IVUS Virtual Histology Usage in Transfemoral and TransCarotid Artery Stenting

Clinical and Filter Findings

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Disclosure

Speaker name: Inkyong Parrack

I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☒ I do not have any potential conflict of interest
Virtual Histology Assessment in CAPITAL Study

Pathologic intimal thickening

Fibroatheroma

Thin-cap Fibroatheroma
Virtual Histology Assessment in CAPITAL Study

Fibrocalcific

Calcified Fibroatheroma

Calcified Thin-cap Fibroatheroma
Our CAS technique and IVUS

- **Minimal touch technique**
  - No arch angiogram
  - Selective carotid angiogram, single shot
  - Emboshield filter
- **IVUS**
  - Virtual histology at the area of maximal burden
  - Used to confirm proximal/distal extent of plaque
  - 8-10 x 40mm Xact stent
  - Post-stenting angioplasty balloon selection
- **Carotid artery ultrasound in PACU**
Findings

- No difference in peri-procedural stroke
- Use of larger diameter balloons for post-stent
- Lower contrast usage
- Lower incidence of >50% diameter – reducing in-stent stenosis on follow-up
  - 11% vs 7% at 1 month
  - 24% vs 6% at last surveillance, mean 36 months
- Lower reintervention rate
  - 3% vs 7%
Findings

• Virtual histology variability
  • Most with fibrous plaque with some fibrofatty components
  • Few scattered necrotic core
    • > 10% necrotic core cutoff fibroatheroma rare
    • No notable necrotic core near the surface
• Very rare to find embolized plaque in Emboshield
  • Unlike CAPITAL study (4/30, 13%)
• VH did not produce any change in our practice or technique
TransCarotid Artery Stenting

- Low stroke rate (ROADSTER 1.4%, minor stroke)
- Embolized plaque caught – every case had debris in the filter
- Plaque visible, not microdebris
Evaluation of Carotid Artery Plaque Using IVUS Virtual Histology
Tamakawa et al
Interv Neuroradiol. 2007 Mar; 13(suppl 1): 100-105.
Virtual Histology Future

• Yet to find easily recognizable intraop utilization
• Increase number
  • Cases with drastic plaque burden
  • Correlating findings on VH-IVUS
• Translate to pre-stent planning for transfemoral CAS
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