Objectives

- Detail available invasive reperfusion and hemodynamic support therapies
- Explore key issues relevant to severe chronic peripheral artery disease
- Review cardiac imaging, peri-infarct electrical monitoring and electrophysiology considerations in the critically ill cardiac patient
- Discuss timing and type of cardiac arrest prevention management devices in the patient with severe atherosclerotic disease.

* Investigational (non-FDA approved) technologies may be discussed during this presentation.
Case study: Clinical presentation

**CC / HPI:**

- 70 year old male with HTN, smoking, DM, PAD but no known CAD, develops CP at home, arrests in the field, receives bystander CPR and defibrillation for VF. EMS arrives.
- Initial 12 lead ECG in field comes back with anterior ST elevations and through mission lifeline is transmitted to ER, read and the cath lab is activated.
- Patient is transported to ER in somnolent state intubated with return of spontaneous circulation. Interventional team meets him in the ER.
Case study: ECG in the Field

Post-defibrillation 12-lead ECG

- Sinus tachycardia with premature complexes, bifascicular block (RBBB+LAFB), antero-septal ST elevations
Physical Examination:

**Vitals:** T: Afebrile P: 109, irregular   BP: 85/48  RR: 14 (vent)  79 kg
**Gen:** elderly white male, intubated, somnolent
**HEENT:** PERRL, NCAT, MMM
**Neck:** 1+ carotid upstrokes, bilateral carotid bruits, JVD12 cm
**Resp:** coarse BS
**CV:** RRR, NL S1/S2, no S3 or S4 gallops
**Abd:** Bowel sounds absent, no organomegaly
**Ext:** No edema, warm, but with relative bilateral atrophy
**Pulses:** 1+ left femoral, No right femoral pulse 1+ PT, absent DP bilaterally
Initial Management:

- The patient is immediately given ASA 325 mg via NGT and heparinized (60 u/kg bolus)
- All labs are pending
- Cardiac cath lab has already been activated for STEMI
Cardiac catheterization
Cardiac catheterization
Cardiac catheterization
Primary PCI

• Proximal to mid LAD covered with a single DES
• 0% residual stenosis with TIMI III in LAD but sluggish flow into septal perforators and distal diagonal branches
LV Angiography

- LVEDP = 22 mm Hg, LVEF 32% with severe ant-lat/apical HK
- Due to ongoing hypotension / pressor needs, IABP ???

- Therapeutic hypothermia considered
Case study: Clinical management

Course:

• Cloud of thrombus in the LAD, CTO RCA with collaterals. LAD undergoes thrombectomy and stented with excellent angiographic results.

• Intravascular cooling is initiated with the Zoll Thermogard catheter.

• Given dopamine requirement and hypotension, abdominal aorta is imaged to put in an IABP and found to be totally occluded with SMA collaterals to the CFAs bilaterally.
To treat or not to treat: When is the Question!!! Learning from ERASE and other recent studies

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Case study: Laboratory data

Initial Laboratory Data (drawn in ED):

- **CBC:** WNL
- **Chem-7:** WNL
- **BUN / Cre:** 31 / 1.9
- **Est GFR:** 43 cc/min
- **CK / CK-MB:** 200 / 6.8 (ULN 5%)
- **cTnT:** 0.16 (ULN 0.03)
Case study: CXR in CCU

Initial CXR (AP portable film)

- ETT in place
- Increased lung markings c/w pulmonary edema
- RUL consolidation
• In the CCU, the patient responds to direct PCI
• Cooling is removed at 24 hours.
• Mentation and urine output improves.
• Pressor requirement is removed gradually.
• Patient is supported and begins the medical phase of therapy including beta blocker therapy, ACEI, DAPT and statin.
• TTE reveals EF 25-30% with anterior AK, mild MR and trivial pericardial effusion
Our key issues for review

• How should the advanced peripheral vascular disease be managed, acutely?
• How should the advanced peripheral vascular disease be managed, chronically?
• Who do we consult, Surgery or Interventional...... minimal invasive vs. open?
• Given his cardiac arrest presentation, is there a difference in managing this patient’s risk of sudden death based on ejection fraction?
• Given the majority of patients post MI or PCI have preserved EF, what are methods of ECG ambulatory monitoring being developed?
Innovative Heart Rhythm Monitors for Patient Comfort: Ziopatch to iRhythm

Eric Good, DO
Assistant Professor of Medicine
University of Michigan Cardiovascular Center
CASE UPDATE
• Arrhythmias controlled; high risk, debilitated patient sent home with LifeVest.

• Patient has resumed daily activities at home

• Frequent clinic visits with improvement

• Now we have chronic management considerations
  • Peripheral vascular disease intervention
  • ICD device timing and selection
Managing Ventricular Arrhythmias
Post MI: Ablation and Devices

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Panel Discussion & Questions