



Time to Recanalization for Endovascular Mechanical Thrombectomy Based on Data from Multi MERCI (Part 1)

Doojin Kim, David S Liebeskind, Bruce Ovbiagele, Fernando Vinuela, Gary Duckwiler, Reza Jahan, Sidney Starkman, Jeffrey L Saver
UCLA Stroke Center, UCLA Medical Center, University of California Los Angeles, Los Angeles, CA



Introduction

- Acute endovascular therapies for stroke are performed to achieve recanalization of occluded vessels
- Rapid recanalization of vessels is needed to rescue salvageable tissue within the ischemic penumbra
- Time to recanalization is important because time is brain
- For every minute's delay, the brain loses
 - 1.9 million neurons are lost
 - 14 billion synapses are lost
 - 7.5 miles of myelinated fibers.¹
- Mechanical embolectomy may provide more rapid time to recanalization since therapy does not need to be administered slowly.
- We investigated the time required to achieve recanalization with endovascular mechanical thrombectomy with the Merci clot retrieval device system (Concentric Medical, Mountain View, CA)

Methods

- Retrospective review of times and revascularization status as captured in Multi MERCI trial (Part 1)
- Entry criteria for this study required partial or complete recanalization (TIMI ≥ 2) by use of endovascular mechanical thrombectomy alone and availability of the following time data: stroke onset time, time of entry into the angiography lab, time of arterial puncture, clot visualization time, time of first retriever pass and final angiogram time

Results

- Of the 111 patients in Multi MERCI (part 1), 54 had all the necessary time captured in addition to achieving TIMI II/III flow
- Median pretreatment NIHSS was 18

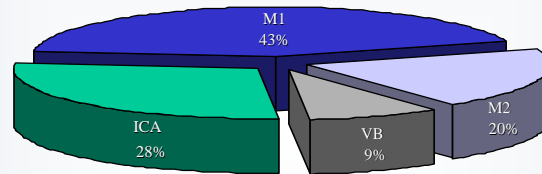


Figure 1: Target vessels for mechanical embolectomy (ICA = intracranial internal carotid artery and bifurcation of terminal ICA, M1 = 1st branch of Middle Cerebral Artery, M2 = 2nd branch of MCA, VB = Poster circulation)

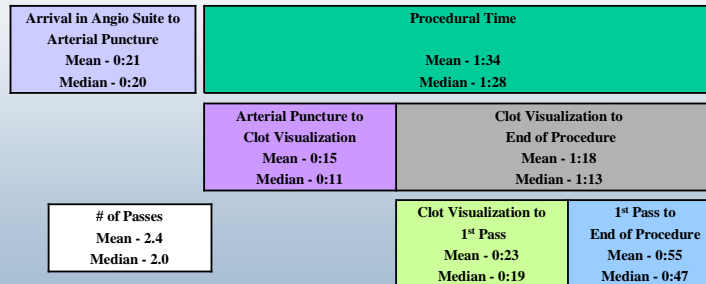


Figure 2: Study cohort mean and median times for key time segments are presented; median and mean number of passes are presented

Conclusions

- Compared with literature reported times of recanalization with IA chemical thrombolysis, endovascular mechanical embolectomy achieves rapid recanalization
- Rapid recanalization with mechanical embolectomy with the Merci device was achieved despite a preponderance of large clot burden and the presence of proximal clots
- More rapid mechanical disposition of clot versus slower chemical clot digestion may be an advantage of mechanical thrombectomy versus the chemical thrombolysis treatment strategy
- A larger, prospective study is needed to more fully delineate potential differences in recanalization speed between these two acute therapies.

References

- Saver, JL. Time is brain—quantified. *Stroke*. 2006;37:263-266.
- Kim, DJ. Time to Recanalization for Acute Endovascular Stroke Therapies. AAN 2006. Abstract.