Hyperacute Stenting for Acute Ischemic Stroke Is Associated with a High Rate of Symptomatic Intracranial Hemorrhage

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Introduction
• Successful recanalization of occluded intracranial arteries is associated with improved outcome after acute ischemic stroke (AIS).1-3 but many treatments fail to recanalize large arteries.4
• Numerous endovascular therapies have been attempted to recanalize occluded vessels in AIS patients who have persistent neurological deficits despite IV rtPA or as primary therapy when IV rtPA is contraindicated.4,6
• Some stroke centers have tried acute stenting for recanalization in hyperacute AIS patients when other measures fail.7,12
• We report our single-center series of AIS patients who had hyperacute stenting.

Methods
• We performed a retrospective chart review of 24 consecutive AIS patients who underwent hyperacute stenting from February 2009 to January of 2011.
• We excluded patients stented 8 or 24 hours after anterior circulation or posterior circulation strokes respectively.
• In our institution, we always administer full dose IV rtPA of 0.9 mg/kg to eligible AIS patients within 4.5 hours of stroke onset.
• Diagnostic angiography is performed in all patients with AIS and National Institutes of Health Stroke Scale (NIHSS) ≥ 8 and when there is lack of rapid improvement within 1 hour of IV rtPA administration.
• In most patients, stent placement is only attempted after failure of other endovascular procedures.
• Acute stent thrombosis is seen sometimes on follow-up angiography and is usually followed-up with the use of other modalities including intra-arterial (IA) rtPA, angioplasty and/or IA abciximab infusion.
• Patients who have not been previously on anti-platelet agents are usually given a weight based loading dose of abciximab followed by a weight based IV infusion in addition to a loading dose of clopidogrel 600 mg and aspirin 650 mg.

Results
• We summarized our demographic data in Table 1 and our patient outcomes in Table 2.
• Our endovascular treatment with acute stenting was effective in recanalization of acute arterial occlusions with 84% partial or complete recanalization.4-6
• Symptomatic ICH (sICH) was 21% and poor outcomes related to discharge disposition was 67% in our patient population.

Discussion
• When compared to prior prospective studies involving IV rtPA as well as endovascular treatment, our patients had a higher rate of symptomatic ICH. The reasons for the trend are uncertain, but may relate to a number of factors including: long time to recanalization, severe strokes, use of combined aspirin and Plavix load, glycoprotein IIb/IIIa inhibitor use, concurrent IV thrombolysis, and other mechanical devices; however, none of these were predictors of sICH in our univariate analysis (Table 3).
• We often loaded clopidogrel and aspirin to prevent in-stent thrombosis.
• The use of multi-modality reperfusion therapy, not involving stenting, has not been linked to an increased incidence of sICH,14 which is in contrast to our study demonstrating a high risk of sICH.

Conclusions
• Hyperacute stenting for patients with AIS and persistent large vessel occlusion was associated with a high sICH rate, and overall poor patient outcomes.
• Therefore, prospective data collection may be indicated to determine the best techniques, antiplatelet loading regimen, and stent types.

References
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