Importance of Thorough Vessel Preparation Followed By Anti-Restenotic Therapy: An Update from the DEFINITIVE AR Study

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Disclosure

Speaker name: Gunnar Tepe, MD

I have the following potential conflicts of interest to report:

- Consulting for Medtronic
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s): Medtronic Advisory Board; Medtronic study support

- I do not have any potential conflict of interest
Background

- Treatment of SFA disease remains challenging
- Debulking with directional atherectomy (DA) has resulted in lumen gain and improved patency
- Anti-restenotic therapy with drug-coated balloons (DCB) have shown superior patency and lower re-intervention rates versus PTA
- Early results from the DEFINITIVE AR study with combination therapy suggest trends favoring DA and DCB treatment over DCB alone in long and severely calcified lesions
- Longer term benefits of DA and DCB are not well-defined

1. McKinsey JF, et al. 12-Month Prospective Results of the DEFINITIVE LE Study. JACC-CI 2014; 7:8:923-33
5. Zeller T, DEFINITIVE AR 12 month Results . VIVA 2014
DEFINITIVE AR Study

Pilot Study to assess the effect of treating a lesion with directional atherectomy followed by drug-coated balloon vs. drug-coated balloon alone

DA: SilverHawk/TurboHawk
DCB: Cotavance

Primary Outcome:
Target Lesion Percent
Lesion Stenosis at 1 year
(Angiographic Core Lab)

121 Patients
10 Centers in Europe
Follow up: 1 year
DEFINITIVE AR Study

General and Angiographic Criteria Assessment

Lesion severely calcified?¹

NO

Randomization

DA+DCB (n=48)

DCB (n=54)

YES

NR DA+DCB Severe Ca+ (n=19)

1. Defined as dense circumferential calcification extending > 5 cm
DEFINITIVE AR

**Primary Outcome**: Target Lesion Percent Stenosis at 1 year as determined by angiographic core lab

![Bar chart showing percent stenosis]

- **DA+DCB (n=33)**: 33.6%
- **DCB (n=39)**: 36.4%
- **NR DA+DCB (n=14)**: 55%
DEFINITIVE AR

Angiographic patency at 12 months shows a trend in favor of combination therapy.
DEFINITIVE AR

Increased lumen gain with DA before DCB resulted in improved patency at 12 months¹

1 – includes all patients that received DA+DCB in both randomized and non-randomized arms
DEFINITIVE AR Study - Extension

Assess longer-term effects of treating a lesion with directional atherectomy followed by drug-coated balloon vs. drug-coated balloon alone

• Major Adverse Event Rate at 2 Years
  • Defined as major unplanned amputation of the treated limb, all-cause mortality or clinically-driven target lesion revascularization.

• Change in WIQ/EQ-5D Score at 2 Years

• Target Lesion Revascularization (TLR) at 2 Years

121 Patients
1 year

53 Patients
2 years
DEFINITIVE AR Study – Extension
Freedom from Major Adverse Events at 2 Years

![Graph showing freedom from clinically-driven MAE over time with comparison between DA + DCB and DCB.]
DEFINITIVE AR Study – Extension
Freedom from TLR at 2 years

Graph showing freedom from Clinically-driven TLR over time (months).

Legend:
- DA + DCB
- DCB

Number at risk:
- DA + DCB: 48, 44, 43, 36, 16, 15
- DCB: 54, 51, 48, 42, 22, 19

At 2 years:
- DA + DCB: 77.0%
- DCB: 73.2%
DEFINITIVE AR Study – Extension
Impact of lumen gain at 2 years: trend towards lower TLR with ≤30% residual stenosis after DA

Freedom from TLR: ≤30% residual stenosis

- ≤30% Residual Stenosis Post-DA: 83.3%
- >30% Residual Stenosis Post-DA: 55.2%

Δ +28.1%
DEFINITIVE AR at 2 years
Summary

• DEFINITIVE AR was a pilot study to detect trends in treatment differences between therapy with DA + DCB versus DCB alone, to aid in the development of further research.

• Results suggest that achieving ≤30% residual stenosis following DA leads to better outcomes, which were sustained through 2 years.

• Outcomes from the larger, statistically powered REALITY study will evaluate this concept.
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