Primary thrombectomy within 3 hours of onset in acute ischemic stroke from occlusion of middle cerebral artery - a pilot study.

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Disclosure

Nothing to disclose
Backgrounds

- 1.9 million cells die each minute in acute ischemic stroke (AIS); delay in recanalization means more cell death and poor outcome.
- AIS with high NIHSS (>10), due to large artery occlusion (LAO), especially in internal carotid artery terminus (ICA-T) are resistant to IV thrombolysis and thrombectomy is associated with better recanalization rates.
- IV thrombolysis with large clot burden (>8mm) (LCB) in the middle cerebral artery (MCA) is associated with poor recanalization and outcome.
- Thrombectomy in AIS with LAO within 3 hours is performed as secondary therapy after IV thrombolysis which may lead to delay in recanalization and may not guarantee a good outcome.
Objectives

• To evaluate the safety, feasibility and recanalization rate of primary thrombectomy within 3 hours in AIS with NIHSS >10 from occlusion of MCA with LCB.

• Additionally, we like to report the functional outcome
Methods

• Based on institutionally approved protocol patients with LAO (ICA-T, MCA, vertebral-basilar artery) with LCB within 3 hours were offered primary stent retriever thrombectomy (SRT) as an alternative to IV rtPA, after informed consent.

• Prospectively maintained stroke database, consecutive patients who underwent primary MCA SRT within 3 hours from 2012 to 2014 were analyzed using SAS software.

• Outcomes were measured using modified Rankin Scale (mRS)
Procedure

• We kept the procedure very simple
• Selected patient received 300 mg to 600 mg rectal aspirin
• Blood pressure kept between SBP140 -180 mm Hg
• Conscious sedation
• 8F balloon guide, microcatheter and stent retriever device
• Post procedure SBP 120 -160 mm Hg
• Aspirin and plavix If no hemorrhage in 24 hours CT head
Results

- 10 patients with MCA occlusion; mean age 65±15.87 years and mean NIHSS 16±5; chose primary SRT after informed consent.
- Thrombectomy was performed using new generation stent-retriever device in addition to intra-arterial rtPA (2-4 mg).
- Number of passes was 1.4±.7.
- Near complete (TICI2b1) and complete (TICI3 9) recanalization was observed in all (100%) patients.
- Mean time to recanalization from symptoms onset was 160±37 minutes.
Results

• Immediate post-thrombectomy, 24 hour and 30 day NIHSS score was $2.6 \pm 1.4$, $1.9 \pm 3.7$ and 0 respectively.

• There was no procedure related complication.

• Asymptomatic perfusion related hemorrhage developed in 3 patients (33%).

• 30 day good outcome was observed in all cases (mRS0=30%, mRS1=50%, mRS2=20%)
Figure 1: Before and after primary SRT
Figure 2: After primary SRT; clot in the stent retriever device
Figure 3: Before and after primary SRT: Right MCA occlusion with NIHSS 19
Figure 4: Clot in the stent retriever device after primary SRT
Conclusion

• Our pilot study demonstrates that primary SRT in AIS due to MCA occlusion with LCB is not only safe and feasible, but associated with complete recanalization and good functional outcome.
Future studies

- Primary Acute Stroke thrombectomy In 3 Hours (PAST3) – A Pilot Trial

- We will compare PAST3 with those either IV rtPA or IV rtPA followed by thrombectomy

- Larger randomized controlled studies are needed.
References


- Villwock MR1, Singla A, Padalino DJ, Deshaies EM.
