Bring In Your Dead

Other Considerations Beyond On-Scene Termination

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The Past

Frank Pantridge

“Flying Squad”, 1967

Pantridges' Portable Defibrillator

The Present

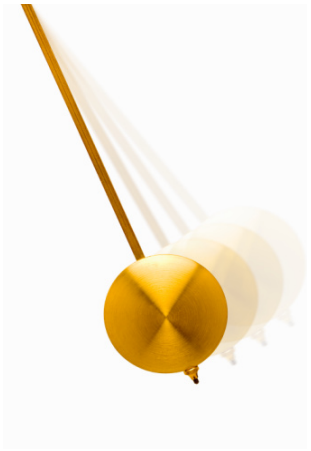
- Less emphasis on ALS interventions
- Greater emphasis on:
  - Early activation of 9-1-1
  - Rapid response
  - Bystander CPR, public access AED
  - High-quality CPR, early defib.
  - Pit crew approach
- When to terminate efforts?

Termination of CPR

- In the past, indications for EMS stopping CPR:
  - Return of spontaneous circulation
  - Transfer of care to another trained provider
  - Instructed to stop by MD
  - EMS too exhausted to continue

The Present

- Field termination of cardiac arrest resuscitation efforts now more common
- Makes sense: Transporting coding patients who have no chance of survival may:
  - Jeopardize safety of providers and public
  - Delay EMS response to patients who may better benefit from care



NAEMSP Position Statement

- "EMS systems should have…protocols that allow for termination of resuscitation in non-traumatic cardiopulmonary arrest
- Termination…may be considered when:
  - Arrest not witnessed by EMS provider
  - No shockable rhythm
  - No ROSC prior to EMS transport
- *Further research needed* to determine appropriate duration of resuscitation"

- NAEMSP Position Statement, 2/18/2011

PA Statewide Protocol

When to stop:

- CA patient has not responded, *AND medical command physician has ordered termination.*
  - Consider field termination when:
    - No response to ~ 20 min. of ALS
    - BLS care when AED has advised “no shock” on 3 sequential analyses, and patient cannot arrive at ED or ALS cannot arrive at patient within 15 min.
- *Is there a downside to field termination?…*

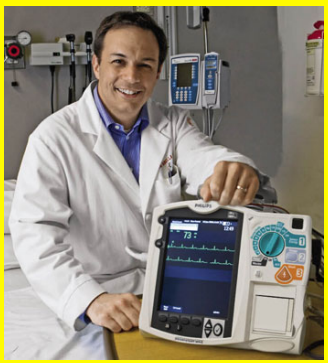
PA Dept. of Health TERMINATION OF RESUSCITATION STATEWIDE ALS GUIDELINE

Downside of Field Termination

"I don't wanna be dead! There's no future in it!"

Golden Age of Resuscitation Science

- Penn's *Center for Resuscitation Science*
  - Dedicated to improved CA outcome through advances in clinical care, research, education
  - Brings together EM, critical care, surgery, anesthesia, neurology, basic sciences, engineering
  - $4 million annual NIH funding



The Age of Resuscitation Science

- Penn uses multidisciplinary treatment protocol for resuscitated pts
  - Treatment bundle includes TH, early PCI for STEMI, early hemodynamic optimization
  - Before program, 22% of OHCA survivors admitted to hospital with pulse survived to d/c
  - After implementation, > 50% survived

Resuscitation 2009;80:418-424.

Other Resuscitation Programs

- Other programs in U.S., abroad
- Emphasize:
  - Early TH (intra-arrest, post-arrest)
  - Early hemodynamic stabilization
  - Early PCI
- Committed leadership & clinical departments
- Dedicated oversight, QA
- Active education programs
- +/- Research

RESUSCITATION CENTER DESIGNATION: RECOMMENDATIONS FOR EMERGENCY MEDICAL SERVICES PRACTICES

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PREHOSPITAL EMERGENCY CARE 2010;14:51–61

Regionalized CA Care

- Hospitals with such programs seem to have higher success rates than others
- May make sense to transport CA pts to one of these hospitals
- Within one EMS system could have:
  - Primary resuscitation centers
  - Comprehensive resuscitation centers
- So *why not transport all CA patients?*

On Scene/En Route

- Uninterrupted CPR
  - Mechanical device
  - Manual CPR with metronome/feedback
- Defibrillation when indicated
- Therapeutic hypothermia (*maybe*)
  - After ROSC or intra-arrest (yet to be decided)
- Early notification of nearest resuscitation ctr
- ***Drive!***

Challenges to Implementation

- Not feasible for all systems
  - Insufficient hospital resources/commitment
- ? Patient/rhythm selection
- ? Role of transport times
- ? Urban versus rural
- No direct evidence base to support this
  - Need head-to-head comparison studies

Conclusions

- May be time to give Curly a chance
- As resuscitation science grows, transporting all CA pts may save some patients
- Could enhance research efforts of resuscitation ctrs by bringing them more pts
- Ultimate benefit to all CA patients, both in prehospital setting and in hospital


I Don’t Want to Go on the Cart!