How do we improve outcomes from Traumatic Brain Injury?

Definitive care starts in the field! Prehospital treatment can determine the outcome for a TBI patient. A patient with a mild to moderate primary brain injury can be converted to a severe secondary injury due to improper treatment.

Prevent the H-Bombs!

- Prevent Hypoxia
  - Keep SPO2 > 90%
- Prevent Hypotension
  - Keep SBP > 90mmHg
- Prevent Hyperventilation
  - Keep ETCO2 between 35 – 45

Managing these three things will give your patient the best chance of a positive outcome.

Sedation/Analgesia and TBI

Be mindful in the administration of benzos and narcotics in the presence of TBI. These medications rapidly drop blood pressure - especially in a patient in compensating shock. Judicious use in conjunction with aggressive fluid management is the key to managing TBI patients. Keep in mind, once we give it - we can't take it back!

Remember: A primary brain injury is the damage that is done at the time of impact. There are currently no treatments for a primary injury. Secondary brain injury occurs after the initial trauma and is caused by a lack of oxygen to the brain. This is caused in three ways: a hypoxic event, hypoperfusion, and if the patient is hyperventilated. Hyperventilation causes profound cerebral vasoconstriction!

ETCO2 – Standard of Care if Available

ETCO2 is underutilized in the evaluation and treatment of TBI patients. It is vital that we place patients on ETCO2 anytime we are ventilating them through any means - OPA/BVM, supra-glottic airway, or ET Tube, even nasal cannula. This is especially important in TBI patients, but all your patients will benefit from this practice.

Airway Interventions.

When managing a patient’s airway, select the most appropriate adjunct based on provider experience, patient presentation, patient factors such as anatomy, and distance to the hospital that will keep SPO2 > 90% and ETCO2 in the 35 - 45 range. This can be accomplished via OPA/BVM, supra-glottic airway, or endotracheal tube.