CRUSH SYNDROME/SUSPENSION INJURIES

ADULT

BLS TREATMENT

**ABCs / ROUTINE MEDICAL CARE** – be prepared to support ventilation with appropriate airway adjuncts.

**FULL SPINAL PRECAUTIONS**, if indicated.

- Administer high flow oxygen via non-re-breather mask.
- Crush Injuries - Splint the effected limb(s) at heart level.

Maintain body temperature.

**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 (1)** hour 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 a notification of surgical personnel.*

ALS TREATMENT

**PRE-EXTRICATION:**

**CONSIDER AIR AMBULANCE RESPONSE TO SCENE**

**EKG** - Apply and continuously monitor patient’s cardiac rhythm.

**NORMAL SALINE** - Establish 2 large bore IVs via blood administration or macro drip tubing. Use IO if unable to establish IV. **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.

**PAIN MANAGEMENT** – As appropriate, refer to Formulary.

**IMMEDIATELY BEFORE EXTRICATION (IF POSSIBLE):**

- **ALBUTEROL** - Crush Injury Only - 5.0 mg in 6 ml NS via nebulizer. Run continuously before and after extrication.

- **SODIUM BICARBONATE** – 1 mEq/kg up to 100 mEq IVP/IO (Flush line with NS before and after administration).

**POST –EXTRICATION: Crush Injury and Suspension injuries**

**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 to a fully supine position in 30–45 minutes.

**CALCIUM CHLORIDE** – If suspected hyperkalemia (Compression ≥1 hr or suspension greater than ten minutes) give 1 gm IV/IO slowly over 5 minutes. Repeat at same dose if symptoms persist. (Flush line with NS before and after administration).

**NOTE:** Do not run Sodium Bicarbonate and Calcium Chloride concurrently. Either flush the line well or use a separate line.
**PEDIATRIC**

**BLS TREATMENT**

**ABCs / ROUTINE MEDICAL CARE** – Be prepared to support ventilation with appropriate airway adjuncts.

**FULL SPINAL PRECAUTIONS, if indicated.**
Administer high flow oxygen via non re-breather mask.

**Splint the effected limb(s) at heart level.**
Maintain body temperature.

**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.**

**ALS TREATMENT**

**PRE-EXTRICATION:**

**CONSIDER AIR AMBULANCE RESPONSE TO SCENE**

**NORMAL SALINE** – Establish IV or IO. Refer to shock protocol if patient is in shock.

**PAIN MANAGEMENT** – As appropriate, refer to Formulary.

**CONTACT BASE STATION** – For treatment determination and for early notification of destination and surgical personnel.

**FLUID BOLUSES (May be ordered)** – Give initial bolus of 20 mL/kg. If suspected history of volume loss and no improvement with initial bolus give additional fluid boluses at 20 mL/kg to a Max. of 60 mL/kg.

**IMMEDIATELY BEFORE EXTRICATION (IF POSSIBLE):**

**ALBUTEROL** * - 5.0 mg in 6 ml NS via nebulizer. Run continuously before and after extrication.

**SODIUM BICARBONATE** – 1 mEq/kg up to 100 mEq IVP/IO (Flush line with NS before and after administration).

**POST –EXTRICATION:**

**RAPID TRANSPORT** - As soon as possible.

**BASE PHYSICIAN ORDER ONLY** – If suspected hyperkalemia (Compression ≥4 hrs and: absent P waves, Peaked T waves, and/or prolonged QRS) **CALCIUM CHLORIDE 20 mg/kg IV/IO push over 1 minute may be ordered. Repeat at same dose if symptoms persist. (Flush line with NS before and after administration).**

**NOTES:**
* Use 2.5 mg of Albuterol in 3 mL of NS/SW if patient is < 2 years old.

Do not run Sodium Bicarbonate and Calcium Chloride Concurrently. Either flush the line well or use a separate line.