Crush Injuries

Crush injuries provide a unique challenge to first responders, and threat to patients. Intuitively, most first responders would want to remove a crushing object (example: a large boulder crushing/entrapping a patient's leg) as soon as possible. When able, first responders should attempt to wait for an ALS evaluation and at least IV access prior to removing crushing objects.

1. **Background**
   a. Crush injuries with entrapment may produce a delayed decline in a patient’s condition after extrication
   b. Toxins build up in entrapped extremity or body part
   c. Once the entrapped body part is released, toxins that have built up are allowed to enter systemic circulation
   d. Dysrhythmias, apnea, and cardiac arrest may result from high levels of potassium and other toxins in blood
   e. Certain medications available to counteract toxins circulating in blood

2. **What to watch for and prepare for (if time permits)**
   a. If possible – anticipate potential problems
   b. Establish two large bore IVs

3. **Pre-Treatment**
   a. Sodium Bicarbonate
   b. Albuterol

4. **Monitor for signs of hyperkalemia after release**
   a. Tall, peaked T-waves
   b. Treat with Calcium Chloride
   c. Be ready for dysrhythmias (VT, VF)

5. Do not delay transport after extrication as dysrhythmias may occur any time after extrication!
Crush or Entrapment Injuries

BLS Airway Successful?

- NO
  - Advanced Airway Procedure Successful?
    - NO
      - Transport* to Closest Facility
    - YES
      - YES
      - Two Large Bore (1) IVs & 20cc/kg NS bolus
      - NO
        - Active Bleeding or Signs of Shock
          - NO
            - Sodium Bicarbonate, 1mEq/kg IV
            - Albuterol, 2.5mg in 2-3cc NS aerosol
          - YES
            - NS 200cc IV Bolus. Repeat Until Syst. BP > 90mmHg
              - Cardiac Monitor
                - Morphine 0.05mg/kg IV/IM PRN
                  - May Repeat Once (2)

--- If Possible, Perform Above Steps Before Extrication ---

Footnotes:
1. 14 or 16 Gauge
2. Hold for hypotension (syst BP < 100)
3. Administer in separate IV line (avoid precipitant)
4. See WREMAC Transport Policy A8

MC Treatment Options:
A. Adjust IV rates
B. Morphine 0.05-0.1mg/kg IV/IM PRN pain
C. Albuterol 5mg Aerosolized

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