

Introduction:

Clinical Issues

- Hemorrhagic shock has high mortality
- Impact on EMS & ED treatment
 - Fluid and blood resuscitation
 - Endotracheal intubation (ETI)
- Interventions within Golden Hour
- Blood substitutes as therapy adjunct

Introduction:

Study Questions

- What are the GCS & RTS scores?
- How much fluid, blood resus.?
- What medications for RSI, ETI?
- What % pts. to OR in Golden Hour?

Introduction:

Clinical Impact

- Profiles condition of severe traumatic hemorrhagic shock pts.
- Describes treatment provided
- Reports EMS, ED, OR time course
- Optimizes design of future hemorrhagic shock trials

Methods:

DCLHb Trial Study Design

- DCLHb: human hemoglobin solution
- Randomized, controlled, single-blinded
- 17 US Trauma Centers
- Patient population: severe trauma
 - Estimated 2 - 4% of all trauma pts.
 - Hypoperfusion: VS abn or base deficit
- Standard Rx, with DCLHb add-on in ED

Methods:

Secondary Analysis

- Assessments
 - RTS & GCS assessed by EMS & in ED
 - GCS carried forward after RSI
- Assumptions
 - Sedatives/paralytics imply RSI, ETI
 - Fluid infusion pro-rated by setting

Results:

Patient Demographics

- Age: 39 Years
- Race: 56% Caucasian
- Sex: 79% Male
- MOI: 57% Blunt

- TRISS-predicted mortality: 38%
- Actual mortality rate: 32%

Results:

DCLHb Study Outcome

- February 1997 – January 1998
- Early study termination (1998)
- Enrolled & infused 98 pts.
- DCLHb: Higher 28-day mortality
- No clear explanation of imbalance

Results:

EMS & ED RTS, GCS

- RTS (Declined 8% by ED arrival)
 - Prehospital = 6.3 ± 1.9
 - ED = 5.8 ± 2.0
- GCS (Declined 9% by ED arrival)
 - Prehospital = 10.6 ± 5.0
 - ED = 9.6 ± 5.3
- GCS = 3: 23% EMS, 32% at ED arrival
 - GCS remained 3 in 12/19 pts. (63%)

Results:

Fluid Resuscitation

- Mean EMS volumes
 - Crystalloids: 1.3 ± 1.2 L (n=63)
- Mean cumulative volumes (end ED time)
 - Crystalloids: 4.1 ± 3.3 L (n=79)
 - Colloids: 2.1 ± 2.0 L (n=13)
 - Frozen Plasma: 1.3 ± 1.2 L (n=14)
 - Packed RBCs: 1.5 ± 1.5 L (n=60)

Results:

Airway Interventions

- 68% rcv'd. EMS or ED intubation
- 90% rcv'd. RSI
 - 30% EMS RSI
 - 70% ED RSI

Results:

RSI Sedatives

Sedative	EMS (%)	ED (%)	Total (%)
Midazolam	11 (69%)	19 (35%)	30 (42%)
Fentanyl	1 (6%)	8 (15%)	9 (13%)
Etomidate	2 (13%)	8 (15%)	10 (14%)
Pentathol	---	8 (15%)	8 (11%)
Other	2 (13%)	12 (21%)	14 (20%)

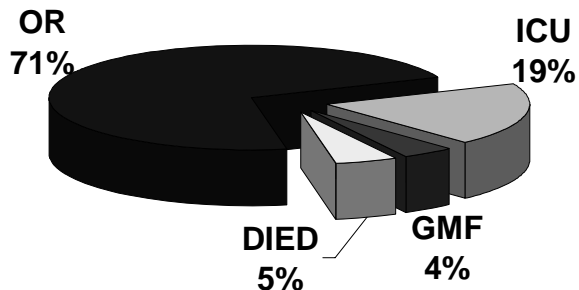
Results:

RSI Paralytics

Paralytic	EMS (%)	ED (%)	Total (%)
Sux.	12 (50%)	28 (50%)	40 (50%)
Vec.	6 (25%)	17 (30%)	23 (29%)
Panc.	---	5 (9%)	5 (6%)
Roc.	1 (4%)	2 (4%)	3 (4%)
cis-Atrac.	5 (21%)	3 (5%)	8 (10%)
Tubocur.	---	1 (2%)	1 (1%)

Results:

E.D. Disposition



Results:

Time Course

All pts. (n=98)	
- Injury \Rightarrow ED arrival:	125 \pm 237 min.
- ED arrival \Rightarrow Dispo.:	92 \pm 97 min.
- Injury \Rightarrow Dispo.:	144 \pm 104 min.
Surgery pts. (n=70)	
- Injury \Rightarrow ED arrival:	62 \pm 44 min.
- ED arrival \Rightarrow OR:	55 \pm 68 min.
- Injury \Rightarrow OR:	111 \pm 87 min.

30% (21/70) pts. reached OR in Golden Hour

Conclusions:

DCLHb Study/ Patients

- Badly injured hemorrhagic shock pts.
- RTS & GCS decreased from EMS to ED
- Many pts. had GCS = 3

Conclusions:

Fluids, Blood & RSI

- Crystalloid & pRBC commonly used
- Colloids & FFP less often transfused
- Intubation common, most via RSI
- Majority of RSI/ ETI occurred in ED

Conclusions:

Time Course & Disposition

- Most patients went to surgery
- Others went to ICU or expired
- Injury to ED dispo. usually > 1-2 hrs.
- Few pts. entered OR by Golden Hour

Recommendations:

Hemorrhagic Shock Study

- Use same shock enrollment criteria
- May need to exclude pts. with GCS = 3
- Need to understand why GCS & RTS decreased between EMS & ED settings

EMS & ED Treatment

- Continue to utilize fluid, blood
- Focus on RSI & ETI as area for CQI
- Determine how to optimize ED time to reach Golden Hour for majority of surgery pts.

**2008 UIC Emergency Medicine Residency Research Course
Poster Template
Edward P. Sloan, MD, MPH, FACEP**

DCLHb Study Investigators

David Gens, MD	Thomas Santora, MD
Mark Cippole, MD	Gage Ochsner, MD
Jeffrey Runge, MD	Patrick Brunett, MD
Mary Nan Mallory, MD	David Provost, MD
George Rodman, MD	Raymond Bynoe, MD
William Dalsey, MD	Thomas Wachtel, MD
Rita Cydulka, MD	Andrew Peitzman, MD
J Stanley Smith, MD	John Morris, MD
Glen Tinkoff, MD	J Duncan Harviel, MD

Special Thanks to:

Robin Bechhofer	Ronald Krome, MD
Donald Berry, PhD	Roger Lewis, MD
John Blue, PharmD	Todd Marshall, MS
Tom Cook, PhD	Ginny Misiewicz, MS
Henry Cryer III, MD	Robert Przybelski, MD
Steve Eder, MS	Kathleen Stern, PhD
Tim Estep, PhD	Malik Nanavaty, PhD
Marian Fisher, PhD	Mike Saunders, MD
Norman Frost, MD	Tom Schmitz, PhD
Cynthia Goldberg, MS	Melissa Schulz, MS
	Geraldine Washington, PhD