

**PURPOSE:** The purpose of this policy is to authorize paramedics to monitor and adjust infusions of potassium chloride during interfacility transfers.

**AUTHORITY:** Health and Safety Code, Division 2.5, Sections 1797.220 and 1798

**POLICY:**

- I. ALS Ambulance providers must apply to and be approved by the San Joaquin County EMS Agency (SJCEMSA) prior to initiating service to perform monitoring potassium chloride infusions during interfacility transports.
- II. The monitoring of potassium chloride infusions is restricted to San Joaquin County accredited paramedics that have successfully completed a training program approved by the SJCEMSA for the monitoring of potassium chloride infusions during interfacility transports.
- III. Patients that are candidates for paramedic transport will have preexisting potassium chloride infusions. Prehospital personnel may not initiate potassium chloride infusions.
- IV. Potassium Chloride Infusions  
In accordance with the provisions of this policy, a paramedic may transport a patient who has a preexisting I.V. solution containing potassium chloride only when following these parameters:
  - A. A completed Interfacility Transfer form signed by the transferring physician must be obtained prior to transport. The transferring physician must provide orders for maintaining the potassium chloride infusion during transport and certify that the patient is stable for transfer or that the benefits of transport outweigh the risks of transport.
  - B. Patient is placed on cardiac and pulse oximetry monitors and monitored continuously during transport.
  - C. Infusion rates shall be maintained as ordered by the transferring physician not to exceed 40 mEq/liter.
  - D. Fluid boluses and medications shall not be administered using the line containing potassium chloride.
  - E. Vital signs will be monitored and documented no less than every 10 minutes during patient transport.
  - F. Monitor patient for adverse affects during transport including:

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1. Cardiovascular: dysrhythmias, cardiac arrest
2. Respiratory: depression/arrest
3. Gastrointestinal: nausea/vomiting, diarrhea, abdominal pain
4. Neurological: paresthesia of extremities, muscular paralysis, confusion
5. I.V. infiltration: monitor I.V. site as infiltration may cause necrosis. If patient complains of burning or irritation at the insertion site, the I.V. should be checked for patency and the infusion rate slowed or discontinued.

V. Continuous Quality Improvement

All calls involving the transfer of patients with preexisting potassium chloride infusions shall be reviewed through the ambulance provider's CQI program to determine compliance with policy and transferring physician orders. Findings and data will be submitted to the SJCEMSA quarterly.

VI. General Information on Potassium Chloride

- A. Potassium is an essential macromineral in human nutrition with a wide range of biochemical and physiological roles. Among other things, it is important in the transmission of nerve impulses, the contraction of cardiac, skeletal and smooth muscle, the production of energy, the synthesis of nucleic acids, the maintenance of intracellular tonicity and the maintenance of normal blood pressure.
- B. Indications for the use of Potassium Chloride
  1. The treatment of potassium depletion in patients with hypokalemia when oral replacement is not feasible.
  2. Treatment of digitalis intoxication.
- C. Contraindications:
  1. Renal impairment with oliguria or azotemia
  2. Untreated Addison's disease
  3. Hyperadrenalism associated with adrenogenital syndrome
  4. Extensive tissue breakdown as in severe burns
  5. Adynamia episodica hereditaria
  6. Hyperkalemia of any etiology
- D. Precautions:

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1. Pregnancy Category C
  2. Chronic renal disease
  3. Adrenal insufficiency
  4. Any other condition which impairs potassium excretion
  5. Potassium should be used with caution in diseases associated with heart block
- E. Adverse Effects:
1. Fever
  2. Venous Thrombosis, Infection at injection site
  3. Extravasation, Phlebitis, Pain at Injection Site
  4. Hypervolemia
  5. Hyperkalemia
  6. Abdominal Pain
  7. Nausea/Vomiting;
  8. Paresthesias of the extremities
  9. ECG Abnormalities, Heart Block
  10. Mental Confusion
  11. Hypotension
- F. Interactions:
1. Cardiac arrest can occur with high potassium conditions, such as chronic renal failure, burns, acidosis, dehydration, and potassium sparing diuretic usage.
  2. Drug interactions causing elevation of potassium can occur with ACE inhibitors (used to treat high blood pressure) and certain diuretics (aldactone and triamterene).
- G. Standard Dosages for Potassium Chloride Infusions:
1. For serum potassium level > 2.5mEq/L an IV infusion is administered continuously at 10mEq/hour in a concentration up to 40mEq/L. With maximum dose of 200mEq/day.
  2. For serum potassium level < 2.0 with electrocardiographic changes and/or muscle paralysis, potassium chloride may be administered at a rate up to 40mEq/hour.

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