

UPDATES IN ENDOVASCULAR STROKE THERAPY

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DISCLOSURES

- STRYKER NEUROVASCULAR – CONSULTANT
- BOEHRINGER INGELHEIM – SPEAKER'S BUREAU



IMMEDIATE DECISIONS

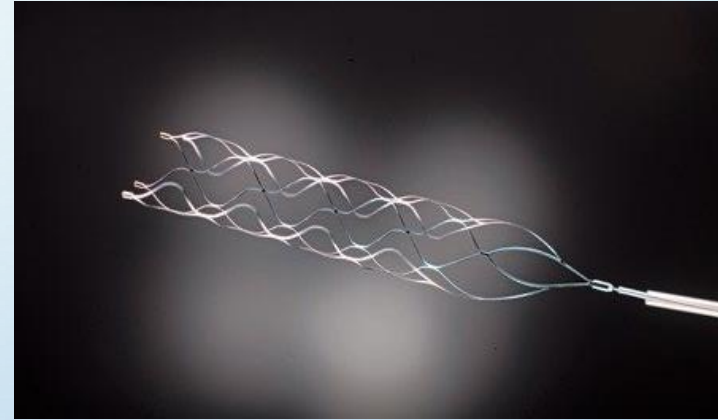


- STROKE INTERVENTION BEGINS THE MOMENT SYMPTOMS START
 - FAMILY MEMBER, FRIEND, STRANGER, TRANSFERRING NURSE, TRANSFERRING PHYSICIAN, EMS, ACCEPTING PHYSICIAN/NURSE/RESIDENT
- **~2 MILLION NEURONS DIE PER MINUTE**
- **MR CLEAN SHOWS A DECREASE IN EFFECT OF EVT ON GOOD OUTCOME OF 6.4% PER HOUR DELAY IN TIME TO REPERFUSION**

Stroke Trial	mTICI 2b/3	90 day mRS \leq 2	
		EVT	SC
IMS 3	23-44%	40.8%	48.7%
MR RESCUE	25%	12%	11%
SYNTHESIS-EXPANSION	Not reported	30.4%	34.8%
MR CLEAN	58.7%	32.6%	19.1%
SWIFT PRIME	88%	60%	35.5%
ESCAPE	72.4%	53%	29.3%
EXTEND-IA	86%	71%	40%
REVASCAT	66%	43.7%	28.2%

2015 AHA/ASA FOCUSED UPDATE OF 2013 GUIDELINES FOR EARLY MANAGEMENT OF PATIENTS WITH AIS REGARDING EVT

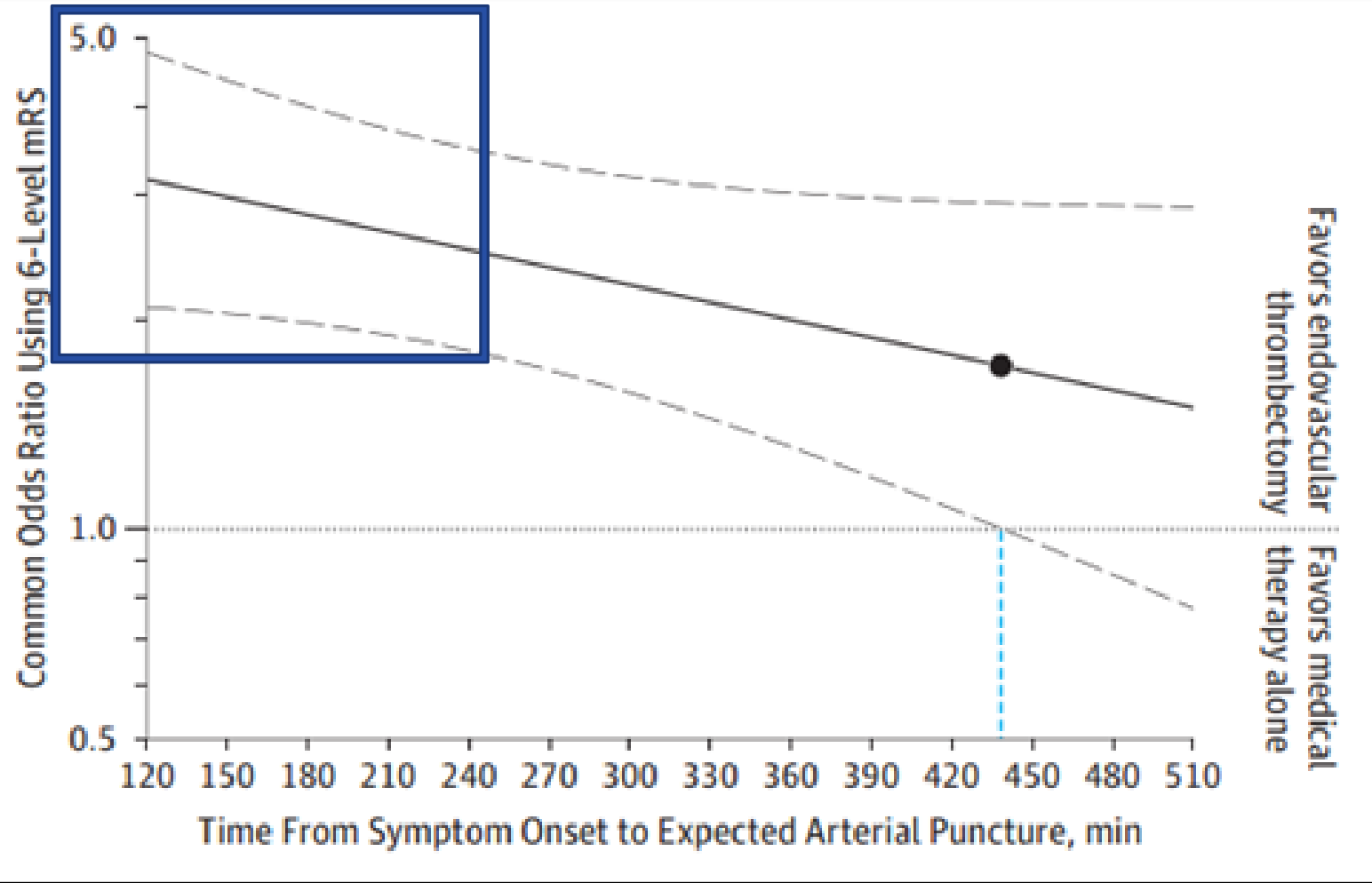
- EVT WITH STENT RETRIEVER
- (A) PRE-STROKE MRS ≤ 1
- (B) AIS RECEIVING IV TPA < 4.5 HOURS ACCORDING TO GUIDELINES
- (C) ICA/M1 OCCLUSION
- (D) ≥ 18 YEARS
- (E) **NIHSS ≥ 6**



- (F) ASPECTS ≥ 6
- (G) TREATMENT INITIATED (GROIN PUNCTURE) ≤ 6 HOURS
- **CLASS I, LEVEL OF EVIDENCE A**

Figure 1. Association of Time From Symptom Onset to Expected Time of Endovascular Thrombectomy Procedure Start (Arterial Puncture) With Disability Levels at 3 Months in Endovascular (n = 633) vs Medical Therapy (n = 645) Groups

A Odds ratio for less disability at 3 mo in endovascular thrombectomy vs medical therapy alone groups by time to treatment



- 1287 P
- TIME AT
- AT 7 HC

1.0 WAS

ORIGINAL RESEARCH

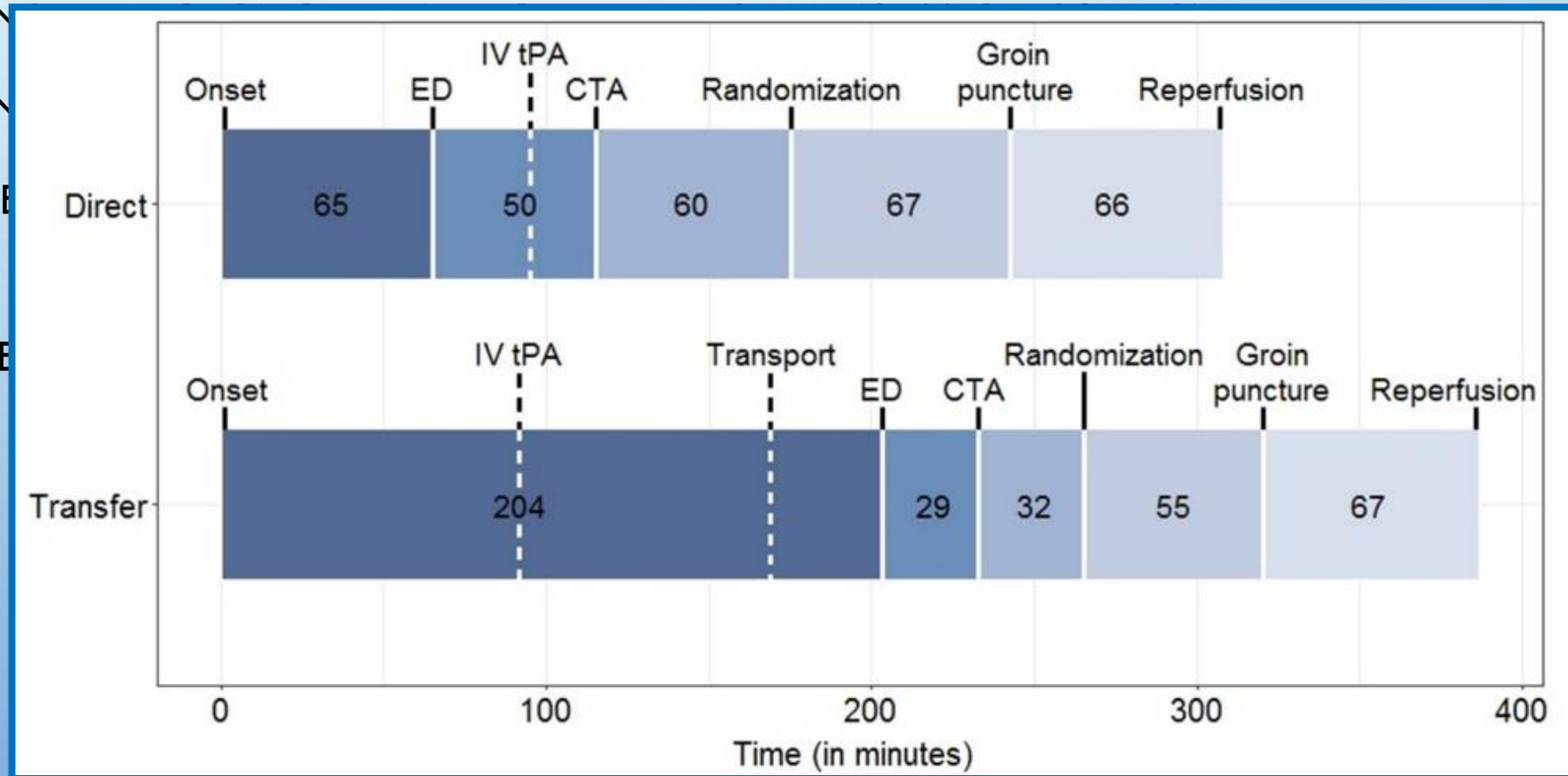
Workflow and factors associated with delay in the delivery of intra-arterial treatment for acute ischemic stroke in the MR CLEAN trial

Esmee Venema,^{1,2} Nikki Boodt,² Olvert A Berkhemer,^{3,4,5}
Pleunie P M Rood,⁶ Wim H van Zwam,⁴ Robert J van Oostenbrugge,⁷
Aad van der Lugt,³ Yvo B W E M Roos,⁸ Charles B L M Majoie,⁵ Hester F Lingsma,¹
Diederik W J Dippel,² on behalf of the MR CLEAN investigators

- ANALYZED EFFECT OF IV TREATMENT, GENERAL ANESTHESIA, OFF-HOURS, AND INTER-HOSPITAL TRANSFER ON TIME TO ADMISSION TO ED OF THE INTERVENTION CENTER (CSC) AND TIME TO TREATMENT

MR CLEAN WORKFLOW CON'TD

- INTER-HOSPITAL TRANSPORT
- INTER-HOSPITAL TRANSPORT
- TIME FROM ED TO TREATMENT (5-33)
- TOTAL TIME INCREASE



AHA/ASA EVT RECOMMENDATIONS

- EVT WITH SR MAY BE REASONABLE FOR CAREFULLY SELECTED PATIENTS WITH GROIN PUNCTURE ≤ 6 HOURS WITH **M2, M3, ACAS, VA, BA, OR PCAS** OCCLUSION (CLASS IIB; LEVEL OF EVIDENCE C)

Research

JAMA Neurology | **Original Investigation**

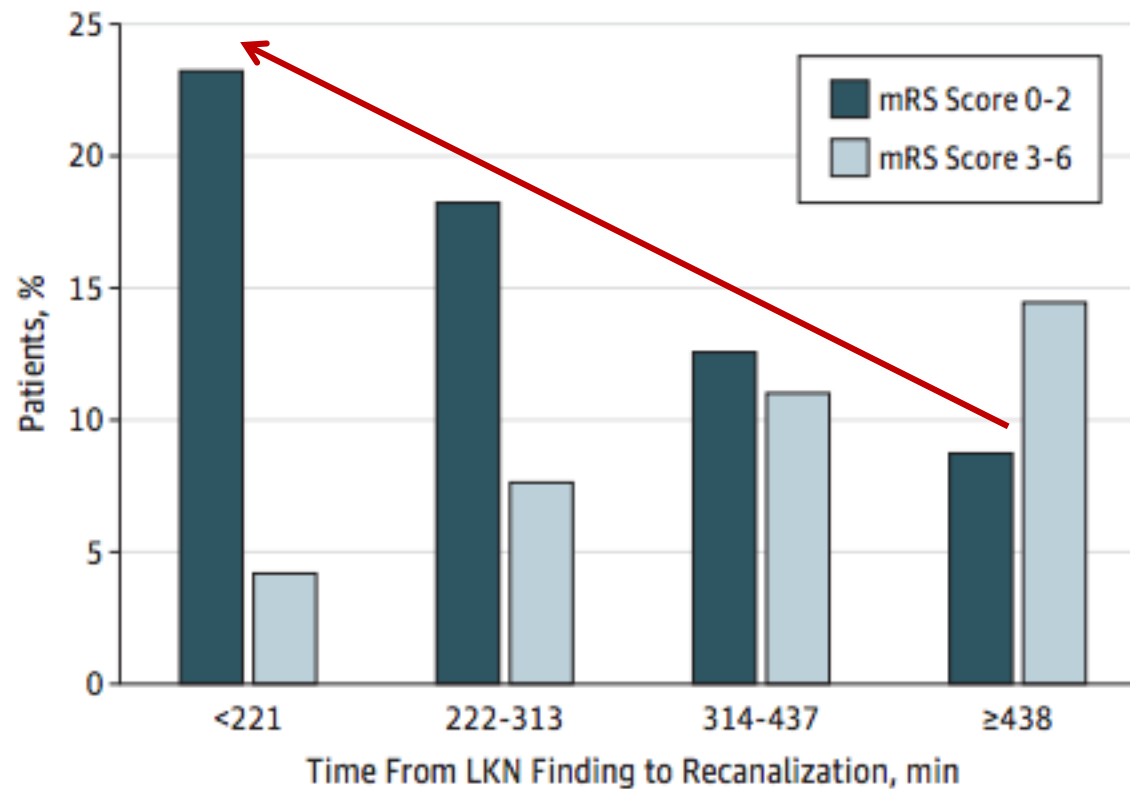
Endovascular Therapy for Acute Ischemic Stroke With Occlusion of the Middle Cerebral Artery M2 Segment

Amrou Sarraj, MD; Navdeep Sangha, MD; Muhammad Shazam Hussain, MD; Dolora Wisco, MD; Nirav Vora, MD; Lucas Elijevich, MD; Nitin Goyal, MD; Michael Abraham, MD; Manoj Mittal, MD; Lei Feng, MD; Abel Wu, MD; Vallabh Janardhan, MD; Suman Nalluri, MD; Albert J. Yoo, MD; Megan George, MD; Randall Edgell, MD; Rutvij J. Shah, MD; Clark Sitton, MD; Emilio Supsupin, MD; Suhas Bajgur, MD; M. Carter Denny, MD; Peng R. Chen, MD; Mark Dannenbaum, MD; Sheryl Martin-Schild, MD; Sean I. Savitz, MD; Rishi Gupta, MD

- 5 EVT TRIALS
 - 94 PTS (51 EVT)
- MULTICENTER (10) RETROSPECTIVE COHORT
- M2 SEGMENTS, 8 HOURS LKN
- 522 PATIENTS
- 288 EVT (SR, ASPIRATION, TPA), 234 MM

- BASELINE DEMOGRAPHICS
 - MM OLDER, M
 - NIHSS AND AS
- MRS ≤ 2 : 62.8%
- SICH (5.6% VS 2)
- 3.1 OR FOR EVT
- TREATMENT EFFECT

Figure 2. Clinical Outcomes of Patients in the Endovascular Therapy Group Related to Time



Clinical outcomes of 288 patients in the endovascular therapy group are given as modified Rankin Scale scores (range, 0-6, with lower scores indicating better outcomes) at 90 days stratified by time from the last known normal clinical status (LKN) to recanalization.

AHA/ASA EVT RECOMMENDATIONS CONT'D

- WHEN **TREATMENT INITIATED >6 HOURS FROM ONSET**, EFFECTIVENESS OF EVT UNCERTAIN FOR ICA/MCA OCCLUSION (CLASS IIB; LEVEL OF EVIDENCE C). ADDITIONAL RTC NEEDED.
- **BENEFITS OF IMAGING BEYOND CT/CTA OR MR/MRA → CTP/MRI-DWI/PWI FOR SELECTING PATIENTS FOR EVT UNKNOWN** (CLASS IIB; LEVEL OF EVIDENCE C). FURTHER RTC NEEDED TO DETERMINE WHETHER ABOVE ARE BENEFICIAL FOR SELECTING PATIENTS FOR EVT >6 HOURS FROM ONSET.

DAWN TRIAL

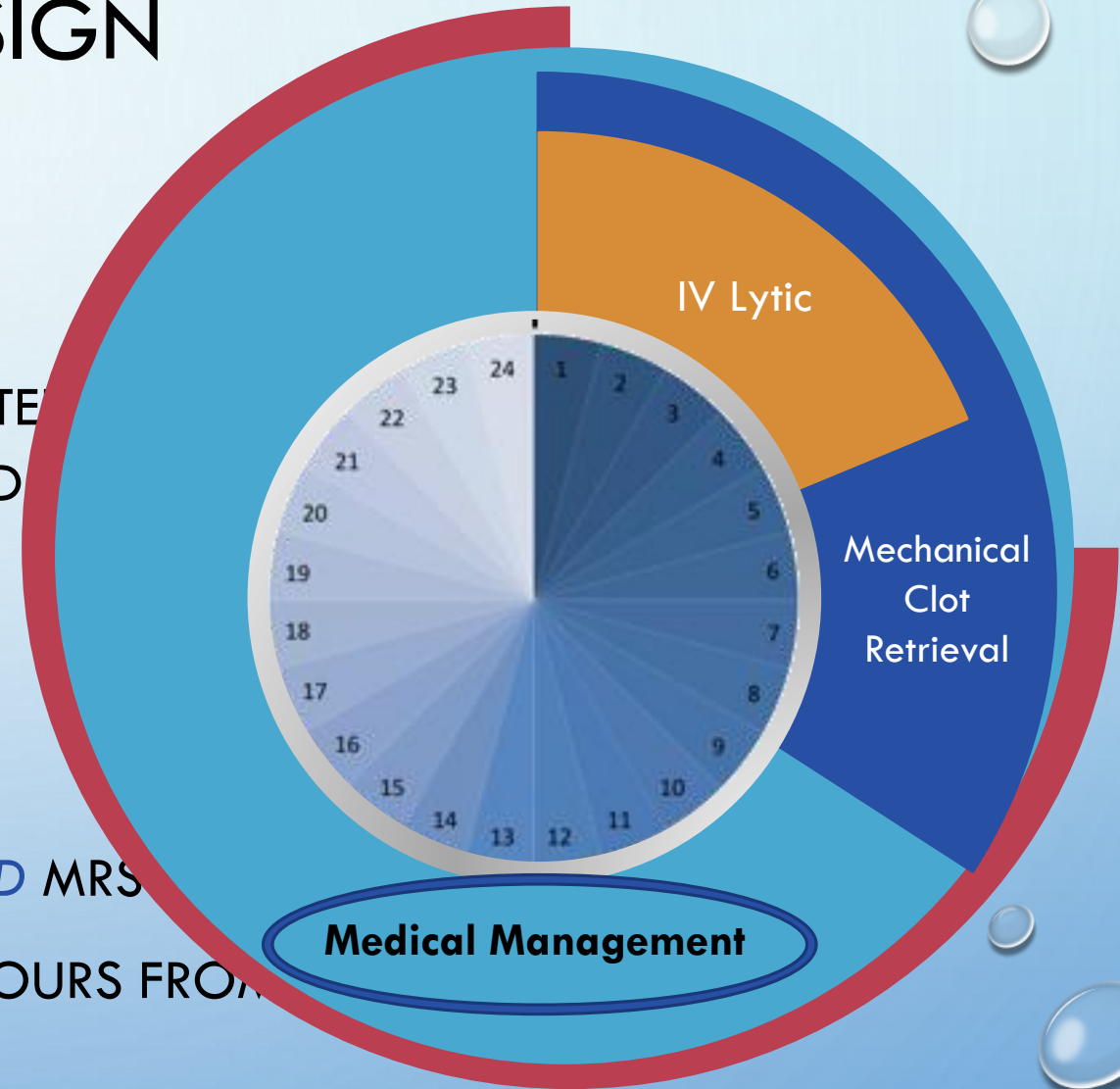
DWI or CTP Assessment with
Clinical Mismatch
in the Triage of
Wake-Up and Late Presenting
Strokes Undergoing
Neurointervention

Primary Objective

To evaluate the hypothesis that Trevo thrombectomy plus medical management leads to superior *clinical outcomes* at 90 days as compared with medical management alone in *appropriately selected* subjects experiencing an acute ischemic stroke when treatment is initiated within *6-24 hrs* after last seen well.

DAWN TRIAL DESIGN

- PROSPECTIVE, RANDOMIZED (1:1), MULTI-CENTER
ADAPTIVE, POPULATION ENRICHMENT, BLINDED
- UP TO 50 SITES (WORLDWIDE)
- GOAL OF 500 PATIENTS
- PRIMARY ENDPOINT
 - DIFFERENCE BETWEEN *AVERAGE WEIGHTED* MRS
- 20-30% OF AIS PATIENTS ARRIVE TO ED >8 HOURS FROM



[Kansas University Medical Center] RAPID Processing CBF<30.0% volume = 5 ml, Tmax>6.0s volume = 56 ml (success), AnonID 401_149

RAPID-KUMC [rapid@ischemaview.com]

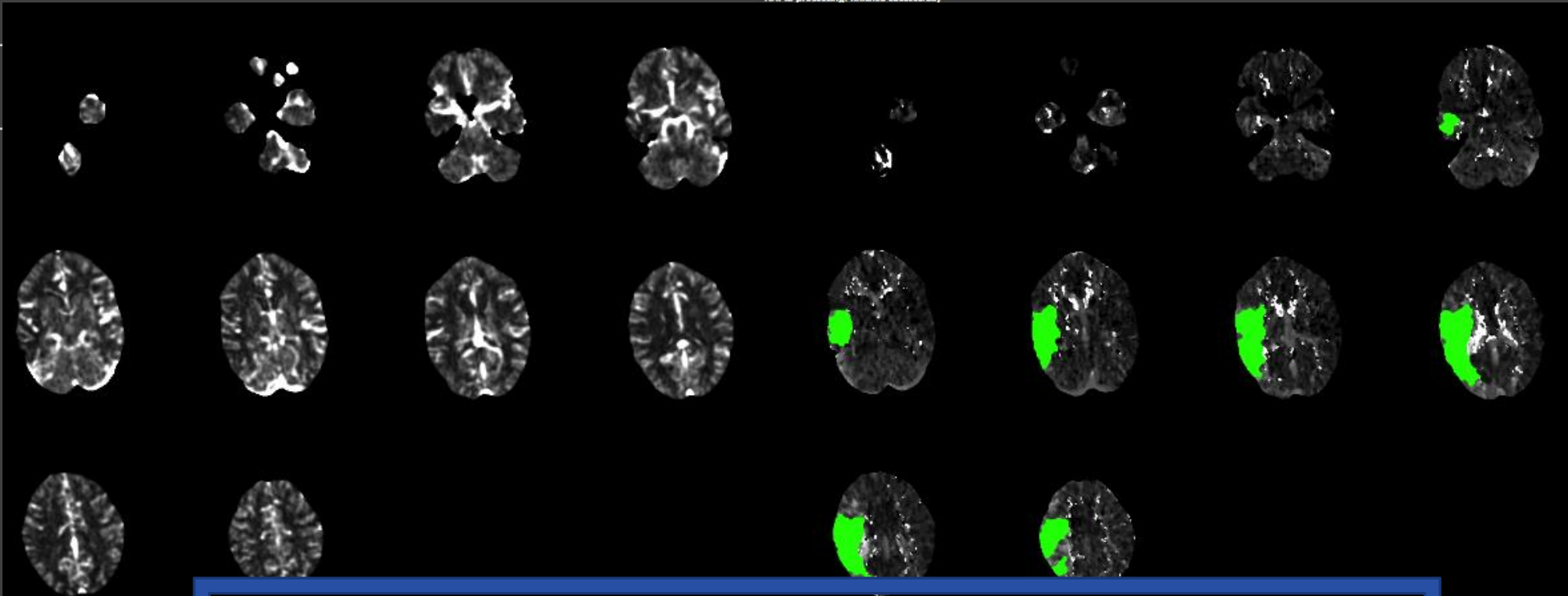
To: RAPIDKUMC [rapid@ischemaview.com]

Attachments: [2] Download all attachments

rapid_processing_log.txt (21 KB); CTP1.deconvheadwct.txt (1 KB)

RAPID processing: finished successfully

- R
- C
- E
- P
- C
- E



CBF<30% volume: 0 ml

Tmax>6.0s volume: 111 ml

Mismatch volume: 111 ml

Mismatch ratio: infinite

Co-primary endpoints

Pre a	Trevo	MM	Treatment benefit (95% CI)	Bayesian probability of superiority	
50					
45	Day 90	5.5 ± 3.8	3.4 ± 3.1	2.1	>0.9999*

BREAKING NEWS!

DMC votes to stop DAWN early for success

Dear DAWN Investigators and Coordinators:

The DAWN DMC met today, February 28, 2017, to review data from the first 200 subjects enrolled in the trial and has **voted to stop the trial early for success**, effective immediately.

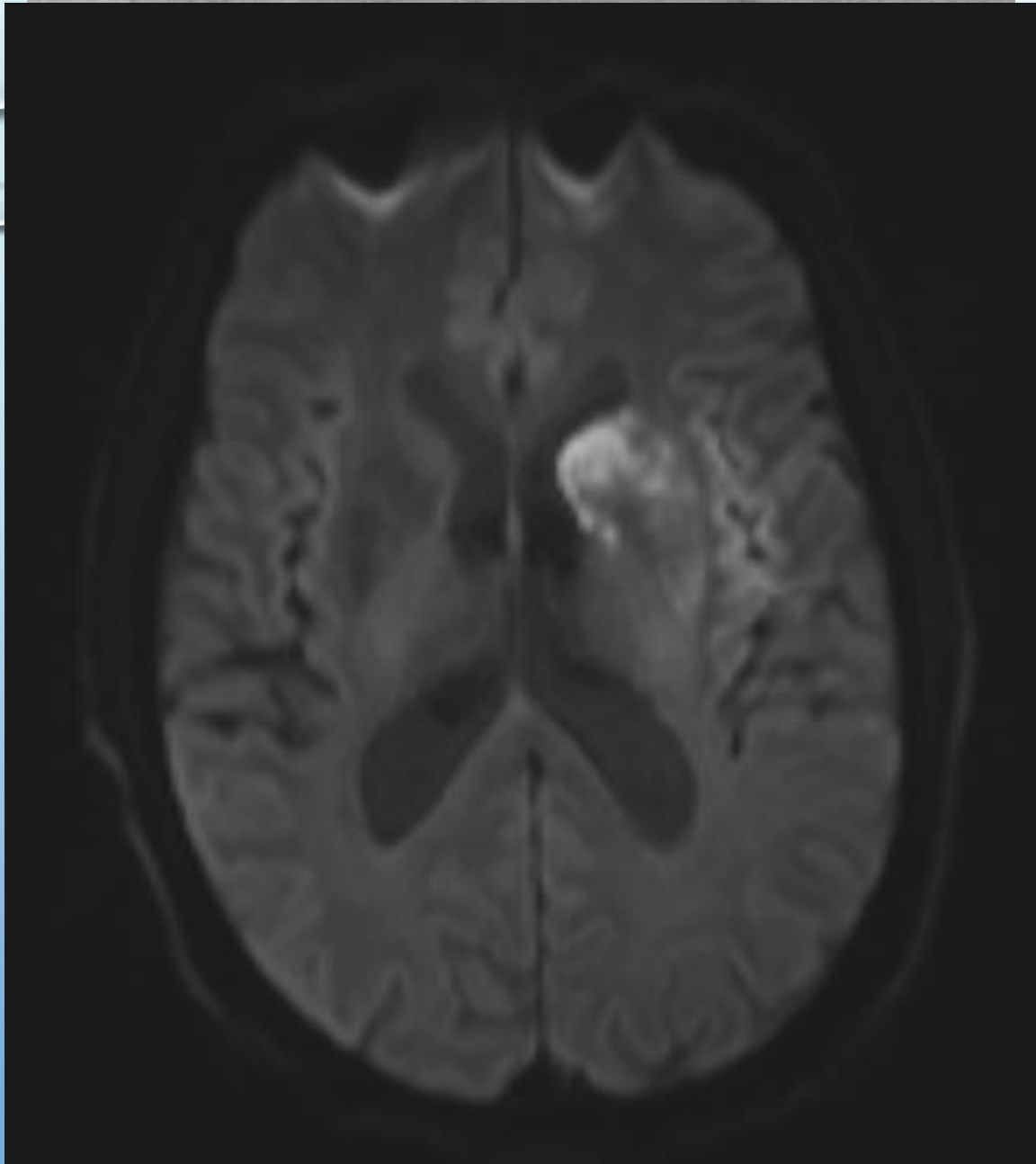
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Trevo

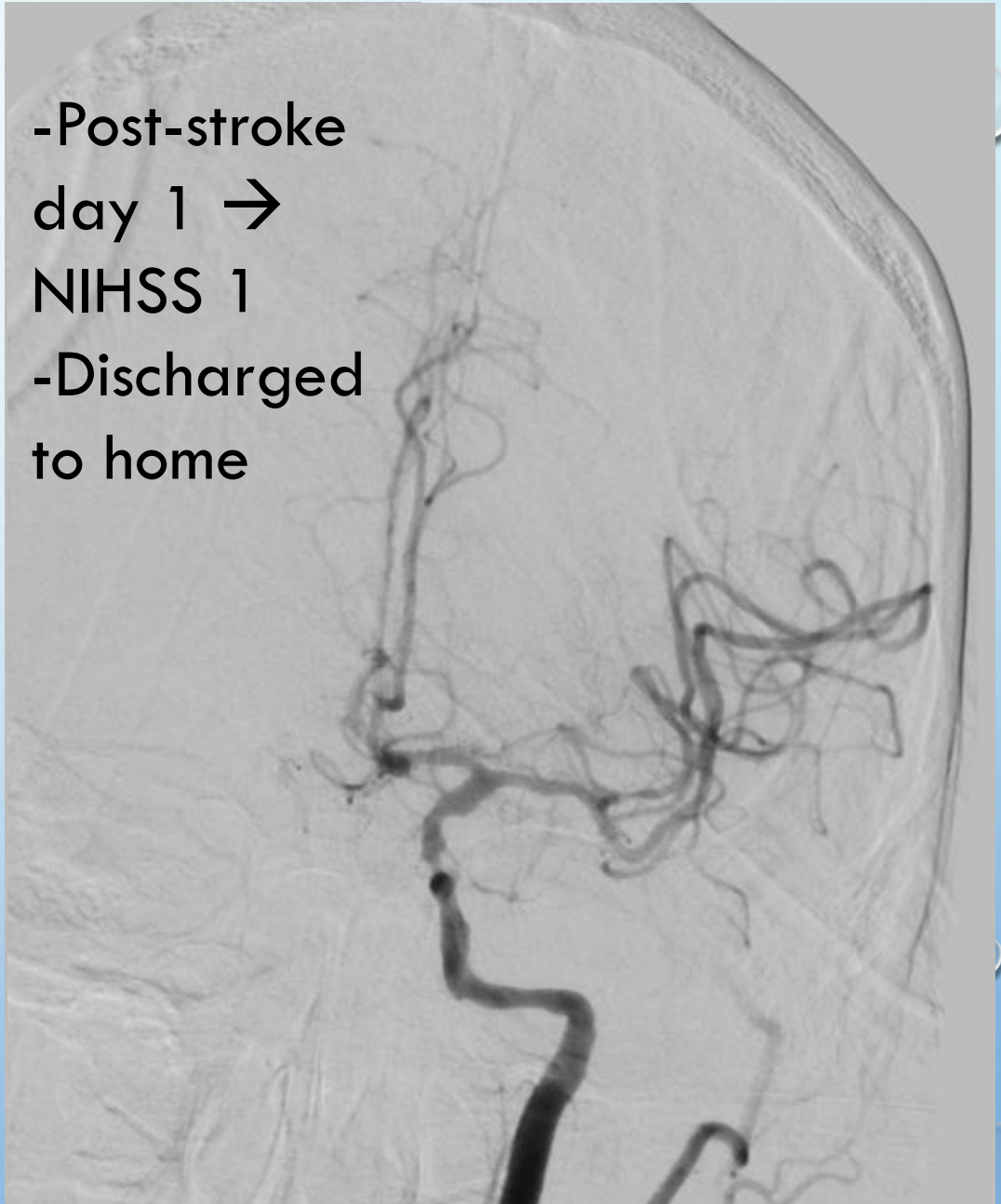
MM

9999*

- 61 YEAR OLD MALE WITH ACUTE ONSET RIGHT SIDED HEMIPLEGIA AND APHASIA AT 7:30 AM
- NIH STROKE SCALE SCORE – 20
- CT ANGIOGRAPHY - OCCLUSION OF LEFT ICA AND MCA



-Post-stroke
day 1 →
NIHSS 1
-Discharged
to home



THANK YOU.

