, incorporating new trial data to strengthen recommendations for EVT and alteplase in broader clinical scenarios. ===== 2024 Guideline – Primary Prevention of Stroke ===== **Reference:** *Meschia JF, Bushnell C, Boden-Albala B, et al.* *2024 Guideline for the Primary Prevention of Stroke: A Guideline From the American Heart Association/American Stroke Association.* *Stroke*. Published online October 20, 2024. doi:10.1161/STR.0000000000000475 **Key Recommendations:** - Integrates the **Life’s Essential 8** model for cardiovascular health (includes sleep, BP, diet, physical activity, cholesterol, blood sugar, smoking, and BMI). - Advocates use of **GLP-1 receptor agonists** (e.g., semaglutide) in diabetic patients at high cardiovascular risk. - Recommends **PCSK9 inhibitors** for patients intolerant to statins or needing additional LDL reduction. - Endorses **Mediterranean-style diets** rich in olive oil and nuts for stroke risk reduction. - Suggests **blood pressure targets <130/80 mm Hg**, with first-line agents being thiazides, ACE inhibitors, ARBs, and calcium channel blockers. - Includes **gender-specific guidance**, addressing risks during pregnancy, hormone use, and among

transgender populations. - Strong emphasis on **social determinants of health** (SDOH) and **health equity**. - 150 minutes/week of moderate-intensity aerobic exercise remains a cornerstone. **Summary:** A comprehensive and contemporary approach to preventing first-time stroke through evidence-based lifestyle, pharmacologic, and societal interventions. ===== Tags & Categories ===== <blogcategory>Guidelines, Stroke, Prevention, AcuteCare</blogcategory> <tag>stroke prevention, GLP-1, PCSK9, alteplase, thrombectomy, wake-up stroke, AHA, ASA, guideline update</tag>