Treatment Strategies for Long Lesions of greater than 20 cm

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Disclosure

Speaker name: Donald Jacobs, MD

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I have the following potential conflicts of interest to report:

- [x] Consulting: **Abbott**
- [ ] Employment in industry
- [ ] Stockholder of a healthcare company
- [ ] Owner of a healthcare company
- [ ] I do not have any potential conflict of interest

The challenge of long lesions

- Significant progress had been made in the endovascular treatment of long lesions
- Acute technical success
  - Very high and fairly well defined
- Long term success
  - Not as well known
  - Multiple variables impacting on results
    - Variable patient populations
    - Variable anatomic location, mechanics
    - Calcification
    - Evolving technique/tools
    - limited follow up

Long stent data

- Durability 200
  - Bare nitinol stent (protégé)
  - 100 patients
  - mean lesion **24.2 cm** (range 16–45)
  - 1 yr freedom from TLR **68.2%**
  - 1 yr primary patency **64.8%**

Bosiers M et al. J Vasc Surg. 2011;54:1042–1050.

- Viastar
  - Viaban vs bare nitinol stent
  - 141 patients randomized
  - Mean lesion length **19.0** and **17.3** respectively
  - 1 yr freedom from TLR **85%** and **77%** respectively
  - 1 yr primary patency **78%** and **54%** respectively

Lammer Jm et al, J Am Coll Cardiol. 2013;62:1320–1327

DES in long lesions

- Zilver PTX single arm registry
  - 135 patients
  - Mean lesion length **22.6** cm
  - 1 yr primary patency **77.6%**
  - 1 yr freedom from TLR **85.4%**

Bosiers, et al. J Cardiovasc Surg 54:115-22. 2013

Interwoven nitinol in long lesions

- Supera 500 registry
  - 492 limbs
  - Mean lesion length 12.6 cm
  - 1 yr primary patency 83.3%
  - 2 yr primary patency 72.8%
- SUPERB trial long lesion subset
  - 87 pts in top tercile length
  - Mean lesion length 12.6 cm
  - 1 yr primary patency 88%
  - 1 yr freedom from TLR

Werner A, et al. EuroIntervention 2014:10:861-868

Rosenfield K, et al. Circ Cardiovasc Interv. 2015;8:e000937.

Atherectomy for long lesions

- Limited data
  - Relatively low patency
  - Significant procedural time/radiation
  - Significant risk of embolization
- Atherectomy and DCB
  - Not yet defined but good data on mid range lesions in some reports
  - But above risks persist with added cost concerns

DCB vs DES in long lesions

Propensity based analysis to define similar cohorts in a real world experience

	DCB N=131	DES N=97
Lesion length	19.4 +/- 8.6 cm	19.5 +/- 6.5 cm
Restenotic lesions	52%	44%
Total occlusion	53%	63%

Zeller T, et al. Journal of Endovascular Therapy. 21(3):359-68, 2014 Jun.

DCB and DES in long lesions

12 month follow up

	DCB N=131	DES N=97
Restenosis PSV >2.4	24%	30%
TLR	16%	19%

Zeller T, et al. Journal of Endovascular Therapy. 21(3):359-68, 2014 Jun.

Saint Louis University Experience with Interwoven Nitinol Stenting in Femoral-Popliteal Lesions

- Retrospective review
  - April 2010 and December 2011
- 54 limbs in 48 patients
- Mean follow up of 27.5 ± 12.3 months
- Median follow up of 30 months
- Clinical follow up: clinical interview, ABIs, and duplex US

Brescia, et al, **Stenting of femoropopliteal lesions using interwoven nitinol stents**
Journal of Vascular Surgery
Volume 61, Issue 6, Pages 1472–1478

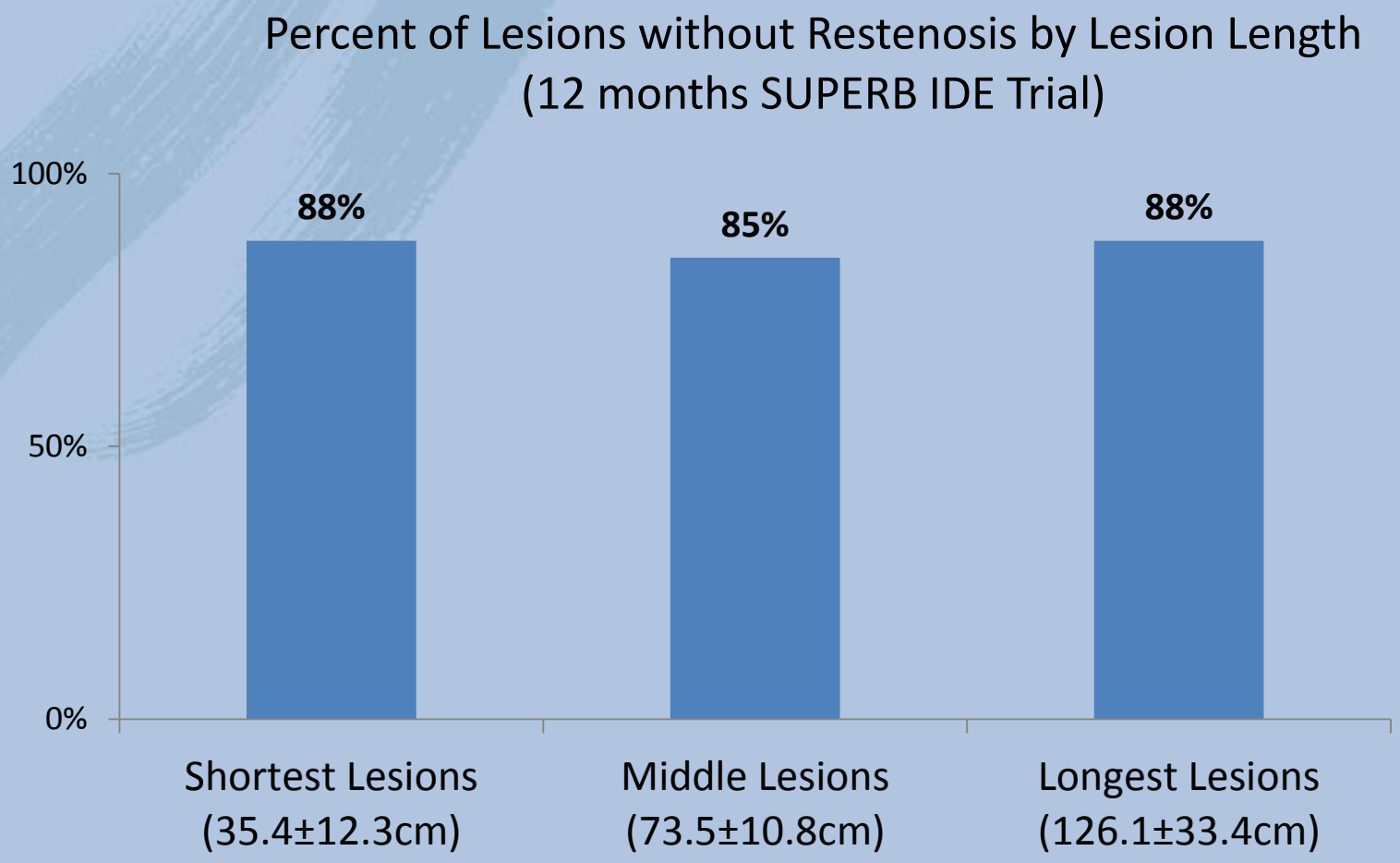
Selected sub-set of data on lesions > 10 cm length from Brescia et al data on interwoven nitinol stents

	DES N=97	DCB N=131	Woven nitinol N= 43
Lesion length	19.5 +/- 6.5 cm	19.4 +/- 8.6 cm	26.7 +/- 9.8 cm
Re-stenotic lesions	44%	52%	44%
Total occlusions	63%	53%	81%
TLR	16%	19%	16%

Mean FU of 27 months

Brescia, et al, Journal of Vascular Surgery 61(6):1472–1478, April, 2014

Superb Trial impact of lesion length



Saint Louis University experience with interwoven nitinol stents:

Outcomes by lesion length

	< 15 cm (n=18)	15 - 30 cm (n=18)	> 30 cm (n=18)
Primary patency	**72.3%** (13)	**83.3%** (15)	**83.3%** (15)
Primary assisted patency	**88.9%** (16)	**88.9%** (16)	**88.9%** (16)
Secondary patency	**94.4%** (17)	**88.9%** (16)	**94.4%** (17)

27 month mean and 30 month median follow up

Brescia, et al, Journal of Vascular Surgery 61(6):1472–1478, April, 2014

Summary

- Long lesions can be treated endovascluarly with good results using DES, DCB and interwoven nitinol showing similar 1 year results
- Interwoven nitinol stents show less impact of lesion length on patency
- With correct vessel preparation and technique, interwoven nitinol stents can provide a unique fracture free, calcium resistant, non drug dependent device for long term patency in long lesions

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