

## MEDICAL EMERGENCY

### 317 Acute Adrenal Insufficiency or Addisonian Crisis

#### Assessment

Identify if the patient is at risk for acute adrenal insufficiency or Addisonian crisis by either the presence of a medical alert bracelet, designation in patient records or other family or medical confirmation.

If the patient is confirmed to have a disease (such as congenital adrenal hyperplasia or chronic use of systemic steroids) that could lead to acute adrenal insufficiency or Addisonian crisis, then the administration of steroids (hydrocortisone sodium succinate (Solu-Cortef), methylprednisolone (Solu-Medrol), or dexamethasone (Decadron)) is life-saving and necessary for reversing cardiovascular shock.

Signs and symptoms of patients in acute adrenal crisis include pallor, dizziness, headache, weakness/lethargy, abdominal pain, vomiting/nausea, hypoglycemia, hyponatremia, hyperkalemia, hypotension, shock, and heart failure.

For patients confirmed to have a disease that could lead to acute adrenal insufficiency or Addisonian crisis but who are not in a state of compensated or decompensated shock, administration of steroids may prevent the progression to shock, heart failure and possible death. The early signs and symptoms may include: pallor, dizziness, headache, weakness or lethargy, abdominal pain, nausea or vomiting, and hypoglycemia. These symptoms are not specific for acute adrenal insufficiency or Addisonian crisis, therefore when in doubt contact online medical control for further orders.

Dosing of steroids is as indicated below with hydrocortisone being the preferred medication if available:

#### **Adult patients:**

Administer **hydrocortisone** sodium succinate (Solu-Cortef) 100mg IM/IO/IV Push

Or

Administer **methylprednisolone** (Solu-Medrol) 125mg IM/IO/IV Push

Or

Administer **dexamethasone** (Decadron) 4 or 5 mg IM/IO/IV Push

#### **Pediatric patients:**

Administer **hydrocortisone** sodium succinate (Solu-Cortef) 2mg/kg IM/IO/IV push (to maximum 100mg)

Or

Administer **methylprednisolone** (Solu-Medrol) 2mg/kg IM/IO/IV Push (to maximum 125mg)

Or

Administer **dexamethasone** (Decadron) 4 or 5 mg IM/IO/IV Push

#### **Alternative Pediatric Dosing:**

	<b><u>Hydrocortisone</u></b>	<b><u>Methylprednisolone</u></b>	<b><u>Dexamethasone</u></b>
Newborn to infant (up to 1 year old)	25 mg	25 mg	1 mg
1 year old up to 7 years old	50 mg	50 mg	2 mg
7 years old and older	100 mg	125 mg	4-5 mg

## Basic

1. Patient is identified as being at risk for acute adrenal insufficiency or Addisonian crisis by presence of a medical alert bracelet/identification, patient records, family or medical confirmation or is identified

as having a disease (such as Congenital Adrenal Hyperplasia or chronic systemic steroid use) that could lead to acute adrenal insufficiency or Addisonian crisis.

2. Communication of information obtained in step 1 is made with EMT-IV, Paramedic, and/or Medical Control.
  3. Oxygen 100% at 12 - 15 Lpm NRB and airway maintenance appropriate to patient's condition.
  4. Consider spinal stabilization appropriate to patient's condition.
  5. Obtain and record an oral or axillary temperature if possible.
  6. Glucose check.
  7. Maintain body temperature above 97 degrees F.
  8. If the patient or family or ambulance does not have hydrocortisone, methylprednisolone or dexamethasone, then call into medical control and the local emergency department and advise that the patient needs this medication as soon as possible after arrival.
- 9. EMT STOP Ø**

## EMT-IV

10. IV NS bolus (20mL/kg) (*Pediatrics 20 mL/kg*)
  11. Administer Dextrose 50% if appropriate.
  12. Maintenance IVF with NS.
- 13. EMT-IV STOP Ø**

## PARAMEDIC

14. EKG monitor
  15. Oxygen saturation
  16. Administer Hydrocortisone 2mg/kg up to a maximum of 100mg IM/IO/IV Push, Methylprednisolone 2mg/kg up to a maximum of 125mg IM/IO/IV Push, or Dexamethasone 4 or 5mg IM/IO/IV Push (*Pediatrics: Hydrocortisone 2mg/kg IM/IO/IV Push (up to maximum 100mg, Methylprednisolone 2mg/kg IM/IO/IV Push (up to maximum 125mg, or Dexamethasone 4 or 5 mg IM/IO/IV Push)*)
  15. Repeat fluid bolus as necessary.
  16. Recheck glucose and treat as necessary.
  17. Maintenance IVF with NS.
- 18. PARAMEDIC STOP Ø**

### Treatment - Protocol

Administer hydrocortisone, methylprednisolone, or dexamethasone as soon as possible after identifying that the patient is at risk for adrenal insufficiency.

Administer fluid bolus 20 mL/kg up to two times after administration of steroids and contact medical control if patient continues with hypotension.

Monitor EKG for signs of hyperkalemia which can be present in patients with adrenal crisis. Treat as necessary.

If no hydrocortisone, methylprednisolone, or dexamethasone is available during transport, then alert the emergency department/medical control that a patient with adrenal crisis is en route and ask that hydrocortisone, methylprednisolone, or dexamethasone is ready to administer on patient arrival.

**Below are additions to be included in the Pharmacology Section of the Tennessee Emergency Medical Services Protocol Guidelines.**

Drug:	Hydrocortisone
Trade Names	Solu-Cortef
Dosage:	100 mg IM/IO/IV Push <b><u>Peds- 2mg/kg IM/IO/IV Push (up to maximum 100mg)</u></b> <b><u>Or</u></b> <b><u>Peds-</u></b> <b><u>Newborn to Infant (up to 1 year old) -- 25 mg</u></b> <b><u>1 year old up to 7 years old – 50 mg</u></b> <b><u>7 years old and older – 100 mg</u></b>

Drug:	Methylprednisolone
Trade Names	Solu-Medrol
Dosage: <b>Respiratory Distress (Asthma/COPD) Protocol</b>	62.5 or 125 mg <b><u>Peds- contact medical control</u></b>
Dosage: <b>Acute Adrenal Insufficiency or Addisonian Crisis Protocol</b>	125 mg IM/IO/IV Push <b><u>Peds- 2mg/kg IM/IO/IV Push (up to maximum 125mg)</u></b> <b><u>Or</u></b> <b><u>Peds-</u></b> <b><u>Newborn to Infant (up to 1 year old) -- 25 mg</u></b> <b><u>1 year old up to 7 years old – 50 mg</u></b> <b><u>7 years old and older – 125 mg</u></b>

Drug:	Dexamethasone
Trade Names	Decadron
Dosage:	4 or 5 mg IM/IO/IV Push <b><u>Peds- 4 or 5 mg IM/IO/IV Push</u></b> <b><u>Or</u></b> <b><u>Peds-</u></b> <b><u>Newborn to Infant (up to 1 year old) -- 1 mg</u></b> <b><u>1 year old up to 7 years old – 2 mg</u></b> <b><u>7 years old and older – 4-5 mg</u></b>