Boston Scientific: Designing the pressure guidewire for contemporary PCI scenarios

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Potential conflicts of interest

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☑ I have the following potential conflicts of interest regarding the topics of this presentation:

Speaker at educational events and consultancies:
Boston Scientific, St Jude Medical, Volcano Corporation
20 years of fractional flow reserve

- 1995: DEFER
  - Easy intermediate stenoses

- 2005: ESC guidelines
  - Multivessel disease

- 2015: RIPCORD
  - All stentable size vessels
  - SYNTAX II
  - FAME
  - ACS FFR studies
  - Triple vessel (CABG equivalent)

FAME
FAME III
ACS FFR studies

DEFER
ESC guidelines
RIPCORD
SYNTAX II
FAME III
ACS FFR studies
20 years of fractional flow reserve

- 1995: Easy intermediate stenoses
- 2005: Multivessel disease
- 2015: All stentable size vessels

Pressure guidewire challenge

DEFER
ESC guidelines
FAME
RIPCORD
SYNTAX II
FAME III
ACS FFR studies

Triple vessel (CABG equivalent)
# Intracoronary pressure measurements in complex PCI scenarios

## PAST
- Interrogation of single, intermediate severity stenosis.
- Stable patients.
- Pressure wire rarely used as PCI wire in complex cases.
- FFR and imaging (IVUS) considered as alternative tools.

## PRESENT
- Interrogation of all potential PCI targets irrespective of stenosis severity.
- Stable and ACS patients.
- Use of pressure wire as a PCI workhorse wire.
- FFR and imaging envisaged as synergic tools in diagnosis and treatment.
Intracoronary pressure measurements in complex PCI scenarios

- Tortuous vessels
- Jailed branches
- Vessel calcification
- Multivessel disease
- ...
Traditional PCI wire structure

**Tip**
- Shapeability
- Steerability
- Torque

**Wire core**
- Stability
- Integrity
- Torque
- Rail support

**Key performance features**
- Smooth transition from distal to proximal ends
- Torque transmitted via wire core
- Rail support via wire core
Traditional FFR wire structure

Tip
- Separated from wire body by the sensor

Sensor Housing
- Piezoelectric sensor
- Solid rigid housing
- Abrupt transitions proximal and distal to the sensor

Hollow Wire
* Hollow wire body for sensor connection

Performance drawbacks
- Abrupt transitions around solid rigid housing
- Poor torque due to hollow wire body
- Drift sensitive piezoelectric sensor
Comet FFR Guidewire

Synergy’s Laser-cut High Torque Sleeve
✓ Improved deliverability and performance

Optical Pressure Sensor
✓ Accurate measurements
✓ Less pressure drift

Asahi Tip and Coatings
✓ Better tip transition with performance coatings

Free Spin handle, Wireless connection
✓ Easy lab integration
✓ Unrestricted performance
Asahi Tip with ACTONE / Dual-Coil Technology

Key tip benefits

- Precise torque response
- Optimal tip flexibility and transition
- Durable tip-shape retention
Comet torqueability performance
Optical pressure sensor

- Less drift, better accuracy than piezoelectric technology
- Robust connection (less blood connection issues)
Intracoronary pressure measurements in complex PCI scenarios

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iLab POLARIS Multi-Modality System

- Intuitive software that decreases procedure time
- Hardware that simplifies the procedure
- Complete family of IVUS catheters on multi-modality FFR system
- FFR wire on multi-modality IVUS system
Thank you for your attention