Treating strokes from acute ICA occlusion requires a multi-disciplinary approach

Technical plan and results

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Disclosures

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Background

Patients with acute ICA occlusion and distal (intracranial) embolization represent a challenging clinical scenario

Clot retrieval devices enhance the ability to remove intracranial thrombus

What is the optimal solution for the extracranial ICA post-angioplasty in patients with occlusion secondary to carotid ASO?
Background

Clopidogrel:
Superior to ASA alone in CAS

DAPT
Decreases recurrent cerebral events in symptomatic patients prior to CEA
Reduced stroke risk to due post-CEA ICA thrombosis

May increase bleeding risk in patients having CAS in the acute setting with CVA and intracranial intervention

1. Eur J Vasc Endovasc Surg 2005
2. Sem in Vasc Surg 2017

Methods

Retrospective analysis from a prospective database
IRB approval (Jan 2012 – Feb 2017)

Two groups:
Initial cohort N = 17
ICA: PTA + CAS
ASA + clopidogrel
NIR noticed increased incidence of ICH

Subsequent cohort N = 21
ICA: PTA alone / provisional CAS
ASA (without clopidogrel)
CEA

Demographics

No difference in:
NIHSS
Medical comorbidities
Pre-intervention IV t-PA
Thrombus location
Time to reperfusion

No patients received IA-tPA

ICA Occlusion

Solitaire stent retriever device preferred in first part of study
A Direct Aspiration First Pass Technique (ADAPT) preferred in latter 2/3 of the experience

ICA Occlusion

Intracranial Hemorrhage (ICH)

Group I (N = 17)
10 patients had PTA of the ICA
9 had CAS

Group II (N = 21)
12 patients had PTA of the ICA
4 patients had CAS
3: intra-procedural ICA re-occlusion
1: suboptimal PTA result

Group I
ICH: 58%
Subarachnoid hemorrhage (N = 3)
Intracranial hemorrhage (N = 5)

Group II
ICH: 4.8%
1 SAH from iatrogenic ICA rupture
ICA Occlusion
Mortality

Group 1:
4 deaths (23.5%)
2 Large SAH
1 Large infarct
1 Respiratory failure

Group 2:
1 death (3.7%)
Following prolonged LOS, unsuccessful reperfusion

CEA

Group I: One patient with restenosis following PTA alone (< one year)

Group II: 8 patients had CEA
No stroke, death, MI, cranial nerve injury

Subsequent experience
Feb 2017 – Sept 2018

14 patients

1: PTA alone: acute occlusion (asymptomatic)

6: CAS for unsatisfactory result following PTA
1: acute stent occlusion
1: Large ICH

7: CEA
One complicated by cerebral hyperperfusion and seizures (Rx: medical)

Conclusions

Patients with acute ICA occlusion and distal embolization are an incredibly challenging group

In our experience: high rate of ICH in those patients having immediate CAS + dual anti-platelet Rx
Conclusions

Patients with a satisfactory result from ICA PTA alone:
- Converted to a symptomatic ICA stenosis
- Safely treated with CEA
- Reduced risk of intracranial bleeding

Limited initial experience
Multi-disciplinary approach is imperative