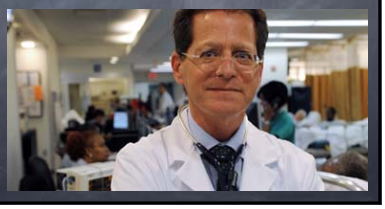
Disclosures

tPA is an Effective, Proven Therapy for Acute Stroke



NEUROLOGY/CLINICAL POLICY

Clinical Policy: Use of Intravenous tPA for the Management of Acute Ischemic Stroke in the Emergency Department

This clinical policy is the result of a collaborative project of the American College of Emergency Physicians and the American Academy of Neurology.

Ann of EM 2013

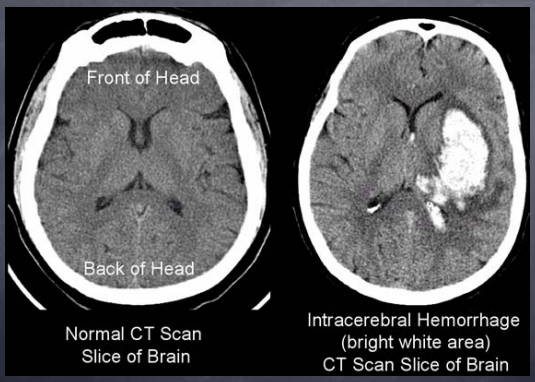
Patient Management Recommendations

Level A recommendations. In order to improve functional outcomes, IV tPA should be offered to acute ischemic stroke patients who meet National Institute of Neurological Disorders and Stroke (NINDS) inclusion/exclusion criteria and can be treated within 3 hours after symptom onset.*

Level B recommendations. In order to improve functional outcomes, IV tPA should be considered in acute ischemic stroke patients who meet European Cooperative Acute Stroke Study (ECASS) III inclusion/exclusion criteria and can be treated between 3 to 4.5 hours after symptom onset.*

*The effectiveness of tPA has been less well established in institutions without the systems in place to safely administer the medication.

BAD MEDICINE



BACK TO THE FUTURE

Randomised controlled trial of streptokinase, aspirin, and combination of both in treatment of acute ischaemic stroke

MAST-I Lancet 1995

Tx Time < 6 hours
Streptokinase
No Benefit

Intravenous Thrombolysis With Recombinant Tissue Plasminogen Activator for Acute Hemispheric Stroke
The European Cooperative Acute Stroke Study (ECASS)

ECASS I JAMA 1995

Tx Time < 6 hours
Streptokinase
No Benefit

Volume 333 DECEMBER 14, 1995 Number 24

TISSUE PLASMINOGEN ACTIVATOR FOR ACUTE ISCHEMIC STROKE

THE NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE rt-PA STROKE STUDY GROUP*

Two Studies

Part 1 - 291 patients
Time < 3 hours
Outcome - 24 hours
No Benefit

Part 2 - 333 patients
Time < 3 hours
Outcome - 90 days
NNT = 8

ICH 6.4% vs. 0.6%
NNH = 16

NEJM
1995

American Heart Association®

THROMBOLYTIC THERAPY WITH STREPTOKINASE IN ACUTE ISCHEMIC STROKE

THE MULTICENTER ACUTE STROKE TRIAL — EUROPE STUDY GROUP*

MAST-E NEJM 1996

Tx Time < 6 hours
Streptokinase
HARM - STOPPED EARLY

Streptokinase for Acute Ischemic Stroke With Relationship to Time of Administration

ASK JAMA 1996

Tx Time < 4 hours
Streptokinase
HARM - STOPPED EARLY

Randomised double-blind placebo-controlled trial of thrombolytic therapy with intravenous alteplase in acute ischaemic stroke (ECASS II)

ECASS II Lancet 1998

Tx Time < 6 hours
Alteplase
No Benefit

Recombinant Tissue-Type Plasminogen Activator (Alteplase) for Ischemic Stroke 3 to 5 Hours After Symptom Onset

ATLANTIS B JAMA 1999

Tx Time < 6 hours
Alteplase
HARM - STOPPED EARLY

The rtPA (Alteplase) 0- to 6-Hour Acute Stroke Trial, Part A (A0276g) : Results of a Double-Blind, Placebo-Controlled, Multicenter Study

ATLANTIS A Stroke 2000

Tx Time < 6 hours
Alteplase
HARM - STOPPED EARLY

Intravenous desmoteplase in patients with acute ischaemic stroke selected by MRI perfusion–diffusion weighted imaging or perfusion CT (DIAS-2): a prospective, randomised, double-blind, placebo-controlled study

DIAS-2 Lancet Neurol 2009

Tx Time 3 - 9 hours
Desmoteplase
No Benefit

Thrombolysis with Alteplase 3 to 4.5 Hours after Acute Ischemic Stroke

Treatment Time: 3 - 4.5 hours

Outcome: More favorable neuro outcome, no mortality difference

NNT = 15

NEJM 2008

Modified Rankin Scale

0 - No Symptoms

1 - No significant disability

2 - Slight disability

3 - Moderate disability (can walk unassisted)

4 - Moderately Severe disability

5 - Severe disability

6 - Dead

Modified Rankin Scale

0 - No Symptoms

1 - No significant disability

2 - Slight disability

3 - Moderate disability (can walk unassisted)

4 - Moderately Severe disability

5 - Severe disability

6 - Dead

The benefits and harms of intravenous thrombolysis with recombinant tissue plasminogen activator within 6 h of acute ischaemic stroke (the third international stroke trial [IST-3]): a randomised controlled trial

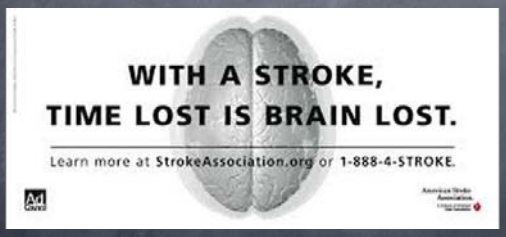
Treatment Time: 0 - 6 hours

Outcome: No diff in primary outcome

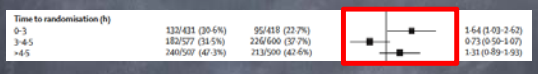
Short Term Mortality Incr by 4%

Lancet 2012

No Benefit	Harm	Benefit
MAST-I	MAST-E	NINDS II
ECASS I	ASK	ECASS III
NINDS I	ATLANTIS B	
ECASS II	ATLANTIS A	
DIAS		
IST-3		



The benefits and harms of intravenous thrombolysis with recombinant tissue plasminogen activator within 6 h of acute ischaemic stroke (the third international stroke trial [IST-3]): a randomised controlled trial



Lancet 2012

Thrombolysis for acute ischaemic stroke

Joanna M Wardlaw[1], Veronica Murray[2], Eivind Berge[3], Gregory J del Zoppo[4]

NO DIFFERENCE ACROSS TIME WINDOWS

Cochrane Database 2009

AN INTERNATIONAL RANDOMIZED TRIAL COMPARING FOUR THROMBOLYTIC STRATEGIES FOR ACUTE MYOCARDIAL INFARCTION

THE GUSTO INVESTIGATORS*

Table 3. Incidence of Stroke and Bleeding Complications.

Event	Streptokinase and Subcutaneous Heparin	Streptokinase and Intravenous Heparin	Accelerated t-PA and Intravenous Heparin	Both Thrombolytic Agents and Intravenous Heparin	P Value, Accelerated t-PA vs. Both Streptokinase Groups
			percent of patients		
Stroke	N = 9709	N = 10,314	N = 10,268	N = 10,248	
Hemorrhagic	0.49	0.54	0.72	0.94	0.03
With conversion to hemorrhagic	0.04	0.05	0.06	0.08	0.62
Unknown type	0.15	0.16	0.13	0.10	0.54
Bleeding	N = 8663	N = 9249	N = 9222	N = 9184	

NEJM 1993

Thrombolysis (different doses, routes of administration and agents) for acute ischaemic stroke

Joanna M Wardlaw[1], Panos Kounellis[2], Ming Liu[3]

NO EVIDENCE THAT ONE LYTIC AGENT BETTER THAN ANOTHER

Cochrane Database 2013

Volume 333 DECEMBER 14, 1995 Number 24

TISSUE PLASMINOGEN ACTIVATOR FOR ACUTE ISCHEMIC STROKE

THE NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE rt-PA STROKE STUDY GROUP*

NEJM 1995

No Benefit	Harm	Benefit
MAST-I	MAST-E	NINDS II
ECASS I	ASK	ECASS III
NINDS I	ATLANTIS B	
ECASS II	ATLANTIS A	
DIAS		
IST-3		

Use of Tissue-Type Plasminogen Activator for Acute Ischemic Stroke
The Cleveland Area Experience

JAMA 2000

Neurocrit Care (2007) 7:103–108
DOI 10.1007/s12028-007-0065-1

ORIGINAL ARTICLE

Determining Intravenous rt-PA Eligibility in the Emergency Department

Amy C. Meseguí · Devin L. Brown · Lynda D. Lisabeth · William G. Barsan · Robert Silbergleit · Susan L. Hickenbottom · Phillip A. Scott · Lewis B. Morgenstern

Neuro Crit Care 2007

Review, Historical Context, and Clarifications of the NINDS rt-PA Stroke Trials Exclusion Criteria
Part 1: Rapidly Improving Stroke Symptoms

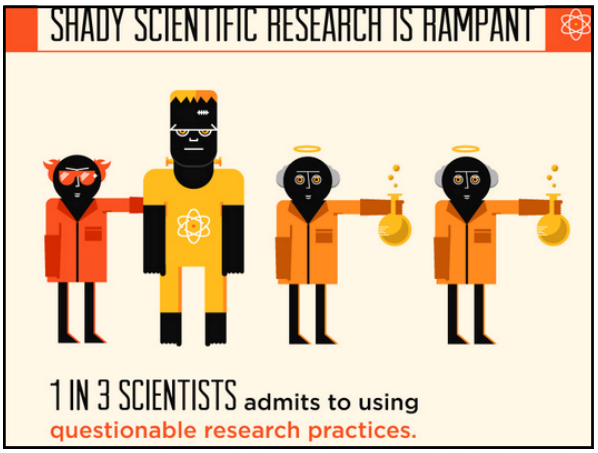
The Re-examining Acute Eligibility for Thrombolysis (TREAT) Task Force: Steven R. Levine, MD (Co-Chair); Pooja Khatri, MD, MSc (Co-Chair); Joseph P. Broderick, MD; James C. Grotta, MD; Scott E. Kasner, MD, MSCE; Doojin Kim, MD; Brett C. Meyer, MD; Peter Panagos, MD; Jose Romano, MD; Phillip Scott, MD; NINDS rt-PA Stroke Trial Investigators*

Stroke 2013

TPA for TIA: The case for "off-label" use of thrombolytics

Sobel Richard M MD, MPH, Wu Daniel T MD, Hester Kristina MD, Anda Kim RN

Am J EM 2013



No Benefit	Harm	Benefit
MAST-I	MAST-E	NINDS II
ECASS I	ASK	ECASS III
NINDS I	ATLANTIS B	
ECASS II	ATLANTIS A	
DIAS		
IST-3		

Send Questions to Twitter

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