Duplex Ultrasound Can Reliably Predict Stent Thrombosis

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XXVth Annual VEITH Symposium
November 16, 2018

No disclosures

DU Surveillance for Lower Extremity Revascularization
• Widely accepted for vein grafts
• Less well accepted for prosthetic grafts
• Controversial for peripheral stent grafts
• Very controversial for peripheral stents

DU for Peripheral Stents
Why do it?
• Revision of failing stents may yield better patency rates than failed stents
• May not be able to restore patency if occluded
• Performing endovascular Rx easier than open revision or new bypass

DU for Lower Extremity Stents
Patients and Methods
• 172 stents in 110 patients
• 30 iliac, 89 fempop arteries (119 segments)
• Treated length
  iliace: mean, 7.5 cms (range, 4.0 - 15.0)
  fempop: mean, 12.2 cms (range, 2.0 – 21.0)
• Surveillance – DU in accredited NIVL

DU for Lower Extremity Stents
Patients and Methods
• DU measured PSV and PSV ratios every 2 cms within stent and adjacent arteries
• “Abnormal” DU findings:
  focal PSV > 300 cm/s
  uniform PSV < 45 cm/s
  Vr > 3.0
• One week postop, then every six months
• Follow up = 22 mos (range, 1 wk - 48 mos)
**DU for Lower Extremity Stents**

Results of 119 stented segments

- 52% (62): all 3 “normal” DU criteria
- 48% (57): ≥ 1 “abnormal” DU criteria
  - 40: intervention
  - 17: no intervention (pt refusal, surgeon)
  - 5 remained patent (f.u. = 7.2 mos)
  - 12 occluded

**DU for Lower Extremity Stents**

Results: Occluded Stented Segments

≥ 1 “abnormal” DU finding & not treated

70% (12/17) occluded

Vs.

“normal” DU findings = 3% (2/62) occluded

(p = 0.0001)

**CONCLUSION**

DU Surveillance for Lower Extremity Stents

Significantly predicted stent occlusion

- \( V_r > 3.0 \)
- focal PSVs > 300 cm/s
- uniform PSVs < 45 cm/s throughout stent

Absence of any criteria strongly predicted stent patency

**DU for Lower Extremity Prosthetic Grafts**

- Useful for fem-tibial prosthetic grafts
- Not for fempop prosthetic grafts

DU for Lower Extremity Stent Grafts

73% (15/20) with abnormal DU findings
- Required prophylactic intervention (8)
- Or occluded without intervention (7)

vs.

3% (2/72) with normal DU findings
- Occluded without intervention
(p = 0.0001)

(Trounman, Madden, Dougherty, Calligaro. JVS 2014;60: 1580-84)