Who is the criminal? ; Is the complete revascularization best treatment in Non-STEMI?

CHOE SEONGIL
Hanyang University Kuri Hospital,
KOREA
A 66 year-old male visited at ER due to rest chest pain for 1 hour.

- Past history: He had been healthy as doctor
- Cardiovascular risk factor: only 30 pack-year ex-smoker
- Vital Sign: 36.3 ºC – 20 – 75 BPM – 162/106 mmHg
- Physical Exam: Regular heart beat without murmur

The coronary angiography was performed due to Non-STEMI and persistent chest pain.

Cardiac biomarker
- CK-MB/TnI: 38.3/4.47
- BNP: 869

EKG
- left posterior fascicular block and inverted T waves in inferior leads
- Cardiomegaly with pulmonary edema.
Significant stenosis of mid to distal LAD with TIMI 2 flow and tight stenosis of distal LCX and OM branch.

Near total occlusion at proximal portion with TIMI I flow.

Collateral flow to dRCA was noted with grade I I.
1. What do you think of the infarct-related artery?
2. How many will you use the stent?
3. What is your treatment strategy?
   1. Only culprit lesion vs. Complete revascularization
   2. Single/One time vs. Staged PCI
4. What do you think of RCA lesion?
   1. Acute total occlusion vs. Chronic total occlusion
   2. If PCI for RCA lesion will be failed, what is your plan?
Multi-vessel PCI for NSTEMI

① No current guideline for multi-vessel PCI
② A few studies for multi-vessel PCI

Timing of Staged Percutaneous Coronary Intervention in Multivessel Coronary Artery Disease

George D. Dangas, MD, PhD,* Jon C. George, MD,† William Weintraub, MD,‡
PCI for LAD & LCx lesion

**After engagement & wiring**

Engaged with a 7Fr Launcher EBU 4.0 guiding catheter. Route guide wire was not passed and Fielder XT guide wire was passed.

**Balloon dilatation**

Balloon dilatation was performed at mLAD and dLAD with Maverick 2.0x20 mm (10 atm).
PCI for mid to distal LAD lesion

Post-balloonining image

Stenting at dLAD

Promus Element 2.5x16 mm
PCI for mid to distal LAD lesion

Stenting at mLAD

Another stenting (Promus Element 2.75x28 mm)

Stenting at dLAD

Additional stenting with Promus Element 2.5x32mm
Route guide wire was passed through LCX and balloon dilatation was performed at OM and dLCX with Maverick 2.0x20 mm balloon.
Stenting at OM

Stenting at dLCx

Stenting was performed at OM with Promus Element 2.75x24 mm.

Another Promus Element 3.0x28 mm stent was implanted at dLCX
Final left coronary angiogram

- TIMI 3 flow in all coronary vascular beds.
- Total dye amount was 160mL.
- Total fluoro time was 25 minutes.
What's the next plan?

Sleep well without any concern.
安心して寝る

Exertion of the mind
勞心焦思(노심초사)

Single/One time PCI vs. Staged PCI

Our choice was the one time PCI.
Engaged with a 7Fr Cordis JR 4.0 guiding catheter. Route guide wire was not passed.

Fielder XT guide wire was passed fortunately.
Balloon dilatation was performed from mRCA to pRCA with Maverick 2.0x20 mm balloon.
PCI for mid to proximal RCA lesion

Promus Element 3.0x32 mm stent was implanted.

Another stenting (Promus Element, 3.0x38 mm)
PCI for mid to proximal RCA lesion

High pressure ballooning

High pressure balloon dilatation with Quantum 3.0x8 mm balloon from mRCA to pRCA.

IVUS examination
Final IVUS examination revealed good stent apposition.
Final right coronary angiogram

- Good results with TIMI 3 coronary flow
- Total dye amount was 250mL.
- Total fluro time was 42 minutes.
Next day Transthoracic Echocardiography

Parasternal long axis view

Parasternal short axis view

Apical 4-chamber view

Apical 2-chamber view

LAD territory wall hypokinesia
TTE 3 months later

Parasternal long axis view

Parasternal short axis view

Apical 4-chamber view

Apical 2-chamber view

Improved state of regional wall motion abnormality corresponding to LAD territory.
1. The infarct-related artery was LAD artery.

2. Treatment strategy was complete revascularization with single/one time PCI.

3. Total 7 DES stents was used for complete revascularization.

4. The proximal RCA lesion was chronic total occlusion.

5. If PCI for RCA lesion will be failed, retrial of CTO-PCI is worthy.
In patients with multi-vessel CAD presenting with NSTE-ACS, multi-vessel intervention was significantly associated with a lower revascularization rate, which translated to a lower incidence of the composite end point compared with culprit-only stenting. (J Am Coll Cardiol 2007;49:849–54)
Multi-vessel revascularization in multi-vessel coronary artery disease presenting with NSTEMI showed better clinical outcomes without significant ISR and progression of diseased-vessel compared to culprit-only revascularization. International Journal of Cardiology 2011;153; 148–153
Conclusion

1. There are two strategies to treat the multi-vessel CAD in NSTEMI such as “one time PCI” (concurrent revascularization) and staged PCI (culprit-only stenting).

Which is the better treatment?

2. There is few reliable evidence which is the more effective therapy. Previous studies proved no reduction in MACEs, but lower revascularization rates after multi-vessel PCI. Recently, several studies showed that multi-vessel PCI is beneficial in patients with NSTE-ACS compared to culprit-only PCI.

3. In NSTEMI, there are no formal guidelines about revascularization in multi-vessel disease.

In NSTEMI patients with multi-vessel CAD,

4. In my opinion, I suggest that the one of the best treatment options is concurrently complete revascularization of infarct-related artery and non-infarct-related artery.

5. RCT is needed to verify which is the more effective therapy and to establish the formal guidelines.
Don't put off for tomorrow what you can do today!

Take home message

- 오늘 할 일을 내일로 미루지 말라.
- あなたが今日できることを明日のために延期しないでください！(日本語で)
- 不要把明天今天你可以做什么！(簡体中文版)
- 不要把明天今天你可以做什麼！(中國傳統)
- No dejes para mañana lo que puedas hacer hoy! (español)
- Ne remettez pas à demain ce que vous pouvez faire aujourd'hui! (français)
- Nicht abschrecken für morgen, was Sie heute tun können! (Deutsch)
- (العربية) لا تأجيل ليوم بعد ما يمكنك القيام به اليوم!
- Не откладывай на завтра то, что можно сделать сегодня (В России)
the absence of inverted T waves in inferior leads.
TTE 12 months later

Parasternal long axis view

Parasternal short axis view

Apical 4-chamber view

Apical 2-chamber view

Improved state of LAD territory wall hypokinesia