

EL DORADO COUNTY EMS AGENCY

PREHOSPITAL PROTOCOLS

Effective: July 29, 2013

Reviewed: July 2021

Revised: March 1 2023

Scope: BLS/ALS – Adult/Pediatric

EMS Agency Medical Director

CRUSH SYNDROME/SUSPENSION INJURIES-ADULT

PROTOCOL PROCEDURE: flow of protocol presumes patient has had a full extremity (or more) crushed, pinned, or otherwise immobile with severely impaired circulation for **at least two (2) hours** or presumes patient been suspended for at least (10) minutes and is unconscious. It is advisable in these situations for BLS personnel to **wait for ALS personnel** before attempting extrication. **Early notification to the hospital is essential for proper triage and notification of surgical personnel – particularly if a field amputation by surgical staff may be required.**

Basic Life Support

EMT

ABCs / ROUTINE MEDICAL CARE –

- Assess airway and support ventilation with appropriate airway adjuncts as indicated.
- Apply oxygen if pulse oximetry <94% or signs of hypoperfusion or respiratory distress

SPINAL MOBILITY RESTRICTION as indicated.

SPLINT the affected limb(s) at heart level.

Keep patient warm.

Advanced Life Support

Paramedic

<u>EXTRICATION PREP</u>	<u>EXTRICATION IMMINENT</u> <i>(Crush injury only)</i>	<u>POST EXTRICATION</u> <i>(Crush and Suspension)</i>
<p>CONSIDER AIR AMBULANCE</p> <p>EKG - Apply and continuously monitor patient's cardiac rhythm.</p> <p>VASCULAR ACCESS - Establish 2 large bore IVs via blood administration or macro drip tubing. Place IO if unable to establish IV.</p> <p>NORMAL SALINE - Give 20 mL/kg IV/IO bolus prior to release of compression. If patient is in shock or is compensating for impending shock, refer to SHOCK protocol.</p> <p>PAIN MANAGEMENT per Pain Management Protocol</p>	<p>Continuous nebulizer, pre and post extrication, of either:</p> <p>ALBUTEROL 5.0 mg in 6 ml NS,</p> <p>or,</p> <p>LEVALBUTEROL 2.5 mg in 6 ml</p> <p>If signs and symptoms of rhabdomyolysis are present (i.e. tachycardia, altered LOC, fever, peaked T waves or prolonged PR), consider:</p> <p>SODIUM BICARBONATE 1 mEq/kg up to 100 mEq IVP/IO over at least 5 minutes. Repeat x 1 in >10 minutes.</p>	<p>RAPID TRANSPORT – For Suspension injuries keep the patient in the semi-Fowler's position keeping the upper body at a 30–40-degree angle, then slowly bringing them toward supine in 30–45 minutes.</p> <p>CALCIUM CHLORIDE – If suspected hyperkalemia (Compression ≥4 hrs and EKG findings of absent P waves, peaked T waves, and/or prolonged QRS) 1 g IV/IO slowly over 5 minutes. Repeat x1 in >10 minutes if indicated.</p> <p>May forego base contact if pt is in arrest.</p>

Do not run Sodium Bicarbonate and Calcium Chloride concurrently. Always flush well after use of either drug.

CRUSH SYNDROME/SUSPENSION INJURIES-PEDIATRIC

PROTOCOL PROCEDURE: Flow of protocol presumes patient has had their lower extremities/pelvis/torso crushed, pinned, or otherwise immobile with severely impaired circulation for **at least two (2) hours**. It is advisable in these situations for BLS personnel to **wait for ALS personnel** before attempting extrication. **Early notification to the hospital is essential for proper triage and notification of surgical personnel.**

Basic Life Support

EMT

ABCs / ROUTINE MEDICAL CARE –

- Assess airway and support ventilation with appropriate airway adjuncts as indicated.
 - Apply oxygen if pulse oximetry <94% or signs of hypoperfusion or respiratory distress
- **SPINAL PRECAUTIONS** as indicated.
- **SPLINT** the affected limb(s) at heart level.

Keep patient warm.

Advanced Life Support

Paramedic

EXTRICATION PREP	EXTRICATION IMMINENT (Crush injury only)	POST EXTRICATION (Crush and Suspension)
<p>CONSIDER AIR AMBULANCE</p> <p>EKG- Apply and continuously monitor patient's cardiac rhythm.</p> <p>VASCULAR ACCESS - Establish IV or IO</p> <p>NORMAL SALINE - Give 20 mL/kg Reassess after each bolus and repeat as indicated to max of 60 mL/kg. Refer to shock protocol as indicated</p> <p>PAIN MANAGEMENT per Pain Management Protocol</p> <p>CONTACT BASE - For treatment and destination determination</p>	<p>Continuous nebulizer, pre and post extrication of either:</p> <p>ALBUTEROL - >/ 2 yo: 5 mg in 6 ml NS < 2 yo: 2.5 mg in 3 mL NS, or,</p> <p>LEVALBUTEROL - >/ 2 yo: 2.5 mg in 6 ml < 2 yo: 1.25 mg in 3 mL NS</p> <p>If signs and symptoms of rhabdomyolysis are present (i.e. tachycardia, altered LOC, fever, peaked T waves or prolonged PR), consider:</p> <p>SODIUM BICARBONATE 1 mEq/kg up to 100 mEq IVP/IO over at least 5 minutes. Repeat x1 in >10 minutes.</p>	<p>RAPID TRANSPORT</p> <p>BASE PHYSICIAN ORDER ONLY</p> <p>(Compression >4 hrs and: absent P waves, Peaked T waves, and/or prolonged QRS)</p> <p style="text-align: center;"></p> <p>CALCIUM CHLORIDE 20 mg/kg IV/IO push over 1 minute. Repeat x1 in >10 minutes if indicated.</p>

Do not run Sodium Bicarbonate and Calcium Chloride concurrently. Always flush well after use of either drug.