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STEMI 2012
Disclosures

• None
Goals:

• Review Action Registry Data (Ohio vs National)
• Case Review: EMS changes the rules
• Changes in STEMI Care: Review ACC/AHA 2011 Guideline Update
• What’s new in Central Ohio: STEMI Accelerator Program
STEMI Reperfusion

“Trauma of the Heart”

Photo Courtesy of MedFlight of Ohio
ACTION Registry-GWTG Data

DTB: Percentage ≤ 90 minutes (non-transfers)
ACTION Registry-GWTG Data

First Medical Contact to Primary PCI ≤ 90 Min
ACTION Registry-GWTG Data

 Patients Arriving by EMS/Air Transport (%) (non-transfers)
ACTION Registry-GWTG Data

First EKG obtained Pre-Hospital
Pre-Hospital EKG and EMS transport: Does it Matter?

- 52yo AAM with no PMHx noted acute onset of dyspnea, fatigue, diaphoresis and bilateral shoulder pain while landscaping.
- Co-workers transported him to local firehouse, Columbus Fire Medic 18, for assistance.
- Medics rapidly assessed the patient. Noting his respiratory distress, they immediately provided oxygen and obtained a 12 lead EKG.
- EKG interpretation: Anterolateral STEMI
Medic 18 rapidly went into action:
- Initiated transport and transmitted 12 lead EKG.
- Requested activation of the OSU cath lab.
- Established IV access and administered ASA/NTG.

Cath team had assembled to meet M18 upon arrival.

During transport, patient has VF arrest x 2 with successful defibrillation

Upon arrival, VF arrest while moving to cath lab table

A Changing Paradigm: Who is making the diagnosis of STEMI?
Cardiac Catheterization
Thrombectomy: Export Catheter
A Changing Paradigm

- Culprit Lesion: 100% Proximal LAD occlusion
- Intervention: Thrombectomy, angioplasty and stent
- Key Metrics
  - *Door to Balloon time*: 20 minutes
  - *FMC to Balloon time*: 48 minutes (goal < 90m)
  - *Symptom to Balloon time*: ~60-65 minutes
- Ejection Fraction: 73% by ECHO, normal
- Peak Troponin 20.25
- Discharged on Hospital Day #3
Field Activation: A Changing Paradigm

- Columbus Fire Medic 18 wins EMS Star of Life Award that following Spring
Understanding the ACC/AHA Guidelines

**CLASS I**
- Benefit >> Risk
- Procedure/Treatment **SHOULD** be performed/administered

**CLASS IIa**
- Benefit >> Risk
- Additional studies with focused objectives needed
- IT IS REASONABLE to perform procedure/administer treatment

**CLASS IIb**
- Benefit ≥ Risk
- Additional studies with broad objectives needed; additional registry data would be helpful
- Procedure/Treatment **MAY BE CONSIDERED**

**CLASS III**
- Risk ≥ Benefit
- No additional studies needed
- Procedure/Treatment should **NOT** be performed/administered **SINCE IT IS NOT HELPFUL AND MAY BE HARMFUL**

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**LEVEL A**
- Multiple (3-5) population risk strata evaluated*
- General consistency of direction and magnitude of effect

**LEVEL B**
- Limited (2-3) population risk strata evaluated*

**LEVEL C**
- Very limited (1-2) population risk strata evaluated*

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Suggested phrases for writing recommendations:

- Level A: Strong evidence
- Level B: Moderate evidence
- Level C: Limited evidence

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*Based on evidence level
**CPORT-E Trial**

**Background:** Comparison of the safety and quality outcomes of PCI performed at hospitals with and without on-site cardiac surgery.

**Purpose:** To determine whether the safety and benefits of angioplasty are the same at hospitals with or without surgery backup. The study is designed to show that there is no detectable difference between the safety and benefits of the procedure at the two types of hospital. Cost is also compared.

**Methods:** Interventional, randomized, safety/efficacy study, parallel assignment, open label, non-inferiority, health services research (n=18,867 randomized)

**Primary Endpoints:** Mortality at 6 weeks and MACE = death + MI + TVR at 9 months

**Secondary Endpoints:** Include emergency CABG; MI; TVR & subsequent TVR; HF & class; Angina & class; stroke; MACE; angiographic complications & success; please see complete listing at clinicaltrials.gov

**Results:** Mortality and incidence of bleed, vascular repair, stroke and renal failure was comparable in both groups.

**Conclusion:** Patients who had non-emergency artery-opening angioplasty or stent implantation at hospitals without cardiac surgery capabilities fared as well as those in hospitals that did. Outcomes at 9 months post procedure will be reported next year.

PCI in Hospitals Without On-Site Surgical Backup

Elective PCI might be considered in hospitals without on-site cardiac surgery, provided that appropriate planning for program development has been accomplished and rigorous clinical and angiographic criteria are used for proper patient selection.

Primary PCI is reasonable in hospitals without on-site cardiac surgery, provided that appropriate planning for program development has been accomplished.
STEMI Reperfusion

2007

STEMI patients presenting to a hospital with PCI capability should be treated with primary PCI within 90 minutes of first medical contact.

New 2011 Recommendation (90 minutes prior rec)

STEMI patients presenting to a hospital without PCI capability and who cannot be transferred to a PCI center for intervention within 120 minutes of first medical contact should be treated with fibrinolytic therapy within 30 minutes of hospital presentation, unless contraindicated.

New 2011 Recommendation (90 minutes prior rec)
ACTION Registry-GWTG Data

Median Time from FMC to Primary PCI (mins) (transfers only)
“Where you live should not determine whether you live”
REGIONAL SYSTEMS OF CARE DEMONSTRATION PROJECT:
MISSION: LIFELINE™ STEMI SYSTEMS ACCELERATOR

February 28, 2012: Central Ohio Chosen as site for STEMI Accelerator project
**Physician Faculty**

Peter Berger, MD - Interventionalist; Geisinger Clinic, Danville, PA

Harry Dauerman, MD - Interventionalist; University of Vermont, Burlington, VT

Lee Garvey, MD - EMS/ED Medicine; CMC Charlotte, NC

Christopher B. Granger, MD - Cardiologist; Duke University Medical Center, Durham, NC

James G. Jollis, MD - Cardiologist; Duke University Medical Center, Durham, NC

Greg Mishkel, MD - Interventionalist; Prairie Heart, Springfield, MO

Ivan Rokos, MD - Emergency Medicine; Los Angeles, CA.

B. Hadley Wilson, MD - Interventionalist; CMC Charlotte, NC - Sanger Clinic

**Implementer Faculty**

Claire Corbet, MS, EMT-P; Paramedic and Regional System Implementer- New Hanover Medical Center, NC

Loni Denne, RN, BSN; Nurse and Regional System Implementer (Austin and now Southwest USA; American Heart Association, SR. ML Director.

Mayme Lou Roettig, RN, MSN; CV Clinical Nurse Specialist and Regional & State System Implementer; DCRI-Durham, NC

Stephanie Starling-Edwards, MBA, RN, MSN; Nurse and Regional System Implementer; Wake Forest University-Winston-Salem, NC
Regional system

A system that includes all hospitals within a region, establishes common hospital and EMS protocols, and shares common data
Regional system

Advantages

A. Patients walk in to every hospital and call every EMS agency… all need a plan.

B. Regional leadership involving all major hospitals is more effective at influencing referring hospitals and EMS agencies.
   - If all leading professionals and institutions in a region agree, recommendations more likely to be adopted.

C. Single approach enhances rapid treatment
   - everyone knows their role, no hesitation to find out who is on call….
STEMI SYSTEMS ACCELERATOR

Intervention

A. Using national level system faculty and local AHA staff to broker competitive entities to regionalize STEMI care for a community (traditional referral lines remain intact)

B. Success based on regional local leadership owning the program.

C. Unbiased staff to recruit all hospitals to join centralized database (ACTION Registry)

D. Regional Intervention Day (CME/CNE event)

E. Data- Baseline, Quarterly for 1 year, Post Intervention

F. Quarterly meetings to share best practices, data review across the region and identify strategies to improve process
STEMI SYSTEMS ACCELERATOR
Where are we currently

- PCI hospitals in the Accelerator Region
  - Ohio Health, Trinity Health, Ohio State, Fairfield Regional (others pending)
- May 11-12 Atlanta GA, Emergency CV Care 2012: Regional Systems Development conference
- June 26, 2012: Central Ohio kickoff meeting
- Agree to “systems release”
  - Hospitals ID’s are blinded
  - Data may be aggregated (combined) for regional report
  - Quarterly Data through December 31, 2013
- Regional STEMI Protocols Developed
- Expanded Regional Meeting Sept 26th, Fawcett Center
“Together, we must create a high-performance culture that values collaboration, tolerates risk and rewards success”

E. Gordon Gee