Ninth Annual
Cardiovascular Emergencies Conference 2017:
An exploration into the expansion of time-critical diagnosis

Ohio State Richard M. Ross Heart Hospital

STEMI – ST Elevation Myocardial Infarction
Breakout Session One
Moderators: Quinn Capers IV, MD and Scott M. Lilly, MD, PhD
Cases Presented by: Umair S. Ahmad, MD

Improving People's Lives Through Innovations in Personalized Health Care
Outline

1. Multivessel Revascularization
2. Radial Artery Access for STEMI with shock
3. STEMI Nightmares

Case 1

- Patient Demographics
  - 38 y/o Male

- Risk Factors
  - None

- Past Medical History
  - None

- Clinical presentation
  - Presented to ED with continued anterior chest pain after playing volleyball radiating to LUE
EKG

Right Coronary Artery with collaterals to left
Occluded Mid LAD

Angioplasty to Mid LAD
Post PCTA angiogram

Post PCTA caudal projection
Post DES placement angiogram

DES of distal Left Circumflex
Final Angiogram

Discussion
Case 2

- Patient Demographics
  - 44 y/o F

- Risk Factors
  - Early onset family hx of MI
  - Father (33), Brother (27)
  - 30 pack year smoking

- Past Medical History
  - Nephrolithiasis

- Clinical presentation
  - Severe chest pressure radiating to LUE associated with diaphoresis

EKG on presentation
Mid Left Circumflex 95% stenosis

Cranial View of LAD
PCTA of mid Left Circumflex

Mid RCA 95% Stenosis
Post PCTA angiogram

Post DES of RCA angiogram
Post PCI EKG

Discussion
**CvLPRIT Trial**

Randomized Trial of Complete Versus Lesion-Only Revascularization in Patients Undergoing Primary Percutaneous Coronary Intervention for STEMI and Multivessel Disease

**The CvLPRIT Trial**

Anthony H. Gershlick, MBBS,* Jamal Nasir Khan, MB Coll,* Damian J. Kelly, MB Coll, MD,* John P. Greenwood, MB Coll, PhD,† Thiagarajah Sankaran, RSc, PhD,* Nick Curzen, BM, PhD,* Daniel J. Blackman, MD,‡ Miles Dalby, MBBS, MD,§ Kathryn L. Fairbrother, BA,** Winston Banya, MSc,†† Duoluo Wang, PhD,¶ Marcon Fletcher, MB BS,Simon L. Hotherington, MB Coll, MD,|| Andrew D. Kellison, BM BCu, DM,†‹ Simon Tailwar, MB BS, MD,‡ Mark Gunning, MD,*** Roger Hall, MD,|| Howard Swanton, MB BCu, MD,||| Gerry P. McCann, MB Coll, MD*  

**Trial design:** Participants with STEMI were randomized to complete revascularization (n = 150) vs. culprit-only PCI (n = 146).

**Results**

- Death, MI, heart failure, or ischemia-driven revascularization at 12 months: 10.0% of the complete revascularization group vs. 21.2% of the culprit-only group (p = 0.009)
- All-cause mortality: 1.3% vs. 4.1% (p = 0.14), respectively
- MI: 1.3% vs. 2.7% (p = 0.39), respectively
- Heart failure: 2.7% vs. 6.2% (p = 0.14), respectively
- Repeat revascularization: 4.7% vs. 8.2% (p = 0.2), respectively

**Conclusions**

- Among STEMI patients, complete revascularization appears beneficial at reducing major adverse cardiac events
- Benefit was primarily due to reduction in repeat revascularization procedures
Case 3

- **Patient Demographics**
  - 61 y/o M

- **Past Medical History**
  - HTN, HLD, DMII

- **Risk Factors**
  - 23 pack years

- **Clinical presentation**
  - Witnessed arrest s/p ACLS with 1 round of CPR / defibrillation and ROSC
  - BP on presentation 70/40

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**EKG**

![EKG Image]
Anterior-Lateral MI with Cardiogenic Shock

DES in to proximal LAD
Post DES angiogram

Ultrasound guided Radial artery access

- Right Radial Ultrasound
Ultrasound

- Use of higher frequency vascular ultrasound probes in the frequency range of 5-12 mHz
- Other uses of ultrasound guided Radial artery access include patients with continuous flow support devices ie LVAD and ECMO patients.

Case 4

- Patient Demographics
  - 60 y/o Male

- Risk Factors
  - Smoking

- Past Medical History
  - Hypertension
  - Hyperlipidemia

- Clinical presentation
  - Acute substernal CP
  - Called EMS and arrived to Non PCI center
  - 2.5 hour delay due to weather
  - Received Tenectaplace, ASA, Clopidogrel, and Heparin
Initial ECG via EMS

EKG upon transfer
RCA angiogram

Left Circumflex Occlusion
PCTA of Left Circumflex

DES of Left Circumflex
Thrombolysis: Clinical Efficacy

- 22 randomized trials 1983 – 1993, n = 50,246
  - Thrombolysis v placebo in STEMI
  - Mortality benefit if < 2 hours from symptoms
    - Stroke rate 1-2%
Case Conclusion and Take Home Points
- Rescue PCI, drug-eluting stent of Left circumflex
- Pre-discharge ejection fraction 55% with mild inferior wall hypokinesis.
- In STEMI, thrombolysis is indicated if first medical contact to primary PCI time is judged to be > 2 hrs
- Transfer to PCI capable hospital, evaluate for angiography on arrival

Case 5
- Patient Demographics
  - 59 y/o M
- Past Medical History
  - Never seen a physician
- Risk Factors
  - 30 pack year smoking
- Clinical presentation
  - Developed acute onset chest heaviness and headache took 3 ASA then drove to local ED.
EKG

RCA angiogram
Initial LCA view

LAD
Left Circumflex

Repeat EKG
IVUS of ostial and proximal LAD
DES to LAD

Final Angiogram with DES to LAD
Discussion

- Thank you