SBAR – Transition to IV Tenecteplase

Situation

- 10-12% all ischemic strokes in PSJH receive IV thrombolytic treatment.
- Currently IV alteplase is the agent used due to historical trials and the American Stroke Association Guidelines for treatment of acute ischemic stroke (AIS).
- Tenecteplase has shown some non-inferiority in head-to-head trials for IV treatment of AIS. It is showing clear superiority in large vessel occlusion (LVO) patients proceeding to thrombectomy in one trial.
- Tenecteplase has a much easier administration and equal or lower hemorrhagic complication rates.
- It is likely to improve important stroke outcomes of door to needle and door to device, two metrics documented to lead to improved outcomes for stroke patients.

Background

- Alteplase has been the standard of IV thrombolytic therapy for appropriately selected stroke patients since the seminal NINDS trial in 1996. There have been newer thrombolytic agents developed over the years. Few new ischemic stroke trials have followed.
- Tenecteplase has demonstrated equivalence in clinical trials of coronary artery disease (CAD) and STEMI in addition to decreased hemorrhagic complications in these trials.
- Tenecteplase has also demonstrated superiority in IV thrombolytic treatment of LVO patients in ischemic stroke preceding intravascular thrombectomy in a recent clinical trial.
- In a head-to-head smaller clinical trial for stroke, Tenecteplase has demonstrated non-inferiority and similar safety profile.

Assessment

- Tenecteplase use in the setting of treating AIS is endorsed for eligible patients by the American Stroke Association Guideline update from October 2019.
- Tenecteplase administration with a single bolus is far simpler compared to alteplase which required initial bolus followed by one hour infusion and then culminated with a 50 ml NS flush infusion.
- The simplified administration would allow for more expeditious transfers to advanced centers who offer thrombectomy for LVO treatment.

- Tenecteplase has a far lower cost, is delivered via single bolus dose rather than infusion like alteplase and does not require the complicated infusion related documentation required by administering alteplase.

Recommendation

- A system wide change for IV thrombolytic for treating AIS from alteplase to Tenecteplase at dose 0.25mg/kg – single bolus – maximum dose 25 mg
    - ✓ No changes in patient selection criteria.
    - ✓ Careful stepwise implementation with Comprehensive and Thrombectomy capable stroke centers proceeding first.
    - ✓ Careful implementation with leads from Pharmacy, Emergency Departments.
    - ✓ Careful plan to follow data meticulously to evaluate all treated patient outcomes.

References

- Alteplase versus tenecteplase for thrombolysis after ischaemic stroke (ATTEST): a phase 2, randomised, open-label, blinded endpoint study
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- Tenecteplase versus alteplase for management of acute ischaemic stroke (NOR-TEST): a phase 3, randomised, open-label, blinded endpoint trial
    - DOI: 10.1016/S1474-4422(17)30253-3
- Safety and efficacy of tenecteplase versus alteplase in acute coronary syndrome: a systematic review and meta-analysis of randomized trials
    - DOI: 10.5114/aoms.2016.58929
- Using Tenecteplase for Acute Ischemic Stroke: What Is the Hold Up?
    - DOI: 10.5811/westjem.2020.1.45279
- Tenecteplase versus Alteplase before Thrombectomy for Ischemic Stroke
    - DOI: 10.1056/NEJMoa1716405
- A randomized trial of tenecteplase versus alteplase for acute ischemic stroke
    - DOI: 10.1056/NEJMoa1109842
- Tenecteplase for the treatment of acute ischemic stroke: A review of completed and ongoing randomized controlled trials
    - DOI: 10.1177/1747493018790024
- Evidence that Tenecteplase Is Noninferior to Alteplase for Acute Ischemic Stroke: Meta-Analysis of 5 Randomized Trials
    - DOI: 10.1161/STROKEAHA.119.025080