



Yolo County Emergency Medical Services Agency

Protocols

Revised Date: May 1, 2024

CRUSH INJURY SYNDROME

Adult

Definitions

Crush Injury: Injury sustained from a compressive force sufficient to interfere with the normal metabolic function of the involved tissue. May be open or closed.

Crush Syndrome: Is a Severe systemic manifestation of trauma and ischemia involving soft tissues, principally skeletal muscle, due to prolonged severe crushing. It leads to increased permeability of the cell membrane and to the release of potassium, enzymes, and myoglobin from within cells. Ischemic renal dysfunction secondary to hypotension and diminished renal perfusion results in acute tubular necrosis and uremia.

Compartment Syndrome: Local manifestations of muscle ischemia resulting in compressive forces on a closed space.

Indication

Patients with full extremity (or more) crushed, pinned, or otherwise immobilized with severely impaired circulation.

BLS

Assess vital signs

O₂, titrate SpO₂ to ≥ 94%

SMR if indicated

Identify and treat life threatening conditions

Control external bleeding

Prevent hypothermia

Consider early request of air ambulance to the scene

ALS

Cardiac Monitor, 12-Lead ECG, Waveform EtCO₂, Vascular Access

**If possible start treatment prior to release of compression*

Fluid Bolus NS 250 mL IV/IO (Prior to release of compression)

- May repeat as needed

For hyperkalemia (peaked T-waves, absent P-waves and/or widened QRS complex)

Albuterol 5 mg Nebulized

- Run continuously

Calcium Chloride 1gm SIVP/IO over 60 seconds

- Flush tubing with **NS** prior to administering Sodium Bicarbonate

Sodium Bicarbonate 1 mEq/kg IV/IO

- Max 100 mEq



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Consider

- BLS personnel should wait for ALS personnel before attempting extrication
- Treatment may be compromised by confined space

Direction

- For **pediatric** patients contact closest Pediatric Trauma Center ED Physician
- Early notification of the receiving hospital is essential for proper triage
- Contact Base Hospital for additional treatment