Fibrin sheath stripping in tunneled dialysis catheters (FIS-T)

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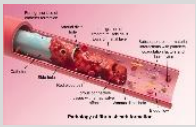
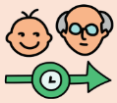
INTRODUCTION

- Failure of tunneled dialysis catheters by fibrin sheath formation is a known complication.
- Fibrin sheath is a protein aggregate forming a film overtime, encasing the outer wall and Tip of the catheter which is histologically eosinophilic material
- The rapid accumulation of protein aggregate leads to activation of the coagulation cascade.



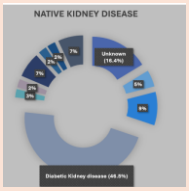
BASELINE CHARACTERISTICS



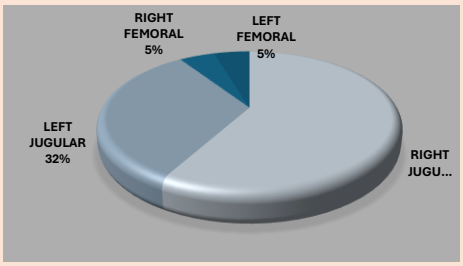
Mean age 58.3 years

53.4% ♂

46.5% ♀



Median duration between catheter placement and fibrin sheath formation 70.3 (IQR 30-90) days

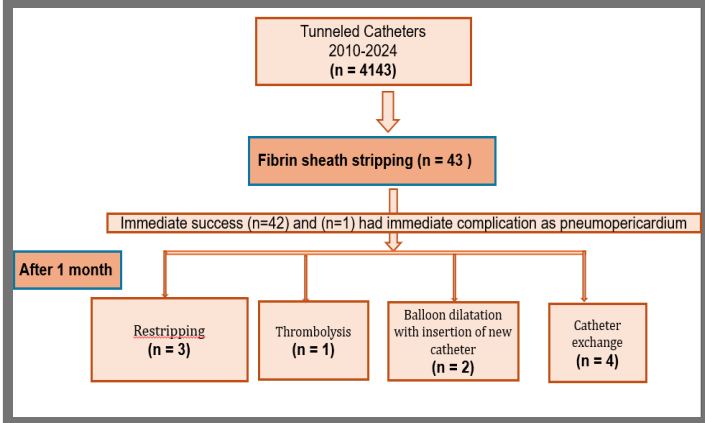


Right Jugular	Left Jugular	Right Femoral	Left Femoral
58%	32%	5%	1%

METHODS

Catheter Dysfunction

- Decreased Blood flow < 250 ml/min
- High Venous pressure > 250 mmHg
- High pressure alarms
- Inability to withdraw and/ or flush catheter lumens



Statistical analysis

- Data was collected and analyzed using IBM SPSS Ver 21
- **Categorical variables** expressed as frequencies and proportions
- **Continuous variables** expressed as mean with standard deviation or median with interquartile range

RESULTS

Multiple access failure 16 (37.2%) patients
Prior history of cannulation 23 (53.5%) patients.
Prior history of CRBSI 19(44.2%) patients

STUDY	SAMPLE	Intervention	TECHNICAL SUCESS	
FIS-T Study CMC,2024	43	PFSS	97%	Functional patency following the procedure was 72.2% and 67.6% at 1 and 3 months respectively

FIS-T Study CMC,2024	REPEAT Fibrin Sheath	RESTRIPPING	TECHNICAL SUCESS	
1 MONTH	10	3	Failed	2 patients required tunnelled Catheter exchange 1 required balloon angioplasty
3 MONTH	2	2	100%	

COMPLICATIONS

DISCUSSION

This is one of the largest study on procedural outcomes of fibrin sheath stripping where we had a technical success rate of 97% which was comparable to studies done by Brady, P. S., etal, Johnstone, R etal, Merport, M etal. The functional patency following the procedure was 72.2% and 67.6% at 1 and 3 months respectively, which was in parallel to Patency rates of catheter exchange at 1 and 3 months of 71% and 27% as reported by Merport, M etal.

CONCLUSION

- Fibrin sheath stripping effectively maintains catheter patency.
- Often eliminates the need for catheter exchange or repositioning.
- Re-Stripping Success rate is lower for early recurrence compared to late recurrence.
- Risk of Over-the-Wire Exchange: Reintroducing a new port catheter into a pre-existing fibrin sheath poses risks for repeat fibrin sheath formation.
- Disrupt the sheath with a balloon to mitigate these risk

REFERENCES: Brady, P. S., Spence, L. D., Levitin, A., Mickolich, C. T., & Dolmatch, B. L. (1999). Efficacy of percutaneous fibrin sheath stripping in restoring patency of tunneled hemodialysis catheters. *AJR. American Journal of Roentgenology, 173*(4), 1023–1027. Merport, M., Murphy, T. P., Egglin, T. K., & Dubel, G. J. (2000). Fibrin sheath stripping versus catheter exchange for the treatment of failed tunneled hemodialysis catheters: Randomized clinical TRIAL.