

Endovascular therapy: Start with IV tPA or go directly to the catheter lab?

Argument: Straight to the catheter lab.

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The recent compelling evidence of intra-arterial therapies in acute ischemic stroke have urged the revision of local algorithms in stroke units across the globe. In fact, in the presence of a proximal intracranial occlusion endovascular treatments reached unprecedented hemodynamic and functional efficacy in an otherwise problematic clinical scenario. Up until recently, the attempt to reperfuse the symptomatic area was limited to the "old" intravenous infusion of alteplase (IVtPA). Albeit its merits, the clinical impact caused is significantly impaired due to its narrow therapeutic window, extensive list of contra-indications and limited efficacy in large vessel occlusions.

In acute ischemic stroke with salvageable cerebral tissue a simplistic and pragmatic approach could define three main clinical scenarios: patients with contra-indication to IVtPA, patients with and those without large-vessel occlusions. For the first clinical scenario the answer is straightforward: to the catheter lab in all those with proximal occlusions. The answer is more troublesome in the advent of a large vessel occlusion without contra-indication to IVtPA. In this setting IVtPA has a reported recanalization rate of 10-20% with very limited clinical impact. On the other hand, it is not without side effects in the ischemic area, in remote cerebral areas as well as other organs susceptible to bleeding, not rarely in uncompressible locations. Ultimately, it may represent exposing the patient to potentially severe risks for minimal impact in the ischemic brain. For patients without proximal intracranial occlusions IVtPA is highly efficacious, rendering intra-arterial therapies as unnecessary.

In conclusion, IVtPA will remain the mainstay of acute stroke treatment for all those with clear clinical indications. However, the advent of intra-arterial therapies has had a dramatic impact on stroke algorithms worldwide. Particularly, in the subset of patients with large vessel occlusions the option of going straight to the catheter laboratory is appealing as it would prevent the use of a marginally effective therapy with rare but potentially severe complications, promoting the need for urgent intra-arterial recanalization.