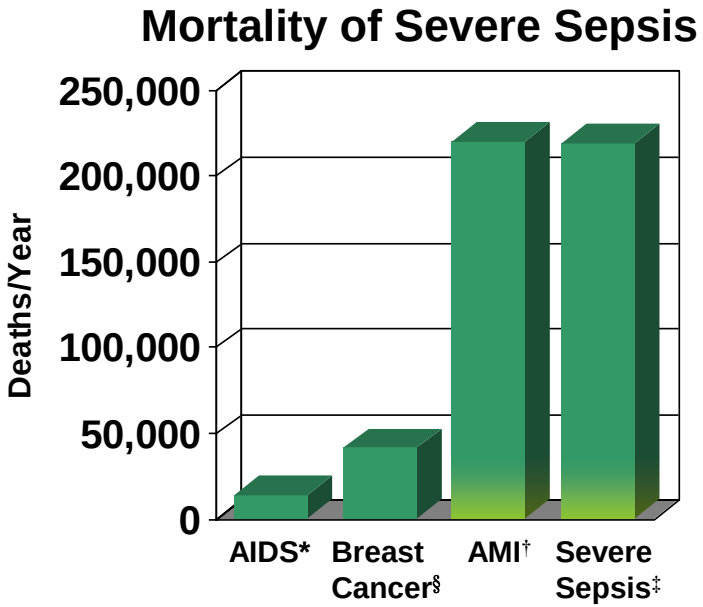
Adherence of Therapeutic Hypothermia /EGDT

Patrick Chow-In KO M.D., MSc.
Assistant Professor, National Taiwan University Hospital (NTUH)
Taiwan

Introduction

Severe Sepsis: Comparison With Other Major Diseases



†National Center for Health Statistics, 2001. §American Cancer Society, 2001.
*American Heart Association. 2000. ‡Angus DC et al. *Crit Care Med.* 2001

Introduction

Barriers in Implementing EGDT

- Lack of nursing staff
- Need for monitoring CVP in the ED
- Challenges in identifying severe sepsis
- Limited knowledge in the protocol

Carlbom DJ et al. Barriers to implementing protocol-based sepsis resuscitation in the emergency department. Crit Care Med 2007; 35:2525-32

Surveys

Surveys of use of TH in responder's institution

- Cross-sectional, observational, self-reported use of TH
- Sometimes users asked if a written protocol used
- Non-users asked about barriers
- Low response rates or narrow target populations
- Kennedy 2008;125
  - 2006 survey, Canadian ED docs, 19% resp. rate
  - 47% used TH (self-reported)
  - 77% of TH users reported a written protocol, v. 24% of TH non-users (OR 10.5)
- See Table for self reported "barriers"

Introduction

Table – Surveys: Implementation Barriers & Facilitating Factors

Survey Studies		Perceived "BARRIERS"		Perceived "Facilitating Factors"	
Author-year (Survey year) Population *Response Rate* =Key Study	% Claim "Using TH"	*I. Does it fit?* Evidence –does it work?*	*II. Should we do it?* ROI/resources/risk-benefit* *III. Can we do it?* Local political/operational/tech*	*IV. How can we do it?* Post-decision logistics* Written Protocol	*IV. How can we do it?* Post-decision logistics* Institutional Factors
Abella-2005 (2003) SAEM MD *19%*	13%	49% Not enough evidence 32% Had not considered it	28% Technically too difficult		
Merchant- '06 (2005) US (UK, Finn) *17% (91%<US)*	26% in US; 36% in nonUS	48% Not enough evidence 41% Not part of ACLS 34% Had not considered it 3% Initial results unsatisfied	35% Technically too difficult 9% Cooling methods slow 5% Concern about consent 16% Other		OR: 1.8 NonUS 1.7 ICU v other 1.2 arrests/y>10 1.1 hosp size
Laver-2006 (2005) UK ICU MDs *98%*	27%	14% Didn't know evidence 23% Not enough evidence 19% Discussed, not started 2% Planned to use 29% No reason	26% Lack resources 2% Stopped - too hard 16% Other		
Kennedy-2008 (2006) Canada ED MDs *19%*	47%	8% Not enough evidence 9% Disagree w/ evidence	39% Lack protocol 29% Lack resources 9% Lack consultants 6% Technically too difficult 3% Lack admin; 2% Lack nurses	OR 10.5 (77% of sites w/protocol used TH v. 24% w/o)	58% of academic centers used TH v. 28% of non-academic sites
Bianchin-2009 (2007) Italian ICUs *90%*	16%	45% Not enough data/exper 9% Disagree w/ evidence 18% Had not considered it 10% Planned to use (+ 32% Wanted more info)	6% Technically too difficult 12% Other ?% "Requires too many nurses"	(60% of users had written operating procedures)	
Soffoletto-'08 (2007) EMS Dirs 59%	*6.2% Pre-Hosp*		*62% Overburden* *22% Lack protocol* *57% Hosp don't continue 1% Lack nurses*		

Aims

- To know the adherence of TH and EGDT for emergency medicine practice among Pan-Asian area and its difference between systems

- To know the factors for the difference

Methods

- Questionnaire
- Web-based survey
- Server already

Basic demographic data

- ■ Hospital type
  - ☐ Tertiary academic hospital
  - ☐ Referral hospital
  - ☐ Community hospital
  - ☐ Other: _____
- ■ Hospital size
  - ☐ up to 250 beds
  - ☐ 251–500 beds
  - ☐ 501–750 beds
  - ☐ 751–1000 beds
  - ☐ More than 1000 beds
- ■ Level of training
  - ☐ Attending
  - ☐ Fellow
  - ☐ Resident
- ■ Field of practice
  - ☐ Emergency medicine
  - ☐ Critical care
  - ☐ Cardiology
  - ☐ Internal medicine
  - ☐ Other: _____

Methods

ED profiles

■ Estimated case amount of OHCA/sepsis/ACS/CVA
■ OHCA patients treated per month: _____
☐ <5 ☐ 5-10 ☐ >10
■ Sepsis patients treated per month: _____
☐ <5 ☐ 5-10 ☐ >10
■ ACS patients treated per month: _____
☐ <5 ☐ 5-10 ☐ >10
■ CVA patients treated per month: _____
☐ <5 ☐ 5-10 ☐ >10
■ The rate of adherence to guideline
■ Septic patient underwent EGDT: _____/_____
■ Patient of ischemic stroke underwent rt-PA: _____/_____
■ Patient of ACS underwent primary PCI or thromlytic therapy: _____/_____
■ Patient amount, Most severe level and 2nd most severe level
☐ ____ patients / month **or**
☐ <3000 ☐ 3000-4000 ☐ >4000
■ Physicians (attending, resident) / dayshift, nightshift
☐ the numbers of attendings: ____ /dayshift, ____/nightshift
☐ the numbers of residents: ____ /dayshift, ____/nightshift
☐ the numbers of nurses: ____ /dayshift, ____/nightshift
■ Critical care space designated
☐ Yes ☐ No
■ Doctors or nurses specially assigned for critical ills (dayshift, nightshift)
☐ Yes ☐ No
■ Measures of therapeutic hypothermia
☐ Yes ☐ No
■ Measures of early goal-directed therapy
☐ Yes ☐ No
■ Location designated for initial TH and/or EGDT
☐ ED ☐ ICU

Methods

ED Profiles

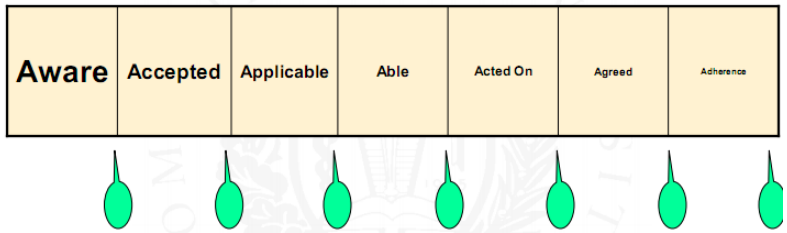
- ■ Emergency department crowded index
  - ☐ Emergency Department Work Index (EDWIN): _____
  - ☐ National Emergency Department Overcrowding Score (NEDOCS): _____
  - ☐ Real-Time Emergency Analysis of Demand Indicators (READI): _____
  - ☐ The Emergency Department Occupancy Rate: _____
- ■ Sustained ROSC rate, survival rate
  - ☐ <10%
  - ☐ 10-30%
  - ☐ 30-50%
  - ☐ 50-70%
  - ☐ >70%
- ■ Other available measures for resuscitation
  - ☐ Primary PCI
  - ☐ Thrombolytic therapy for ischemic stroke
  - ☐ ECMO
- ■ Barriers to guidelines
  - ☐ Do you know the concepts of therapeutic hypothermia and/or EGDT?
  - ☐ Do you accept the concepts of therapeutic hypothermia and/or EGDT?
  - ☐ Does your department have protolcs for hypothermia and/or EGDT?
  - ☐ Are there any barriers when you perform the TH and/or EGDT?
    - ☐ Lack of capacity/equipment
    - ☐ ED overcrowding / no available doctors
    - ☐ Lack of support from nursing staff
    - ☐ Lack of written protocols
    - ☐ Technically difficult
    - ☐ Patients refuse

Methods

- ■ Emergency department crowded index at the time of Sepsis/OHCA
  - ☐ Emergency Department Work Index (EDWIN)
    - ☐ the number of patients of triage score 1: _____
    - ☐ the number of patients of triage score 2: _____
    - ☐ the number of patients of triage score 3: _____
    - ☐ the number of patients of triage score 4: _____
    - ☐ the number of patients of triage score 5: _____
    - ☐ the total number of beds or treatment bays available in the ED: _____
    - ☐ the number of admitted patients (holds) in the ED at time
    - ☐ the EDWIN score = _____
  - ☐ National Emergency Department Overcrowding Score (NEDOCS)
    - ☐ The number of total patients at the time the score was taken: _____
    - ☐ The total number of ED beds: _____
    - ☐ The number of holdovers/admits at the time of the score: _____
    - ☐ The total number of hospital beds: _____
    - ☐ The number of patients on ventilators in the ED: _____
    - ☐ The longest holdover/admit (in hours): _____
    - ☐ Wait time for the last patient called for a bed (in hours)
    - ☐ NEDOCS = _____ (http://www.nedocscalculator.com/NEDOCS_Calculator_Equation.aspx)
  - ☐ Real-Time Emergency Analysis of Demand Indicators (READI)
    - ☐ Bed Ratio = (number of patients in ED + predicted arrivals - predicted departures) / ED spaces: _____
    - ☐ Provider Ratio = arrivals per hour / ∑(patients seen hourly by each physician) : _____
    - ☐ Acuity Ratio = ∑ (triage category)(number in each category)/ number of patients: _____
    - ☐ READI = (Bed Ratio + Provider Ratio) x (Acuity Ratio) = _____
  - ☐ The Emergency Department Occupancy Rate
    - ☐ A. the total number of patients in the ED
    - ☐ B. the total number of ED treatment bays per hour
    - ☐ the ED occupancy rate = A/B = _____

Significance

Many "Leaks" from Research to Practice



If 80% achieved at each stage
0.8 x 0.8 x 0.8 x 0.8 x 0.8 x 0.8 x 0.8 = 21% Adherence
If 90% achieved at each stage - 48% Adherence

Pathman DE et al. The awareness-to adherence model of the steps to clinical guideline compliance. Med Care 1996; 34:873-89

Good reasons so let's do it !

- ✓ **Practical**
- ✓ **Hit the international interests** ILCOR "*EIT*"
- ✓ **Technically relative not so difficult**
- ✓ **Fertile and Productive** *utilization, attitude, factor analysis*
- ✓ **Not time consuming,** *good for "PAROS" promotion and visibility, step by step,*
- ✓ **Link to PAROS cardiac arrest**

Thanks for Your Attention!