



The Montgomery County Hospital District Paramedic Podcast

Episode 129: The Serial Killer Series – Trauma

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Take Home Points

- Always expose and control the patient – We can't assess things we can't see!
- Less scene time = Improved outcome
- TXA 2g – WHILE TRANSPORTING
- Needle Thoracostomy in the 4th IC space at the anterior axillary line
- Anticipate, avoid, and prevent hypoxia and hypotension in head injuries
- Warm your trauma patients: COLD = COAGULOPATHY

When people suffer major trauma, what things can kill them emergently?

1. Hemorrhagic shock
2. Obstructive shock – Tension Pneumothorax/Tamponade
3. Hypoxemia (High C-spine injury)
4. Closed Head Injury
5. Disseminated Intravascular Coagulation (DIC)

Where to Start?

- **Start planning EN ROUTE.** Always approach trauma calls considering the top five killing diagnoses first.
- **Vitals are vital.** Don't forget to mind ETCO₂/Shock Index.
 - Beware of trauma tachycardia in children. Kids compensate so hypotension is a LATE finding.
- **Complete a thorough exam.** Examining pupils is overrated and GCS motor is likely more reliable.
- **Mind your scene time.** Aim for less than **10** minutes on scene. Longer scene time = poorer outcomes.
- **To care for trauma patients, we must gain control to assess, examine and treat properly.**

The Killer 5

1. Hemorrhagic Shock

- **Where can the blood possibly go?** (Chest, Abdomen, Pelvis, Long bones, Ground, etc.)
- **Listen for breath sounds/look for flail chest.** Abdominal bruising/rigidity = concern. POCUS if available.
- **Apply pelvic binders liberally BUT properly if pain and mechanism fits.**
- **Straighten long bones and apply tourniquet(s) HIGH on the affected limb.**
- **Declining ETCO₂ = declining perfusion.** (Childress et al PEC 2018 – inversely related to mortality)
- **TXA – 2g IV.** Following current TCCC guidelines.

2. Obstructive Shock

- **Tension PTX or Cardiac Tamponade.**
- **If absent breath sounds + shock/hypoxia + mechanism = Needle Thoracostomy.** The needle is to be inserted at the 4-5th ICS, anterior axillary line preferred. (Injury 2016 - 13% AAL failure vs. 38% MCL)
- **If the patient is in arrest with favorable signs = finger thoracostomy for potential tension PTX.**
- **Beck's Triad for tamponade (Muffled Heart, low BP, and JVD).** Like most textbook triads, this is rare.
- **Don't forget to augment preload in obstructive shock.**

3. Hypoxemia

- **Hypoxemia can occur from multiple causes in trauma** (Tension PTX, Intrinsic Lung Injuries, etc.)
- **Must also consider high C-spine injury and severe TBI.** Penetrating and blunt trauma can lead to compromise of intrinsic respiratory drive.
- **There is no magic to an ET Tube that will fix Subarachnoid Hemorrhage, lung laceration or unstable C2 fracture.** The key is correcting hypoxia (BVM, SGA or ETT).
- **Increased field procedures = decreased survival** (EAST J Trauma Acute Care 2021). Just because you can doesn't mean you should.

4. Closed Head Injury

- **Hypoxemia and hypotension are individually bad, but together, are even worse!** A single EMS episode (<90% or mmHg) is detrimental (EPIC 13x mortality increase with hypotension + hypoxia in CHI).
- **Correct (and anticipate/prevent) hypoxemia and hypotension.**
- **Yes, push dose is OK.** Emerging data for vasopressin use in trauma (JAMA Surg 2019).
- **Glasgow Coma Scale motor = Easy and accurate way to stratify patients.** GCS6 is just as predictive for severe injury as overall GCS (Kupas Annals 2016).

5. Disseminated Intravascular Coagulation (DIC)

- **Minimize crystalloid fluid use.**
- **Don't forget to warm these patients** (COLD TRAUMA = COAGULOPATHY).
- **Calcium is likely coming – evidence is still thin.** Lethal triad to diamond (acidosis, coagulopathy, hypothermia, AND hypocalcemia)
- **TEG (thromboelastography)** – Looks at active clotting/fibrinolysis as opposed to static standard coagulation labs.

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