

T093 CRUSH INJURIES

EMT	AEMT
EMT-I	Paramedic

Indications

Isolated extremity crush injuries with entrapment.

Procedure

- 1) Assess for the “Six P’s”
 - Pain
 - Pallor
 - Pulselessness
 - Paralysis
 - Paresthesia
 - Poikilothermia (cool to touch)
- 2) Place but do not tighten a tourniquet on the entrapped extremity. If this is not possible, have the tourniquet standing by. Tighten tourniquet upon releasing patient from entrapment.
- 3) IV access with 2 Large Bore IV’s (IO’s if indicated)
- 4) 20 mL/Kg Normal Saline bolus (1-2 liters) if patient trapped for > 1 hour
- 5) Assess breathe sounds for signs of fluid overload.
- 6) Normal saline infusion of 5 ml/kg/hr (300-500 ml/hr). Increase as needed for hypotension.

ALS Specific Care for Crush Injuries with entrapment greater than 2 hours:

- 1) **Sodium Bicarbonate** –indicated by the “6 P’s”
 - 1 mEq/kg IV Immediately Prior to Release from Entrapment
 - Infusion – 50-100 mEq/1000ml, run at 150 ml/hr, titrate to effect
- 2) **Calcium Chloride** (for crush injuries with hyperkalemia changes on the EKG)
 - Slow IVP – 500-1000 mg
 - **Do not give in same IV line as Bicarb**

Notes

Victims entrapped and crushed present a unique challenge. These crushing objects place prolonged and continuous pressure on the extremities resulting in rhabdomyolysis. Adverse effects known as Acute Crush Syndrome happen after the muscle injury and the crushing object is removed. This releases cellular toxins and electrolytes (especially potassium) into the circulation and may cause lethal arrhythmias, acute renal failure and sudden death. The systemic effects of Acute Crush Syndrome only occur after the object is removed and the injured extremity is reperfused.

Large volumes of Normal Saline are required before and after the patient is released. **AVOID Lactated Ringers.** Sodium Bicarbonate can help prevent myoglobin deposition in the renal tubules and may counteract hyperkalemia as well.

Sodium Bicarbonate should not be used in crush injuries of short duration (less than 30 minutes).

Trauma patients are very susceptible to heat loss. Preserve body heat.