OCT Guided Atherectomy

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Disclosure

Speaker name:

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I have the following potential conflicts of interest to report:

- [x] Consulting: Abbott Vascular, CSI, Terumo, Avinger, Astra Zeneca
- [ ] Employment in industry
- [ ] Stockholder of a healthcare company
- [ ] Owner of a healthcare company
- [ ] Other(s)

- [ ] I do not have any potential conflict of interest
What we know about treating SFA Disease?

- Disease is directional, spirals throughout artery
- This applies to CTOs, too (caps concentric)
- Therapy should treat accordingly – diseased only sections
- Treating into the adventitia accelerates inflammation and cell migration (factors of restenosis)
OCT image from mid CTO during crossing
Ocelot Catheter (Avinger, Inc, Redwood City, CA

CTO Crossing

EEL

Eccentric Disease

Media
Pantheris Catheter* (Avinger Inc, Redwood City, CA) Directional atherectomy with OCT guidance

*Investigational Device. Limited by Federal (U.S.) law for investigational use only. Not available for sale until CE marked.
Key Elements:
- Imaging element located on the cutter surface for precision atherectomy
- Apposition balloon allows for on-the-fly cut depth adjustments
- OCT image enables you to differentiate between plaque and arterial wall
Identify Plaque

Precision Debulking
Goals of OCT guidance:
1) Debulk plaque only
2) Avoid adventitia

Atherectomy trough:
- stopping at plaque/media interface
- no adventitial disruption
Case Study: Amir Kaki, MD

Pre: 7cm 80% stenosis

Post: <10%; Standalone Pantheris
Cutting Trough using OCT guidance

Reviewing Trough (No Adventitial Disruption)

Media

EEL

Eccentric Plaque

Post-cut Trough
Imaging following Atherectomy using the Pantheris Catheter

Goals for OCT guided Atherectomy:

- Cut only plaque, avoid disruption of medial/adventitial borders
- Leave laminar surface to avoid late lumen loss
- Determine morphology of disease to determine downstream therapy and patient management (lipid, calcium, fibrotic, etc.)
Atherectomy Tissue Gross + Histology

Plaque = 94.43%
Medial Tissue = 5.7%
Adventitial Tissue = 0%
Conclusions: OCT Guided Atherectomy

1) VISION trial completing enrollment
2) Real time visualization targets eccentric plaque
   • Know where to start cutting (target plaque)
   • Know when to stop cutting (medial surface)
3) No ionizing radiation (avoid fluoroscopy)
4) Avoid cutting media/adventitial border
   • Reduces known accelerant of restenosis
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