



Comparison Of Perclose® Vascular Closure Device Vs Figure Of Eight Stitch For Large Bore Venous Access Hemostasis After Percutaneous Cardiovascular Procedures: A Meta-analysis Of Comparative Studies

Waseem Farooq, MD¹, Khagendra Dahal, MD², Priyesh Thakurathi, MD², Peter Robinson, M.D.¹, Paras Bhatt, M.D.², Bryan Piccirillo, M.D.², Craig Moskowitz, M.D.², JuYong Lee, MD¹, Jawad Haider, MD², Talhat Azemi, M.D., FSCAI² and Immad Sadiq, M.D.²

1. University of Connecticut School of Medicine, Farmington, CT, 2. Hartford Hospital, Hartford, CT



BACKGROUND

A number of percutaneous procedures including structural, pulmonary vasculature and electrophysiological procedures are performed using large bore venous access. With larger devices, it has become more routine to use techniques other than manual compression for hemostasis and two of the most common are suture mediated Perclose style device (SMD) and figure of eight (FOE) stitch. We performed a systematic review and meta-analysis comparing SMD and FOE techniques.

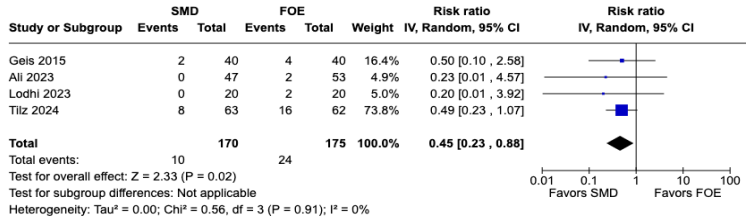
METHODS

A systematic search was performed in PubMed, Google scholar, and EMBASE from inception through Nov 30, 2024. Access site hematoma, time to hemostasis (TTH), time to ambulation (TTA), total complications and risk of major bleeding were analyzed to estimate risk ratio (RR) and mean difference (MD). Meta-analysis with random effects model and 95% confidence interval (CI) was performed while I² statistics assessed heterogeneity.

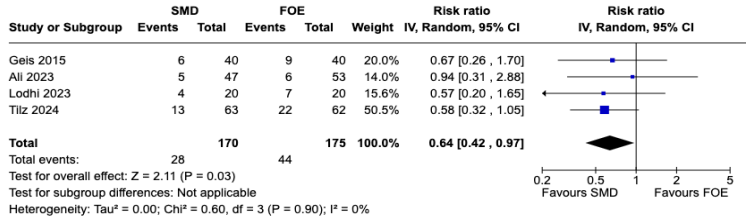
RESULTS

We identified 4 studies with 345 patients (175 SMD; 170 FOE) meeting our study criteria. Compared to FOE, SMD resulted in reduction in access site hematoma [RR 0.45 (95% CI: 0.23 to 0.88), P= 0.02], total complications [RR 0.64 (95% CI: 0.42 to 0.97), P=0.03], TTH [MD -5.05 minutes (95% CI: -6.35 to -3.75) P<0.00001], and TTA [MD -159.22 minutes (95% CI: -193.02 to -125.42), P<0.00001]. There were no significant differences in major bleeding [RR 0.85 (95% CI: 0.41 to 1.76), P=0.66] between the two groups.

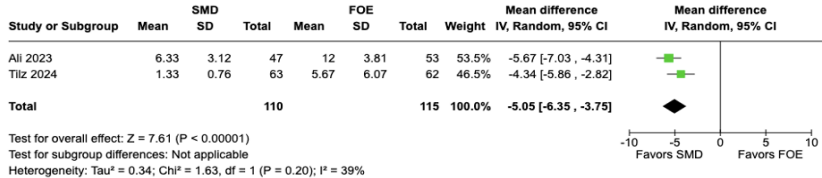
Access site hematoma



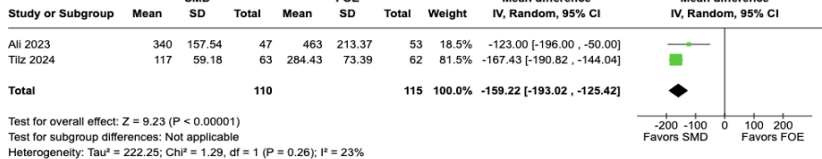
Total complications



Time to hemostasis



Time to ambulation



CONCLUSION

This meta-analysis of large bore venous access closure shows lower rates of access site hematoma, total complications, TTH and TTA in suture mediated vascular closure device compared to FOE technique.

DISCLOSURES

Authors have no disclosures.

REFERENCES

1. Lodhi H, Shaikat S, Mathews A. Comparison of figure-of-eight suture and Perclose ProGlide suture-mediated closure in large bore venous access hemostasis: a randomized controlled trial. Am J Cardiol. 2023;202:6570. doi:10.1016/j.amjcard.2023.09.105
2. Geis NA, Pleger ST, Chorianopoulos E, Müller CJ, Katus HA, Bekerredjan R. Feasibility and clinical benefit of a suture-mediated closure device for femoral vein access after percutaneous edge-to-edge mitral valve repair. EuroIntervention. 2015;10(12):1346-1353. doi:10.1093/europace/evae105
3. Tiltz RR, Feher M, Vogler J, et al. Venous vascular closure system vs figure-of-eight suture following atrial fibrillation ablation: the STYLE-AF Study. Europace. 2024;26:evae105. doi:10.1093/europace/evae105
4. Ali M, Masood F, Erickson L, et al. Suture closure after large bore vein access (SAFE VEIN): a randomized, prospective study of the efficacy and safety of venous closure device. Catheter Cardiovasc Interv. Published online 2024. doi:10.1002/ccd.31173
5. Myer MT, Al-Abcha A, Flores J, Saleh Y, Robinson P. A comparison of figure-of-eight suture versus manual compression for venous access closure after cardiac procedures: an updated meta-analysis. Pacing Clin Electrophysiol. 2020;43(10):1195-1202. doi:10.1111/pace.14008

CONTACT INFORMATION

Email: Wfarooq@uchc.edu

✉ @WaseemfarooqMD