

Assessing Deep Venous Thrombosis Recurrence and Patient-Reported Outcomes in Patients Receiving Mechanical Thrombectomy vs Catheter Directed Thrombolysis for Lower Extremity Thrombus

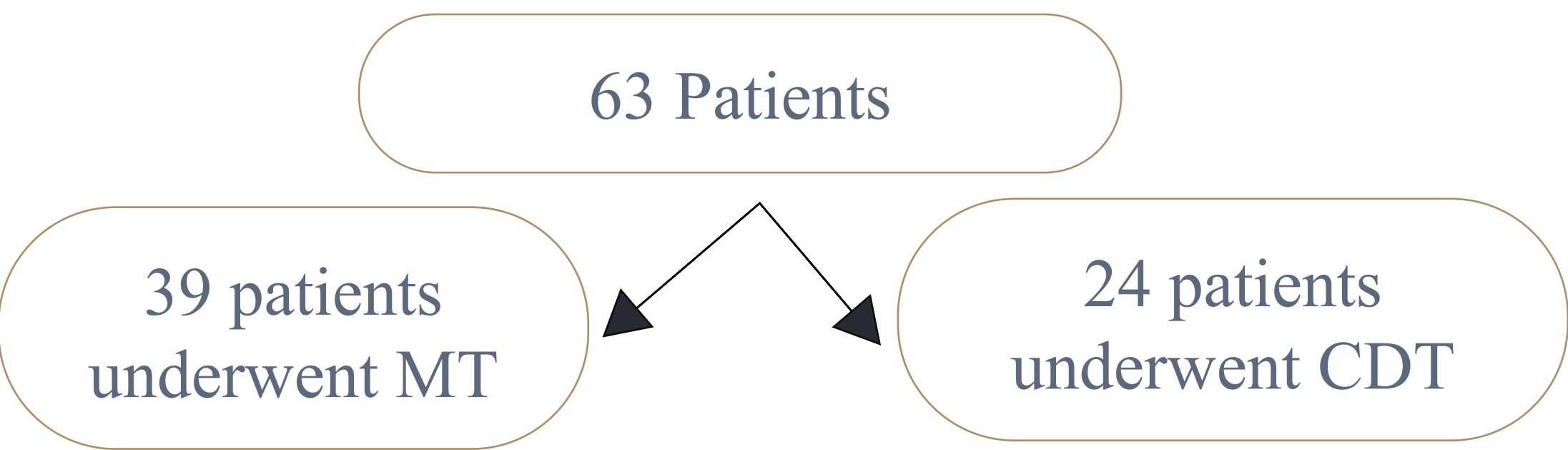
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INTRO

- Deep Venous Thrombosis (DVT) is a serious condition that can lead to PE and long-term complications such as PTS, with a constellation of symptoms including pain, swelling, itching and skin changes
- Per SIR guidelines, in addition to anticoagulation, extensive DVTs (involving the ilio-femoral veins) can be treated with intervention, with more robust research supporting the use of catheter-directed thrombolysis (CDT) vs mechanical thrombectomy (MT)
- MT physically removes a clot using specialized devices via catheter, while catheter-directed thrombolysis (CDT) delivers clot-dissolving drugs directly into it to chemically break it down.
- This study compares recurrence, safety outcomes, and long-term quality of life following either procedure.

METHODS

- Retrospective cohort study conducted at two centers between 2013-2018



Primary Outcomes

- Acute DVT recurrence requiring presentation to ED within 6 months of procedure
- Clinical or ultrasound (US) findings of recurrent or residual thrombus in patients within 6 months
- Adverse events: death, major and minor bleeds defined by ISTH criteria,

Secondary Outcomes:

- Periprocedural: procedure length, length of stay (LOS), ICU LOS
- Safety Mortality
- At 6 month follow up:
 - Venous Gangrene
 - Unplanned Endovascular Procedures

RESULTS (1)

Baseline characteristics:

- 39 MT patients (mean age 61 ± 5.8 years)
- 24 CDT patients (mean age 59 ± 7 years)
- No significant difference in baseline risk factors for DVT

Recurrent DVT	MT group (n=29)	CDT Group (n= 15)	p value
Recurrent DVT requiring representation to hospital (< 6 months)	9 (23.1%)	4 (16.7%)	0.7494
Recurrent DVT at 6-month follow-up			
Overall	19 (65.5%)	13 (86.7%)	0.1712
Clinical	15 (51.7%)	9 (60%)	0.7628
Ultrasound	18 (62.1%)	11 (73.3%)	0.5204

Table 1. Primary outcomes of DVT recurrence, defined by clinical symptoms or ultrasound (US) findings of residual or recurrent DVT. Overall recurrence includes patients who had either clinical or US findings of residual or recurrent DVT. Values are presented as a number (percentage).

	MT group (N=39)	CDT group (N=24)	p value
Procedure length (minutes)	162.03 [164.6, 280.45]	222.52 [133.79,190.26]	0.06122
Total length of stay (days)	9 [6.37, 11.6]	11.61 [6/37, 11.6]	0.3498
ICU length of stay (days)	0.72 [0.16, 1.28]	5.08 [2.28, 7.89]	0.004148*
Any Bleeding	3 (7.7%)	0	1
Major Bleed (based on ISTH criteria)	0	0	1
Minor Bleed	3	0	0.2811
At follow-up in the index leg, venous gangrene or unplanned endovascular procedure (6 months)	4 (10.3%)	2 (8.3%)	1
Death at 24 months	5 (12.8%)	3 (12.5%)	0.6977

Table 2. Secondary outcomes, including peri-procedural outcomes, safety, morbidity, and mortality findings. Values are presented as a mean with SD, or a number (percentage).

- No statistically significant difference between groups in recurrence rates, adverse events (bleeding and mortality).
- ICU stays were significantly longer in CDT patients, though procedure times and overall hospital stays were not statistically different.
- Average VEINES-QOL scores were slightly higher in CDT group (108.7 vs 81.0), though only 10 of 68 patients (7 MT and 3 CDT) were successfully contacted for the follow-up PTS questionnaire.

RESULTS (2)

Device	Acute DVT Recurrence
MT	
Clotriever (N = 24)	6 (25%)
FlowTrieve (N =13)	2 (15.4%)
CDT	
CDT overall (N = 25)	5 (20%)
UniFuse (N = 9)	2 (22.2%)
EKOS (N = 12)	1 (8.3%)
Cragg-McNamara (N = 4)	2 (50%)
PCDT	
AngioJet (N = 7)	1 (14.3%)

Table 3. Recurrence rates based on device-type.

DISCUSSION

- MT is non-inferior to CDT for proximal DVT, with similar 6-month recurrence rates (23.1% vs. 16.7%, not significant) despite higher clot burden.
- MT patients had significantly shorter ICU stays (0.72 vs. 5.08 days), indicating lower resource use; minor bleeding was seen only in MT but was manageable.
- Aspiration-based MT (FlowTrieve) showed lower recurrence than coring-based MT (ClotTrieve) and CDT, though differences were not statistically significant.
- VEINES-QOL scores suggest preserved quality of life in both groups; however, interpretation is limited by small sample size and incomplete follow-up.

CONCLUSION

- MT and CDT offer comparable safety and effectiveness for proximal DVT.
- MT may offer advantages in ICU stay and minor bleeding, with device selection possibly influencing outcomes.
- Despite limitations (small sample, limited follow-up), findings support non-inferiority of MT in both acute and chronic DVT recurrence.