

PEDIATRIC PROTOCOL

HYPERKALEMIA

3-5 kg	6-7 kg	8-9 kg	10-11 kg	12-14 kg	15-18 kg	19-23 kg	24-29 kg	30-36 kg
6-11 lbs	13-15 lbs	18-20 lbs	22-24 lbs	26-31 lbs	33-40 lbs	42-51 lbs	53-64 lbs	66-81 lbs
18-24 in	24-26 in	26-29 in	29-33 in	33-38 in	38-43 in	43-48 in	48-52 in	52-57 in

Prophylactically apply pacing / defib pads and prepare for decompensation

Pacing may be ineffective until after pharmacologic treatments have been used

Patient has history consistent with hyperkalemia

Available Recent Lab Work

Missed Dialysis

Kidney Failure (Consider Causes - Dehydration, Failure to Thrive)

Burns / Trauma

Uncontrolled Diabetes / Insulin Deficiency

Addison's Disease

Crush Injury / Compartment Syndrome

Medications (K+ Sparing diuretics, ACE inhibitors, Antibiotics, ARB's, NSAIDS, Immunosuppressants)

Excessive Potassium Intake

UNIVERSAL PATIENT CARE PROTOCOL

AIRWAY PROTOCOL

Monitor Lung Sounds for Fluid Overload

OXYGEN

IV / IO PROCEDURE

DIAGNOSTIC EKG PROCEDURE and Assess Vitals

CAPNOGRAPHY PROCEDURE

EKG CHANGES

Wide Complex QRS or
Peaked T Waves or Bradycardia
Or any combination of these
Suspected Hyperkalemia



ONLY IF EKG IS SINE WAVE



TREAT IMMEDIATELY

ALBUTEROL

Serial Albuterol Treatments Only During Entire Transport
10mg (x4 2.5mg Unit Doses)
ALBUTEROL ONLY – NOT DUONEB

CALCIUM GLUCONATE

60 mg / kg - Max 3 grams - Over 10 min
or

CALCIUM CHLORIDE

20 mg / kg IV / IO - Max 1 gram
May repeat either if available and EKG changes reoccur

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IV NORMAL SALINE BOLUS

IF SIGNS OF DEHYDRATION AND NO CONTRAINDICATIONS
20 ml / kg
To Maintain MAP > 65
or SBP 90 if MAP Unavailable or Radial Pulses



DO NOT MIX IN THE SAME LINE AT SAME TIME

SODIUM BICARBONATE

1 mEq / kg – IV / IO

May repeat if available and EKG changes reoccur

IF EKG WIDE OR BECOMES SINE WAVE

TRANSPORT to appropriate facility **CONTACT** receiving facility **CONSULT** Medical Control where indicated **APPROPRIATE** transfer of care

EMT Intervention

AEMT Intervention

PARAMEDIC Intervention

Online Medical Control

HYPERKALEMIA

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> Missed Dialysis Metabolic acidosis Addison's disease Burns DKA Dehydration ACE inhibitor use Diuretic Use NSIDS chronic use Digitalis toxicity Antibiotic use ARB use Kidney failure Trauma (Crush / Compartment Syndrome) Immunosuppressant use Excessive potassium intake 	<ul style="list-style-type: none"> Peaked T-waves <ul style="list-style-type: none"> Narrow and tall Taller than 5 mm in the limb leads Taller than 10 mm in the precordial leads Flattened P-waves <ul style="list-style-type: none"> Widening of P-waves prior to their disappearance The lack of P-waves can result in the appearance of a junctional rhythm Prolonged PR Interval Widened QRS complexes Depressed ST-segment Sine waves <ul style="list-style-type: none"> Broad QRS complex and tall T-wave AV blocks Ventricular dysrhythmias <ul style="list-style-type: none"> Remember that slower wide rhythms are often common with hyperkalemia—keep this on the list of differentials! Asystole 	<ul style="list-style-type: none"> Sinus bradycardia Wide complex unknown origin rhythms Bundle branch blocks Sodium channel blocker OD Beta Blocker OD Calcium Channel Blocker OD STEMI V-tach

Stages of hyperkalemia and their potassium lab values:

- Normal potassium levels: 3.5–5.5 mEq/L
 - Mild hyperkalemia: 5.5–6.5 mEq/L
 - Moderate hyperkalemia: 6.5–8.0 mEq/L
 - Severe hyperkalemia: more than 8.0 mEq/L

KEY POINTS

- A wide, fast, regular rhythm does not always equate to ventricular tachycardia. Remember that hyperkalemia can be a v-tach mimic.
- In cases where we have a great story for hyperkalemia, it is potentially beneficial to start resuscitation with the thought of treating hyperkalemia prior to standard ACLS.
- Certain medications traditionally used to treat ventricular tachycardia, such as amiodarone, can lose effectiveness in the presence of hyperkalemia.
- Calcium, whether chloride or gluconate, stabilizes the cardiac membrane and reduces myocardial irritability.
- Albuterol is a beta-adrenergic agonist that assists with the movement of potassium from the extracellular space into the intracellular space.
- While there is substantial evidence to limit the routine use of sodium bicarbonate in out-of-hospital cardiac arrest and diabetic ketoacidosis, there is benefit in giving it in hyperkalemia.
- Focus less on the numerical value and more on the severity of symptoms based on the change rate of the potassium value.