

Australasian College
for Emergency Medicine

Position Statement

IV thrombolysis for ischaemic stroke

This statement documents the views of the Australasian College for Emergency Medicine (ACEM) with respect to intravenous thrombolysis therapy for acute ischaemic stroke. In doing so it recognises the diversity of settings in which thrombolysis may be delivered, and the extent to which emergency medicine physicians may be involved, varying substantially between metropolitan and rural centres.

Intravenous thrombolysis as an intervention for acute stroke, administered to selected patients within three hours of symptom onset, may increase the odds of a better functional outcome. This is despite thrombolysis in stroke increasing the risk of intracranial haemorrhage and conferring no mortality benefit. [3]

ACEM considers that discussion with patient and family/carers by the treating clinicians and informed consent is vital to any decision about use of thrombolytic therapy in stroke. In recognition of conflicting evidence and controversy regarding the administration of intravenous thrombolysis as an intervention for acute ischaemic stroke [1,2], in 2016 ACEM commissioned an independent systematic review of the relevant scientific literature. This review found that, with respect to evidence available at that time, intravenous thrombolysis as an intervention for acute stroke, administered to selected patients within three hours of symptom onset, may increase the odds of a better functional outcome, while at the same time increasing the risk of intracranial haemorrhage and conferring no mortality benefit. [3] The review raised concerns about the quality of many of the studies.

In 2021 the situation remains both complex and controversial, with opinions on how to interpret data on thrombolysis widely varying. With advances in neuroimaging, neurological interventions and critical care models, the management of acute ischaemic stroke has evolved. Many large centres have stroke teams with a clear approach which is 'owned' by the neurology/interventional radiology teams (and facilitated by the emergency department). The approach to care will be different in those centres to others. In some regional centres, stroke thrombolysis decision making is now made by local and district wide neurology services.

While ACEM recognises that there is an ever-changing landscape in relation to acute stroke care, the College believes that the conclusions of the independent review remain valid in terms of the current scientific position on stroke thrombolysis.

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Document review

Timeframe for review:	Every three years, or earlier if required.
Document authorisation:	Council of Advocacy, Practice and Partnerships
Document implementation:	Research Committee
Document maintenance:	Department of Policy, Research and Partnerships

Revision history

Version	Date	Pages revised / Brief explanation of revision
V1	Jul-12	Approved by Council
V2	Mar-14	Approved by Council
V3	Nov-16	Approved by CAPP Template updated. 'Background' expanded to include reference to the Systematic Review. 'Recommendations' expanded to include further information regarding mortality benefit, NNT and risk of sICH. Dot point three under 'Definitions' edited to incorporate specialist services with expertise relating to neuroimaging.
V4	Aug-17	Approved by CAPP Statement updated due to publication of Stroke Foundation Guidelines 2017.
V5	Jul-21	No change to ACEM position. Changes to background and addition of conclusion in order to update context. Updating of Section 6 in line with recommendation in Stroke Foundation Guidelines. Updating of references

Scope

This statement applies to all emergency departments with the potential to receive patients suffering from an acute stroke.

Recommendations

ACEM considers the minimum infrastructure required for stroke thrombolysis to be an appropriately skilled and adequately resourced ED in conjunction with a stroke care service as defined in Section 6.

Consent information should be structured to enable layperson understanding of the key clinical issues and risks associated with the therapy. Key issues to be discussed with patient, tailored to their clinical situation, may include:

- Thrombolysis provides no mortality benefit.
- Numbers needed to treat (NNT) to achieve functional independence, as measured by modified Rankin Scale (mRS) outcome of 0-1, is 10 (i.e. 10 patients needed treatment for one additional good functional outcome, 95%CI 19 to 6). However, NNT to achieve functional independence, as measured by mRS outcome of 0-2, is 13 (95%CI 29 to 8).
- Treatment has a risk of causing a symptomatic intracranial haemorrhage (sICH), with numbers needed to harm (NNTH) being 42 (i.e. 42 patients needed treatment for one to experience sICH), and 122 for risk of death from sICH. It should be acknowledged that there is wide variation in the literature regarding the NNTH with the confidence intervals ranging from 119 to 13 for sICH and 830 to 30 for death.
- There is disagreement about the strength of the evidence.

ACEM notes that the independent review on stroke thrombolysis raised concerns about the quality of many of the studies, and strongly supports replication research into stroke thrombolysis; i.e. further placebo controlled clinical trials to reduce the current uncertainty.

Context for the provision of thrombolysis

Thrombolysis should be undertaken in a setting with appropriate infrastructure, facilities and network support (for example, via telemedicine) including:

- access to an interdisciplinary acute care team with expert knowledge of stroke management, who are trained in delivery of thrombolysis and monitoring of patients receiving thrombolytic therapy;
- a streamlined acute stroke assessment workflow (including ambulance pre-notification, code stroke team response and direct transport from triage to CT scan) to minimise treatment delays, and protocols available to guide medical, nursing and allied health acute phase management;
- immediate access to imaging facilities and staff trained to interpret images;
- routine data collected in a central register to allow monitoring, benchmarking and improvements of patient outcomes over time for those treated with reperfusion.⁴

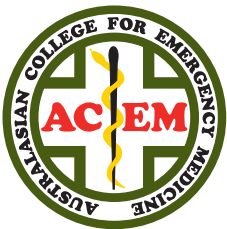
Conclusion

Despite the publication of further clinical trials results^{5,6} and systematic reviews/meta-analyses^{7, 8, 9, 10, 11, 12, 13} there remains debate around whether thrombolysis should be the initial treatment in eligible patients presenting with an acute ischemic stroke, with disparate views being held by experts.¹⁴

Without further large-scale and rigorous studies, another College-commissioned systematic literature review or meta-analysis is unlikely to clarify the position further at this point.

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