Maine Medical Center
Department of Emergency Medicine

Journal Club / Research Article Summary - (Adapted from Schultz Table)

Date: 9/18/12
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ARTICLE:

- Citation: Jovin, T, MD, Liebeskind, D, MD, Gupta, R MD, Rymer, M MD, Rai, A MD, Zaidat, O MD,MS, Abou-Chebl, A MD, Baxter, B MD, Levy, E MD, Barreto, A MD, Nogueira, R MD, (2011), Imaging-Based Endovascular Therapy for Acute Ischemic Stroke due to Proximal Intracranial Anterior Circulation Occlusion Treated Beyond 8 Hours From Time Last Seen Well, Stroke, 42, 2206-2211.
- Country: USA
- Funding Sources:

PURPOSE:

- Research Question(s): Is endovascular therapy for acute ischemic stroke greater than 8 hours safe and effective?

- Hypothesis: Endovascular therapy instituted beyond 8 hrs from time last seen well (TLSW) can be safely done based on favorable MRI or CT perfusion imaging, and provides higher rates of good outcomes.

DESIGN:

- Study Design: Multicenter retrospective review

- Outcomes: Successful revascularization in 175/237 pts (73.84%)
  Parenchymal hematoma in 21/237 pts (8.86%)
  90 day mortality rate 51/237 pts (21.5%)
  Rate of good outcomes 100/223pts with modified Rankin Scale data (45%)

  ** In univariate analysis: increasing age, h/o a fib, h/o HTN, lack of vessel recanalization, ICA terminus occlusion, and the development of parenchymal hematoma significantly associated with mortality.

  In multivariate analysis: increasing age, vessel recanalization, ICA terminus occlusion, and parenchymal hematoma remained significantly associated w/ mortality.

  ** 52% of recanalized pts vs 23% of the nonrecanalized pts achieved a good functional outcome at 90 days (P<0.0001).

  Mortality rate 16% or recanalized pts and 38% nonrecanalized pts, at 90 days. (P<0.0001)

  **They were unable to detect an association between good outcomes or PH and imaging selection modality (CT vs MRI).
SUBJECTS:

- **Subjects:**
  - Number of Studies / Subjects: 237
  - Inclusion / Exclusion criteria:
    - **Inclusion:** Eleven large regional referral stroke centers with stroke as a result of acute proximal anterior circulation (internal carotid artery and/or middle cerebral artery M1 and/or M2) whose endovascular therapy was performed > 8 hrs from TLSW on basis of favorable MRI or CT perfusion imaging. Also, “wakeup strokes” whose time of onset is uncertain but diagnosis was made > 8 hrs from TLSW.
    - **Exclusion:** Intracranial hemorrhage or CT evidence of hypodensity involving greater than 1/3 of the MCA territory
  - **Demographics:**
    - Mean age 63.8 +/- 16yrs.
    - Mean baseline NIHSS 15 +/- 5.5.
    - 49% Male.
    - Mean TLSW to treatment 15 +/- 11.2 hrs.

METHODS:

- **Interventions:** Endovascular reperfusion therapy.

DATA ANALYSIS:

- **Statistics Used:** STATA IC-10 software. Univariate, covariate, and multivariate analysis.
- **What, if any, confounding variables were controlled for / adjusted for:** None

RESULTS:

- **Brief answers to research questions:**
  - MRI or CTP imaging-based endovascular therapy in pts with acute ischemic stroke treated beyond 8 hrs from TLSW can be performed with a safety profile that is similar to that observed in pts treated within 8 hrs.
  - The rate of good clinical outcomes is similar to that seen when treatment is initiated w/in 8 hrs.
  - No standardized analysis of imaging is in place. It is subject to each interpreter and thus highly variable.
  - They state that their results should be interpreted as hypothesis-generating and may aid in the design of a randomized prospective trial comparing recanalization therapy with conservative management, which is necessary to prove superiority of this approach over medical therapy alone.
IMPLICATIONS FOR PRACTICE:
- Applicable to this clinical practice: Yes
- Feasibility (cost, resources, etc): Endovascular therapy/recanalization is very expensive and not all hospitals have that available. With the expanded time window, there may be more transfers to hospitals for endovascular intervention.
- Clinically Relevant: Yes

LEVEL OF EVIDENCE / DECISION FOR USE:
- Background x Consider Replication Ready for use

- Level of Evidence:
  - Ia Evidence obtained from meta-analysis of randomized controlled trials
  - Ib Evidence obtained from at least one RCT
  - IIA Evidence obtained from at least one well-designed controlled study without randomization
  - IIB Evidence obtained from at least one other type of well-designed quasi-experimental study
  - III Well-designed non-experimental studies
  - IV Expert committee reports, opinions of experts