Tactical Combat Casualty Care 02 June 2014

Tactical Evacuation Care

OBJECTIVES

- **DESCRIBE** the differences between MEDEVAC and CASEVAC
- **DESCRIBE** the differences between Tactical Field Care and Tactical Evacuation Care
- **DESCRIBE** the additional assets that may be available for airway management and electronic monitoring

OBJECTIVES

- **DISCUSS** the indications for and administration of Tranexamic Acid during tactical evacuation
- **DISCUSS** the management of moderate/severe TBI during tactical evacuation

Tactical Evacuation

- Casualties need evacuation as soon as feasible after significant injuries.
- Evacuation asset may be a ground vehicle, aircraft, or boat.
- **Evacuation time is highly variable – significant delays may be encountered.**
- Tactical situation and hostile threat to evacuation platforms may differ markedly from one casualty scenario to another.
- The Tactical Evacuation phase allows for additional medical personnel and equipment to be used.

Evacuation Terminology

- **MEDEVAC**: evacuation using special dedicated medical assets marked with a Red Cross
  - MEDEVAC platforms are non-combatant assets
- **CASEVAC**: evacuation using non-medical platforms
  - May carry a Quick-Reaction force and provide close air support as well
- **Tactical Evacuation (TACEVAC)** – this term encompasses both types of evacuation above

Aircraft Evacuation Planning

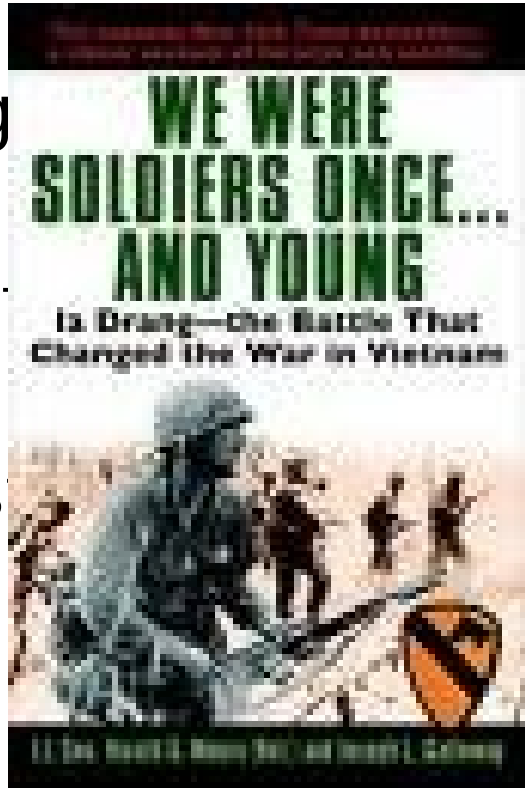
- Flying rules vary widely among different aircraft and units
- Consider:
  - Distances and altitudes involved
  - Day versus night
  - Passenger capaci
  - Hostile threat
  - Medical equipme
  - Medical personne
  - Icing conditions

Aircraft Evacuation Planning

- Ensure that your evacuation plan includes aircraft capable of flying the missions you need
- Plan for primary, secondary, & tertiary options

CASEVAC vs. MEDEVAC: The Battle of the Ia Drang Valley

- 1st Bn, 7th Cavalry in Vietnam
- Surrounded by 2000 NVA - heavy casualties
- Called for MEDEVAC
- Request refused because landing was not secure
- Eventual pickup by 229th Assaul Helo Squadron after long delay
- Soldiers died because of this mis
- Must get this part right



Ground Vehicle Evacuation

- More prevalent in urban-centric operations in close proximity to a medical facility
- Vehicles may be organic to the unit or designated MEDEVAC

Tactical Evacuation Care

- TCCC guidelines for care are largely the same in TACEVAC as they are in Tactical Field Care.
- There are some changes that reflect the additional medical equipment and personnel that may be present in the TEC setting.
- This section those differences.

Airway in TACEVAC

- Additional Options for Airway Management
  - **Supraglottic airway**
  - Endotracheal Intubation
- Confirm ETT placement with CO2 monitoring
- These airways are advanced skills not taught in the basic TCC course

Breathing in TACEVAC

- Watch for tension pneumothorax as casualties with a chest wound ascend into the lower pressure at altitude.
- Pulse ox readings will become lower as casualty ascends unless supplemental oxygen is added.
- Chest tube placement may be considered if a casualty with suspected tension pneumo fails to respond to needle decompression

Supplemental Oxygen in Tactical Evacuation Care

Most casualties do not need supplemental oxygen, but have oxygen available and use it for:

- Casualties in shock
- Low oxygen sat on pulse o
- Unconscious casualties
- Casualties with TBI (maintain oxygen satura > 90%)
- Chest wound casualties

Tactical Evacuation Care Guidelines

5. Tranexamic Acid (TXA)

If a casualty is anticipated to need significant blood transfusion (for example: presents with hemorrhagic shock, one or more major amputations, penetrating torso trauma, or evidence of severe bleeding)

- Administer 1 gram of tranexamic acid (TXA) in 100 cc Normal Saline or Lactated Ringer’s as soon as possible but NOT later than 3 hours after injury.
- Begin second infusion of 1 gm TXA after Hextend or other fluid treatment.

TXA
Administration – 2nd Dose

- Typically given after the casualty arrives at a Role II/Role III medical facility.
- May be given in Tactical Evacuation Care if the first dose was given earlier, and fluid resuscitation has been completed before arrival at the medical facility.
  - Should NOT be given with Hextend or through an IV line with Hextend in it
  - Inject 1 gram of TXA into a 100-cc bag of normal saline or lactated Ringer’s
  - Infuse slowly over 10 minutes

Tactical Evacuation Care Guidelines

6. Traumatic Brain Injury

   a. Casualties with moderate/severe TBI should be monitored for:

      1. Decreases in level of consciousness
      2. Pupillary dilation
      3. SBP should be >90 mmHg
      4. O2 sat > 90

Continued...

Tactical Evacuation Care Guidelines

6. Traumatic Brain Injury

a. Casualties with moderate/severe TBI should be monitored for:

5. Hypothermia
6. PCO2 (If capnography is available, maintain between 35-40 mmHg)
7. Penetrating head trauma (if present, administer antibiotics)
8. Assume a spinal (neck) injury until cleared

Continued...

Tactical Evacuation Care Guidelines

6. Traumatic Brain Injury

b. Unilateral pupillary dilation accompanied by a decreased level of consciousness may signify impending cerebral herniation; if these signs occur, take the following actions to decrease intracranial pressure:

1. Administer 250cc of 3% or 5% hypertonic saline bolus
2. Elevate the casualty’s head 30 degrees

Continued...

Tactical Evacuation Care Guidelines

6. Traumatic Brain Injury

b. (Continued)

3) Hyperventilate the casualty

a. Respiratory rate 20

b. Capnography should be used to maintain the end-tidal CO2 between 30-35 mmHg

c. The highest concentration (FIO2) possible should be used for hyperventilation

Continued...

Tactical Evacuation Care Guidelines

6. Traumatic Brain Injury

Notes:

- Do not hyperventilate unless signs of impending herniation are present.
- Casualties may be hyperventilated with oxygen using the bag-valve-mask technique.

Fluid Resuscitation in Tactical Evacuation Care

- Blood products are being pushed forward into the prehospital phase of combat trauma care.
  - Now near the end of the conflict in Afghanistan, U.S. forces and coalition partners have reported successful use of thawed plasma and RBCs for fluid resuscitation aboard evacuation platforms during transport.

Hypothermia Prevention in TACEVAC

Remember to keep the casualty on an insulated surface or get him/her on one as soon as possible.

Apply the Ready-Heat Blanket from the Hypothermia Prevention and Management Kit (HPMK), to the casualty's torso (directly on the skin) and cover the casualty with the Heat-Reflective Shell (HR

Hypothermia Prevention in TACEVAC

If an HRS is not available, the previously recommended combination of the Blizzard Survival Blanket and the Ready Heat blanket may also be used.

Use a portable fluid warmer capable of warming all IV fluids including blood products.

Remember: Prevention of Hypothermia in Helicopters!

- Cabin wind and altitude cold result in cold stress
- Protection is especially important for

Tactical Evacuation Care Guidelines

18. CPR in TACEVAC Care

a. Casualties with torso trauma or polytrauma who have no pulse or respirations during TACEVAC should have bilateral needle decompression performed to ensure they do not have a tension pneumothorax. The procedure is the same as described in section 2 above.

Tactical Evacuation Care Guidelines

18. CPR in TACEVAC Care

b. CPR may be attempted during this phase of care if the casualty does not have obviously fatal wounds and will be arriving at a facility with a surgical capability within a short period of time. CPR should not be done at the expense of compromising the mission or denying lifesaving care to other casualties.

TACEVAC CARE - Hoisting

- Rigid Litters Only When Hoisting!
- Check and double-check rigging


Questions?

TACEVAC Care for Wounded Hostile Combatants

- Principles of care are the same for all wounded combatants
- Rules of Engagement may dictate evacuation process
- Restrain and provide security
- Remember that each hostile casualty represents a potenti threat to the provider and th unit and take appropriate measures
- **They still want to kill you.**

Tactical Evacuation Care Summary of Key Points

- Evacuation time is highly variable
- Thorough planning is key
- Similar to Tactical Field Care guidelines but with some modifications

Convoy IED Scenario

Recap from TFC

The last medical interventions during TFC were:

- Placed tourniquet on both bleeding stumps
- Disarmed
- Placed NPA
- Established IV
- Administered 1 gm TXA and 1 unit whole blood
- IV antibiotics
- Provided hypothermia prevention

Convoy IED Scenario

What's Next?

- Casualty is now conscious but is confused
- Reassess casualty for ABCs
  - NPA still in place
  - Tourniquets in place, no significant bleeding
- Attach electronic monitoring to casualty
  - Heart rate 140; systolic BP 70
  - O2 sat = 90%

Convoy IED Scenario

What's next?

- Supplemental Oxygen
  - Why?
    - Casualty is still in shock

What's next?

- Continue fluid resuscitation with plasma and RBCs in a 1:1 ratio
  - Why?
    - Casualty is still in shock

Convoy IED Scenario

What's next?

- Inspect and dress known wounds and search for additional wounds

What's next?

- Try to Remove tourniquets and use hemostatics?
  - No
  - Why? THREE reasons:
    - Short transport time - less than 2 hours from application of tourniquets
    - No distal extremities to lose
    - Casualty is in shock


Questions/Comments