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## Introduction

- Direct aspiration is a thrombectomy technique that has been shown to be fast and effective.
  [1]
- Our aim is to determine whether aspiration is superior to stentriever in procedure times and outcomes.

### Results

### Methods

We performed a retrospective analysis on 85 stroke patients who received endovascular treatment for acute stroke at four hospitals in Manhattan.

Baseline characteristics, procedures times, success at achieving TICI 2b/3, and change in NIHSS from admission to discharge were compared between patients treated with:

- aspiration only (N=33)
- stentriever only (N=35)
- both aspiration and stentriever (N=17)

	Aspiration	Stentriever	Both	p-value
No of cases	33	35	17	NA
Female (n (%))	24 (72)	26 (74)	13 (76)	0.9594
Mean age	68.2 (14.1)	77.1 (10.8)	72.7 (15.0)	0.0342
TICI 2b/3 (%)	97.0	88.6	94.1	0.3924
Mean time to recanalization (min)	28.9 (13.7)	52.4 (31.1)	72.5 (54.4)	< 0.0001
Mean number of passes	1.6 (0.8)	1.9 (1.2)	4.0 (2.0)	< 0.0001
Mean admission NIHSS	19.6 (7.0)	19.9 (6.2)	16.3 (5.2)	0.1098
Mean discharge NIHSS	10.4 (13.1)	20.0 (16.6)	15.1 (14.5)	0.0314
Mean change in NIHSS	-9.2 (13.2)	0.1 (15.9)	-1.2 (16.1)	0.0145
Days from admission to discharge	14.7 (10.6)	11.4 (10.6)	13.8 (8.8)	0.194
Received IV tPA (n (%))	16 (48)	19 (54)	11 (65)	0.5517

Aspiration vs	Aspiration	Stentriever vs
Stentriever	vs Both	Both
P=0.0047	P=0.1300	P=0.1600
P<0.0001	P<0.0001	P=0.1519
P=0.2582	P<0.0001	P<0.0001
P=0.0045	P=0.0877	P=0.2183
P=0.0040	P=0.0141	P=0.4853
	Stentriever       P=0.0047       P<0.0001	Stentriever     vs Both       P=0.0047     P=0.1300       P<0.0001



TICI	Aspiration (n (%))	Stentriever (n (%))	Both (n (%))	
1	0 (0)	2 (6)	0 (0)	
2a	1 (3)	2 (6)	1 (6)	
2b	7 (21)	10 (29)	8 (47)	
2c	8 (24)	1 (3)	3 (18)	
3	17 (51)	20 (57)	5 (29)	

### Results

- There was no significant difference in admission NIHSS, IV tPA administration, number of passes, and TICI score between aspiration only and stentriever groups.
- There was no significant difference in punctureto-recanalization time and change in NIHSS between stentriever and ADAPT (a direct aspiration first pass technique) with subsequent stentriever.

# Results (cont)

- Mean puncture-to-recanalization time was 28.9 minutes for direct aspiration and 52.4 minutes for stentriever (P<0.0001).</li>
- Mean change in NIHSS was -9.2 in the aspiration group and 0.1 in the stentriever group (P=0.0145).
- Although age was significantly younger in the aspiration group (P=0.0047), in a generalized linear model, procedure method was found to be more significantly associated with puncture-to-recanalization time than age (P=0.0006, P=0.7413)

## Learning Objectives

By the conclusion of this session, participants should be able to:

- Describe the importance of direct aspiration in the treatment of ischemic stroke
- Discuss, in small groups, advantages of the aspiration versus stentriever technique
- Identify an effective treatment for thrombectomy

### Conclusions

- Patients who received direct aspiration thrombectomy had faster recanalization times and superior improvement in NIHSS compared to patients treated with stentriever.
- Limitation include that this is a retrospective study, there is a small sample size, and patients were not randomized to treatment.
- These results should be verified in a larger prospective study.

#### References

1. Eom YI, Hwang YH, Hong JM, et al. Forced arterial suction thrombectomy with the penumbra reperfusion catheter in acute basilar artery occlusion: A retrospective comparison study in 2 Korean university hospitals. American Journal of Neuroradiology 2014;35(12):2354-59.