Disclosures
LN Hopkins MD:

- I have the following potential conflicts of interest to report:
  - Grant support: Cannon Medical
  - Stock Owner: Boston Scientific, Silk Road, Imperative Care, Ocular Therapeutics, Orsiel.

Progress in Patient Selection
CT perfusion-based Imaging
Is the Brain Viable??

Patient 1: has "penumbra" and likely to benefit from intervention

Patient 2: has volume loss (arrow) and no "penumbra"

CBV

Extending the Time Window

Progress in Understanding
Time is Brain
Meaning What??

In each minute we lose:
- 1.9 million neurons,
- 14 billion synapses (connections)
- 12 km (7.5 miles) of nerve fibers

New Data:
If we can reopen a blocked brain artery ...

Within 2 hours:
- Recovery rate is 90% !

After 6 hours:
- Recovery rate is 20-30% !!!!
Progress in Removing Clots

**Thrombectomy Methods**

**Pharmacologic:**
- IV tPA
- IA tPA

**Mechanical:**
- Retrieval Stent
- Aspiration
- Combination:
  - Aspiration; Stentriever

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Progress in Outcomes

**Endovascular Therapy: New Standard of Care**

**Number Needed to Treat (NNT)**

In order to have 1 additional stroke patient be independent at 90 days:

- MR CLEAN
- ESCAPE
- EXTEND-IA
- SWIFT PRIME
- PCI for STEM

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Where From Here?

- Reducing distal embolic burden
  - Better Retrievers
  - More effective aspiration (e.g., balloon guide, better aspiration catheters)

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Where From Here?

- Improving workflow / “door-to-needle” times
  - Prehospital notification / preparation
  - New technology
  - Canon 4D CT Angio in ER (Door to needle)

**< 2 Hour Goal**

- Onset to Revascularization
  - ER door to CT: 5 min
  - Door to CT images: 10 min
  - Door to needle: 20 min
  - Door to Revasc: 40 min