The utility of great saphenous vein mapping in the detection of superficial vein thrombosis prior to infrainguinal arterial bypass

Melissa C. Hetrick, DO; Ashley E. Beale, MD; Graham W. Long, MD; Sarvar Oreizi-Esfahani, BS; Rose E. Callahan, MS; Diane M. Studzinski, BS; OW Brown, MD

Corewell Health William Beaumont University Hospital, Royal Oak, Michigan

Introduction

- The great saphenous vein (GSV) is widely used as a bypass conduit for the treatment of peripheral arterial disease
- Preoperative vein mapping assesses the quality and diameter of the GSV
- The objective was to identify the percentage of patients with ipsilateral SVT and patient characteristics associated with SVT and unsuitable GSV

Methods

- Retrospective, single-institution study from March 2013-December 2021
- All patients with peripheral arterial disease who underwent outpatient vein mapping were included
- Unsuitable GSV was defined by the presence of SVT, DVT, or size < 2.5 mm in any segment

10.5% of patients have SVT on preoperative GSV mapping

GSV conduits of adequate size and without SVT or DVT are associated with male gender

*86.6% male vs 13.4% female (p=0.001, OR 3.6 (95% CI 1.6-8.2))

Results

- 191 patients met inclusion criteria
- Most patients were male (71.7%), Caucasian (69.8%), and the mean(SD) age was 68.6(10.8) years
- Ipsilateral SVT was identified in 10.5% of patients.
- No differences in demographics or comorbidities were identified in patients with and without ipsilateral SVT
- Less than half (45.8%) of patients had GSV that was greater than 2.5 mm throughout
- One third (37.4%) had a GSV conduit of adequate size without SVT or ipsilateral DVT
- GSV conduits of adequate size and without SVT or ipsilateral DVT were associated with male gender, 86.6% male vs 13.4% female (p=0.001, OR 3.6 (95% CI 1.6-8.2))

Conclusion

- Routine preoperative venous duplex should be performed to assess for the presence of SVT
- Veins identified as unsuitable, based on size criteria alone, should be investigated intraoperatively with ultrasound or direct surgical exploration as vessel diameter, unlike SVT, is a dynamic finding