We have had a longstanding interest in the use of intra-arterial thrombolytic therapy for vertebrobasilar thrombosis, given the very poor prognosis of most patients and uncertainties about the benefits of intervention. As indicated by our protagonists, there is a very strong relationship between recanalization and improved outcomes that is well established. Key issues which remain unresolved include the method of recanalization (intravenous, intra-arterial thrombolysis, mechanical or a combination), the time window within which this should occur and clinical eligibility criteria, for example very mild versus very severe cases.

Unequivocally, these uncertainties should be addressed in further randomized, controlled trials. We think the opportunity here is to test hypotheses concerning the safest and most effective way of achieving rapid recanalization. Despite the lack of level 1 evidence for interventional therapy, Schellinger and Hacke have highlighted the ethical dilemma faced by experienced investigators in randomizing patients with basilar occlusion to a noninterventional arm. Conversely, Ford has pointed out that most centers worldwide do not have access to an intra-arterial approach, and there is some evidence that intravenous therapy may be equally effective.

Although the evidence is based largely on small case series, the time window for the benefit of recanalization in vertebrobasilar ischemia does seem to be longer than for the anterior circulation. This might relate to better collateral circulation and the higher resistance to ischemia of white compared with gray matter. The time window is unclear, but in the Australian Urokinase Stroke Trial (AUST), a 24-hour window for IA thrombolysis was not associated with an increased rate of adverse outcomes.

What should a clinical trial for vertebrobasilar thrombosis look like? We would screen patients with noninvasive imaging (CT angiography, MR angiography, transcranial Doppler ultrasonography) to detect patients with occlusive disease. We would advocate a long time window of 24 hours, with stratification for time and stroke severity. The interventions could include mechanical devices, intra-arterial thrombolysis, intravenous thrombolysis or a bridging approach involving combinations of these. The demonstration of superiority of one of these approaches would provide the first level 1 evidence to really change clinical practice. The interventional technologies are available, the clinical problem remains unsolved, and the time for a trial is now.

References


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Basilar Artery Thrombosis: Recanalization Is the Key
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