DEBULKING ATERECTOMY:

1. IS THERE PROOF IT HAS VALUE?
2. IN WHAT CIRCUMSTANCES?
3. WHICH DEVICE IS BEST AND WHY

Dr. Konstantinos Katsanos, MSc, MD, PhD, EBIR
Asst. Prof. Interventional Radiology
School of Medicine, Patras University Hospital, GR

Why atherectomy

1. Downstage lesion complexity
2. Avoid plaque elastic recoil
3. Eliminate need for stenting
4. Modify calcium barrier / fibrotic plaques
5. Reduce vessel wall barotrauma
6. Improve paclitaxel bioavailability

Pooleiteal atherectomy

Atherectomy unproven

Debulking atherectomy

Directional (10-20%)
- Targeted application
- Versatile tool
- Eccentric plaque
- Focal calcium
- Bifurcation lesions
- Risk of perforation
- High risk for embolus

Rotational (80-90%)
- Less-specific
- Speed, practicality
- Chronic total occlusions
- Fibrotic lesions
- Thrombo-atherectomy
- High risk for embolus

Disclosures

- Lecture fees from Boston Scientific, Medtronic

- Directional atherectomy of eccentric calcified stenosis

- Rotational atherectomy
  - DOWNSTAGE Lesion Complexity

- Popliteal CTO

- 1st pass 2nd pass DCE

- Pre post

- 9-month Duplex
**Theoretical Rationale**

**Mechanical**
- Debulk plaque
- Improve vessel compliance

**Biological**
- Increase drug transfer to tissue
- Enhance drug delivery and tissue bioavailability

**Technical Success**
- DCB: 64.2%
- AH + DCB: 89.6%

**Bail-out Stent**
- DCB: 3.7%
- AH + DCB: 0%

**Flow-limiting Dissection**
- DCB: 19%
- AH + DCB: 2%

Adjunctive atherectomy combined with DCB may improve procedural and clinical outcomes particularly for COMPLEX lesions.

Zeller, VIVA 2014.

*Technical success: Defined as ≤ 30% residual stenosis following the protocol-defined treatment at the target lesion as determined by the Angiographic Core Laboratory. DCB, drug-coated balloon; DUS, duplex ultrasound; SFA, superficial femoral artery.*

**DEFINITIVE AR extension**

Freedom from MAE

Freedom from TLR

Tepe G. Oral presentation. LINC 2017

**Post-hoc hypothesis**

Freedom from TLR: ≤ 30% residual stenosis

Freedom from TLR: ≤ 30% Residual Stenosis Post OA

Freedom from TLR: > 30% Residual Stenosis Post OA

Tepe G. Oral presentation. LINC 2017

**Chronic total occlusions**

- 30-40% of femoropopliteal I lesions
- More frequent in advanced CLI patients
- Complex recanalization
- More prone to recoil and stenting
- Higher plaque volume — frequently calcified
- Higher rate of restenosis and stent failure

Hong SJ, et al. Outcomes of stenting long chronic total occlusions of the femoropopliteal artery. JACC CI. 2015


**Chronic ISR occlusion**

...
Jetstream + DCB versus Jetstream + PTA

Retrospective study of patients receiving Jetstream atherectomy to treat femoropopliteal obstructive disease

- N=75
- Treated Apr 2012-Dec 2014 - adjunctive PTA (N=50)
- Treated Dec 2014-Jul 2016 - adjunctive DCB (N=25)
- Median treated length (p=0.053)
  - Adjunctive PTA: 15 cm
  - DCB: 10 cm


TLR rates at 16 months were significantly reduced with DCB Atherectomy with adjunctive DCB (94.4%) compared with Atherectomy with adjunctive PTA (54.0%) (94.4% vs 54%; p=0.002)

Jetstream + DCB vs Jetstream + PTA

Conclusions

- Atherectomy associated with high-risk of distal embolization
- No evidence that it improves patency or clinical outcomes
- No evidence that it improves paclitaxel efficacy
- Atherectomy to DOWNSTAGE lesion complexity and avoid stenting?
Thank You

Claudication

CONSIDERATIONS
- Lifestyle impairment
- Walking distance
- Exercise therapy
- Risk factor modification
- Lesion anatomy

CONSIDERATIONS
- Limb salvage
- Comorbidities
- Limited life expectancy
- Quality of life
- Lesion anatomy

WAIT AND SEE
- Conservative approach
- High stenting threshold

TIME IS TISSUE
- Aggressive treatment
- Low stenting threshold

Critical leg ischaemia