




45TH Annual International Congress of the
EGYPTIAN SOCIETY OF CARDIOLOGY
CardioEgypt 2018

Optimizing Bifurcation, PCI current approach
Learn from cases - European Experience


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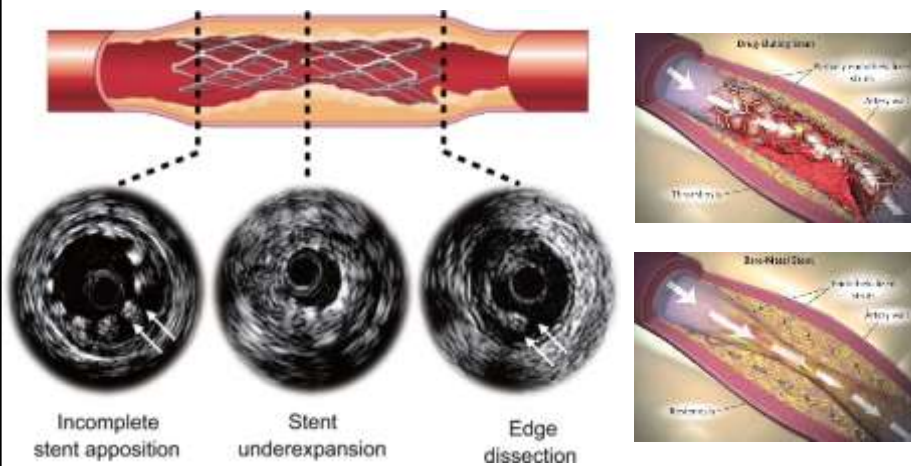
Disclosure Statement of Financial Interest

Within the past 12 months, I or my spouse/partner have had a financial interest/arrangement or affiliation with the organization(s) listed below.

| Affiliation/Financial Relationship | Company |
|---|--|
| <ul style="list-style-type: none"> • Consulting Fees/Honoraria | <ul style="list-style-type: none"> • Philips Volcano • Abbott Vascular • Terumo • MSD • Astra Zeneca • Siemens • Bracco • Balton |

Case 1

IVUS Predictors of DES Early Thrombosis & Restenosis



Case 2



Case presentation

60 years old, male

Risk factors: hypertension

STEMI inferior wall, 2 hours after chest pain onset

Directly transferred to the cathlab by Emergency System

SBP=90/60 mmHg, HR=110/min.

Echo-LVEF=35%



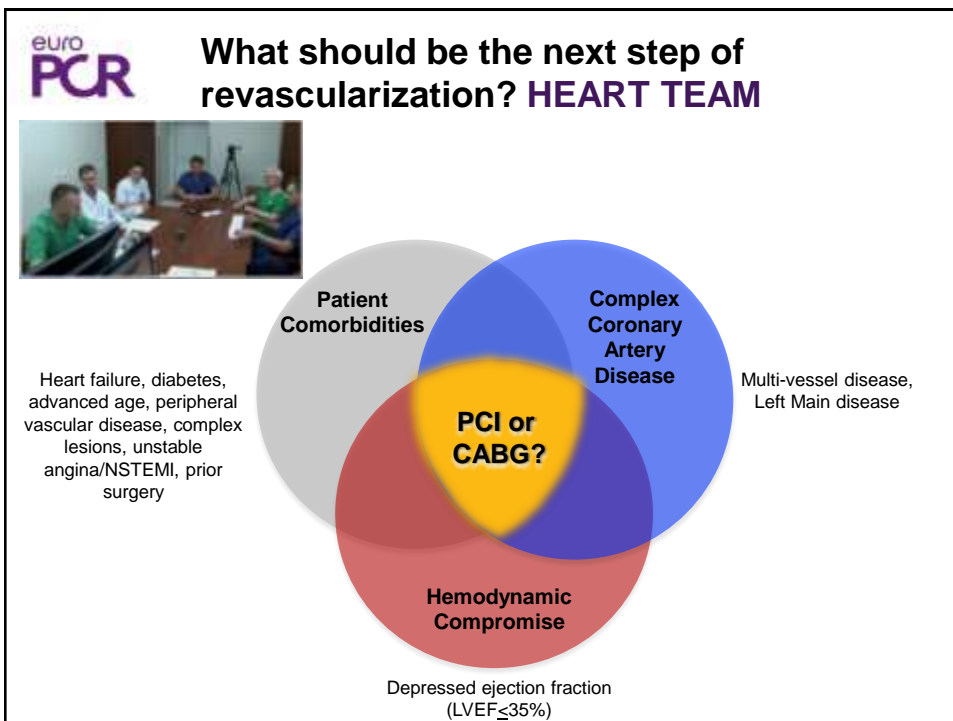
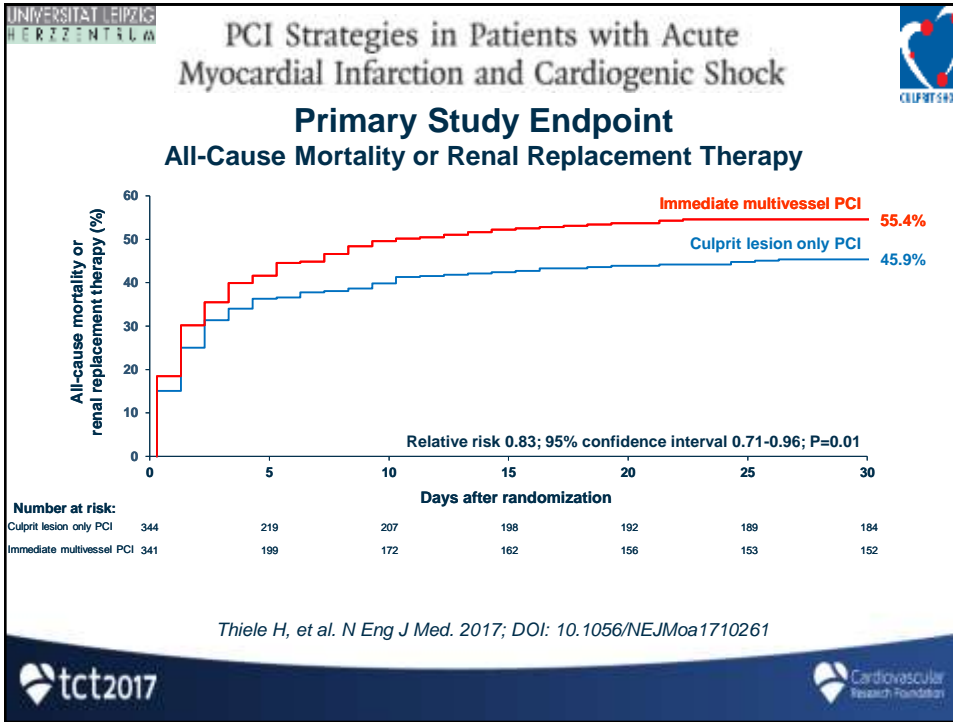
Medication:

ASA - 300 mg

Ticagrelor - 180 mg


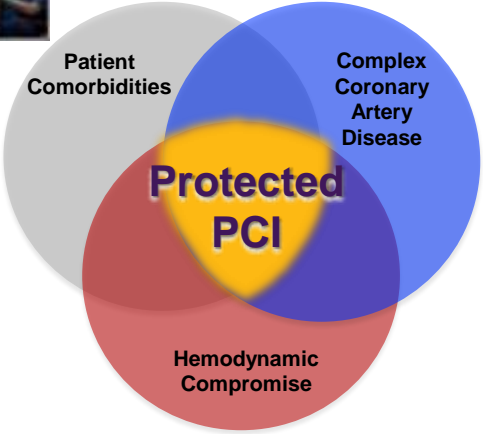
UFH – 60U/kg i. v. bolus

Norepinephrin – i.v. infusion



euro PCR

What should be the next step of revascularization? HEART TEAM

Patient Comorbidities
Heart failure, diabetes, advanced age, peripheral vascular disease, complex lesions, unstable angina/NSTEMI, prior surgery

Complex Coronary Artery Disease
Multi-vessel disease, Left Main disease

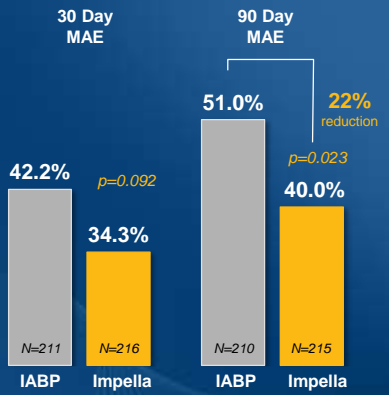
Hemodynamic Compromise
Depressed ejection fraction (LVEF_≤35%)

Protected PCI

PROTECT II TRIAL

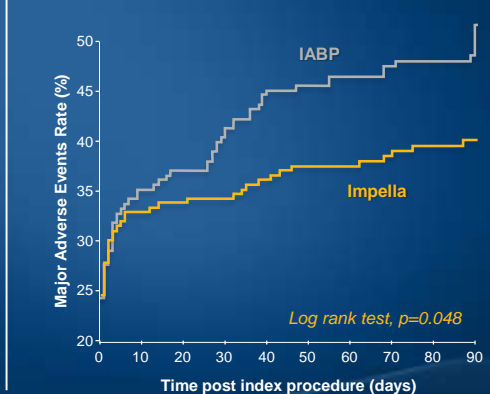
IMPELLA REDUCES MAJOR ADVERSE EVENTS

Per Protocol (N=427)



| Time Point | Group | MAE Rate (%) | N | p-value |
|------------|---------|--------------|-----|---------|
| 30 Day MAE | IABP | 42.2% | 211 | 0.092 |
| | Impella | 34.3% | 216 | |
| 90 Day MAE | IABP | 51.0% | 210 | 0.023 |
| | Impella | 40.0% | 215 | |

22% reduction



Major Adverse Events Rate (%)

Time post index procedure (days)

Log rank test, p=0.048

MAE= Major Adverse Event Rate

O'Neill et al, Circulation. 2012;126(14):1717-27

Case Presentation – Left Main PCI with LVAD Support



Legutko J, Hawranek M, Kleczynski P, Sobczynski R, Dudek D. University Hospital, Krakow, Poland
Dudek D, et al. Presented at TCT'2015
Presented at NFIC'2015

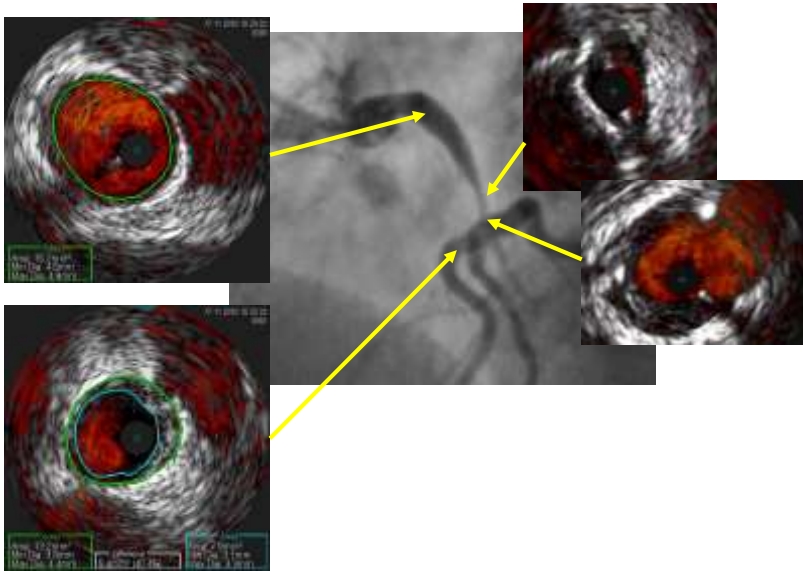


Pre-procedural IVUS assessment of the bifurcation lesion

- 1) measurement of a true lumen and vessel (external elastic membrane [EEM]) dimensions in the mother and daughter vessel,
- 2) analysis of atherosclerotic plaque burden (PB), morphology and longitudinal distribution,
- 3) stent landing zone and reference analysis,
- 4) stenosis severity and negative remodelling assessment (mainly at ostial location),
- 5) measurement of the lesion length (only during automatic pullback), and
- 6) detection of angiographically silent disease (LM stenosis, diffuse disease in reference segments).

Legutko J, et al. Eurointervention 2015; 11(Suppl.V):V59-V63

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IVUS-guided Left Main PCI

Lesion preparation



Mild



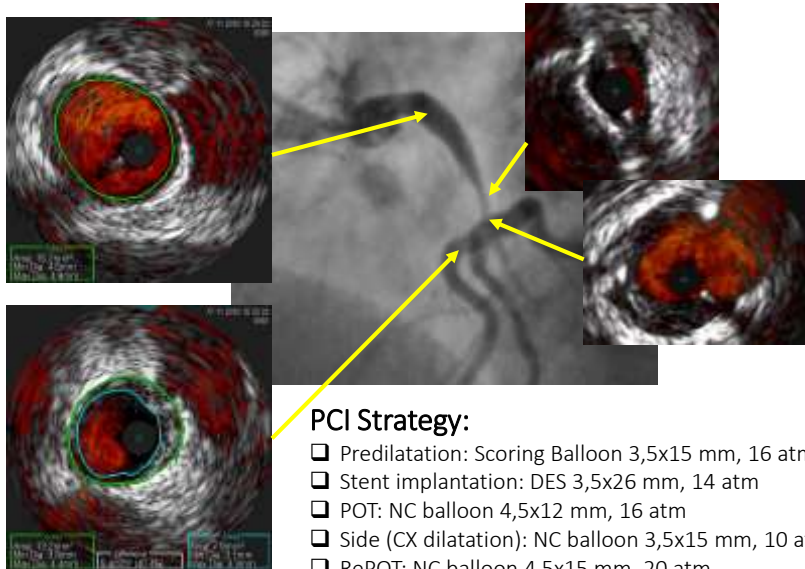
Moderate



Severe



Case Presentation – Left Main PCI with LVAD Support



PCI Strategy:

- Predilatation: Scoring Balloon 3,5x15 mm, 16 atm
- Stent implantation: DES 3,5x26 mm, 14 atm
- POT: NC balloon 4,5x12 mm, 16 atm
- Side (CX dilatation): NC balloon 3,5x15 mm, 10 atm
- RePOT: NC balloon 4,5x15 mm, 20 atm

Legutko J, Hawranek M, Kleczynski P, Sobczynski R, Dudek D. University Hospital, Krakow, Poland
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IVUS assessment of the bifurcation lesion during the procedure

- 1) direct control of wire re-crossing through the jailed SB,
- 2) assessment and optimisation of stent apposition (stent strut adherence to the vessel wall),
- 3) measurement and optimisation of stent expansion (ratio between minimum stent area and lumen area in adjacent reference segment of the vessel),
- 4) assessment of full lesion coverage by the stent (especially at the SB ostial location when using some double-stenting techniques such as T-stenting),
- 5) diagnosis and treatment of stent edge problems (geographic miss, secondary lesions, large plaque burden, dissection, etc.)

Legutko J, et al. Eurointervention 2015; 11(Suppl.V):V59-V63

euro PCR **Case Presentation – Left Main PCI with LVAD Support**

Legutko J, Hawranek M, Kleczynski P, Sobczynski R, Dudek D. University Hospital, Krakow, Poland Presented at NFIC'2015

IVUS-guided PCI for Left Main Disease

Meta-analysis of available data

A

| Study or Subgroup | IVUS guided PCI | | Angiography guided PCI | | Total, Weight | Risk Ratio, IV, Random, 95% CI, Year |
|---|-----------------|-------------|------------------------|-------------|---------------|--------------------------------------|
| | Events | Total | Events | Total | | |
| Park SH, et al. 2009 | 0 | 142 | 22 | 142 | 0.2% | 0.38 [0.19, 0.82] 2009 |
| Kronbalt N, et al. 2010 | 2 | 228 | 8 | 228 | 2.1% | 0.28 [0.05, 1.19] 2010 |
| Jana A, et al. 2011 | 16 | 111 | 23 | 134 | 13.1% | 1.18 [0.68, 2.08] 2011 |
| Narula J, et al. 2012 | 13 | 384 | 47 | 671 | 11.7% | 0.82 [0.35, 1.19] 2012 |
| Park SH, et al. 2012 | 5 | 90 | 16 | 92 | 5.1% | 0.34 [0.13, 0.90] 2012 |
| De La Torre Hernandez JM, et al. 2014 | 37 | 605 | 88 | 605 | 22.3% | 0.98 [0.38, 0.82] 2014 |
| Tan G, et al. 2015 | 2 | 81 | 3 | 62 | 1.8% | 0.88 [0.12, 3.91] 2015 |
| Tang Y, et al. 2015 | 16 | 713 | 49 | 1168 | 12.8% | 0.88 [0.34, 1.94] 2015 |
| Ardest P, et al. 2016 | 37 | 340 | 63 | 340 | 23.8% | 0.99 [0.41, 0.86] 2016 |
| Total (95% CI) | | 3487 | | 3411 | 100.0% | 0.88 [0.47, 1.75] |
| Total events: 129 | | | | | | |
| Heterogeneity: Tau ² = 0.02; I ² = 0.02; H ² = 0.07; P = 19% | | | | | | |
| Test for overall effect: Z = 4.45 (P = 0.0001) | | | | | | |

All-cause death

B

| Study or Subgroup | IVUS guided PCI | | Angiography guided PCI | | Total, Weight | Risk Ratio, IV, Random, 95% CI, Year |
|--|-----------------|-------------|------------------------|-------------|---------------|--------------------------------------|
| | Events | Total | Events | Total | | |
| Park SH, et al. 2012 | 2 | 90 | 12 | 92 | 5.4% | 0.17 [0.04, 0.74] 2012 |
| Narula J, et al. 2012 | 9 | 294 | 42 | 671 | 23.2% | 0.49 [0.24, 0.98] 2012 |
| De La Torre Hernandez JM, et al. 2014 | 17 | 305 | 30 | 302 | 34.6% | 0.57 [0.20, 1.51] 2014 |
| Gao XF, et al. 2014 | 3 | 201 | 13 | 201 | 11.7% | 0.33 [0.12, 0.91] 2014 |
| Tan G, et al. 2015 | 2 | 81 | 3 | 62 | 3.0% | 0.88 [0.12, 3.91] 2015 |
| Tang Y, et al. 2016 | 9 | 713 | 31 | 1168 | 21.5% | 0.48 [0.23, 1.01] 2016 |
| Total (95% CI) | | 1984 | | 2807 | 100.0% | 0.47 [0.33, 0.66] |
| Total events: 44 | | | | | | |
| Heterogeneity: Tau ² = 0.00; I ² = 0.00; H ² = 0.72; P = 0% | | | | | | |
| Test for overall effect: Z = 4.05 (P = 0.0001) | | | | | | |

Cardiac death

Ye Y, et al. PLoS One. 2017;12:e0179756. doi: 10.1371/journal.pone.0179756. eCollection 2017

Left Main PCI remains a challenge

The 12th consensus document from the European Bifurcation Club

- LM PCI remains challenging and the entire team should be able to manage serious complications.
- Stent implantation involves the bifurcation in in 80-90% of LM stenting cases.
- Provisional stenting is the recommended strategy in most distal LM bifurcation lesions.
- Planned two-stent techniques may be indicated in cases with long LCX lesions, high risk of LCX compromise or difficult access.
- It is strongly recommended to have access to intravascular imaging modalities (IVUS/OCT/OFDI) during elective PCI of LM

Lassen JF, et al. Eurointervention. 2017.

Thank you for your attention!



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