Hypokalemia

Hypokalemia is defined as a low serum potassium level. This commonly occurs with the use of loop or thiazide diuretics which cause loss of potassium in the urine. Other causes include insufficient potassium intake, alkalosis, excessive insulin, and potassium loss from vomiting, diarrhea, or laxative abuse. Hypokalemia is defined as a serum potassium level below 3.5 mEq/L. Clinical manifestations reflect how important potassium is to the functioning of muscle. Muscle weakness is common. Arrhythmias can also occur, and an EKG will show flattened T waves, ST depression and U waves. Patients may also have ileus or hyporeflexia. Treatment involves infusion of IV potassium at 5-10 mEq/hr, as well as oral supplements which are given with food. It's important to monitor the respiratory status of severely hypokalemic patients as it can lead to respiratory muscle weakness.



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Assessment

< 3.5 mEq/L
Less-than (3) Tree Pointing to (.5) Hand
Hypokalemia is defined as a serum potassium level below 3.5 mEq/L. A level less than 2.5 mEq/L can be life-threatening and should be treated immediately.

Muscle Weakness
Weak-drooping-muscle
Muscle weakness and leg cramps may occur due to disturbed function of skeletal muscle.

Arrhythmia
Broken Arrhythmia-drum
Low potassium levels may provoke cardiac arrhythmias due to potassium’s effect on the heart. Flattening or inversion of the T wave and ST segment depression may occur.

U Wave
U-wave
A prominent U wave may be seen on the EKG due to prolonged repolarization of ventricular Purkinje fibers. This is seen as an upward deflection after the T wave.

Ileus
Eels
Hypokalemia can lead to dysfunction of gastrointestinal smooth muscles resulting in ileus, or slowed motility. Clinical findings include nausea, vomiting, and abdominal distension.

Hyporeflexia
Hippo-reflex-hammer
Hyporeflexia may indicate hypokalemia due to potassium’s effect on skeletal muscle. Hand grasp may be weak, and a decreased response to deep tendon reflex stimulation may be seen. Severe hypokalemia can cause flaccid paralysis.

Interventions

IV K+ Infusion at 5-10 mEq/hr
IV Banana Infuser with (5) Hand to (10) Tin
Hypokalemia can be treated with IV potassium salts via an IV pump, but never by IV push to avoid causing cardiac arrest. The recommended infusion rate is 5-10 mEq/hr and should never exceed 20 mEq/hr unless emergent, as potassium is highly necrotic to veins at higher concentrations. Always give in a diluted state (1 mEq per 10 mL), monitor the patient closely, and check for adequate urine output before administering.

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Give Orally with Food

Orally Eating Food

Oral potassium salts can be given to correct low potassium. However, due to GI side effects, they should be given with food and a full glass of water to reduce irritation. Eating foods rich in potassium can help treat and prevent low levels and include foods such as avocados, bananas, carrots, and spinach.

Nursing Considerations

Monitor Respiratory Status

Lungs Monitor

Severe hypokalemia may lead to respiratory muscle weakness and the development of respiratory acidosis; therefore, it is important to monitor respiratory status. Be sure to check the patient's ability to cough.

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