National Pediatric Nighttime Curriculum
Q&A for Abnormal Potassium

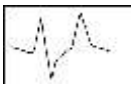
Questions

1) Muscle weakness and cardiac arrhythmias are symptoms that can be seen with:
   A) hyperkalemia
   B) hypokalemia
   C) both hyperkalemia and hypokalemia
   D) neither hyperkalemia nor hypokalemia

2) Which of the following EKG changes associated  with hyperkalemia should worry you **THE MOST**:
   A) Sine wave pattern

   B) Tall peaked T waves 

   C) Loss of P wave with tall peaked T waves

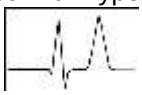
   D) Widened QRS 

3) Options for managing hyperkalemia include all **EXCEPT**
   A) Albuterol
   B) Spiranolactone
   C) Sodium polystyrene sulfonate (Kayexalate)
   D) Insulin/glucose

4) You ordered an EKG on a patient with hyperkalemia and see peaked T waves with widened QRS complexes. Appropriate initial step in management include:
   A) 2 puffs albuterol MDI
   B) 20ml/kg NS bolus
   C) IV calcium
   D) IV KCl
   E) Kayexalate enema

5) Lab calls you with a critical value of K at 8.5. They note 1+ hemolysis. You should be reassured and pursue the matter no further
   A) True
   B) False

6) Which of the following EKG findings is NOT associated with hyperkalemia?
   A) Loss of P wave with tall peaked T waves



   B) Tall peaked T waves

   C) ST segment depression a prominent U wave

   D) Widened QRS

Answers

1) Correct answer: C.

Both hypo and hyperkalemia can cause ascending muscle weakness and cardiac arrhythmias

2) Correct answer: A

Progression of EKG changes: Peaked T waves→Loss of P wave→Widened QRS →sine wave pattern

Rough (NOT perfect) correlation b/w EKG changes and ↑K

Hyperkalemia can be life-threatening even if EKG nl

K 6-6.8: EKG changes in 43%

>6.8: EKG changes in 55%

Any EKG changes should be treated as an emergency

3) Correct answer: B.

K sparing diuretic like spiranolactone is not a good option for treating hyperkalemia. All of the other meds would work.

4) **Correct answer: C.**

Given EKG Cardiac membrane stabilization is your first priority. If the EKG was normal or showed only peaked T waves, you could start with steps to drive K into the cells

A. Albuterol administration is appropriate. This answer, however is wrong both because in a setting of hyperkalemia severe enough to cause EKG changes, cardiac membrane stabilization is the first priority and b/c dose listed is insufficient. Albuterol doses used for hyperkalemia management are significantly higher than those used for asthma
B. The NS bolus is not appropriate initial management given limited information in this case. It could be included in later patient management if pt had dehydration along with hyperkalemia or if it was administered along with lasix in order to optimize K renal excretion
D. KCl would be included in the management of HYPOKALEMIA with EKG changes not HYPERKALEMIA
E. Kayexalate is a possible option for lowering total body K by promoting GI K losses. It would not be the initial step in a pt with EKG changes.

5) False. Hyperkalemia and pseudohyperkalemia are not mutually exclusive. While it is likely that hemolysis is contributing to the K elevation, we cannot be sure that it is the only explanation.

6) Correct answer: C. ST segment depression with a prominent U wave is characteristic of HYPO not HYPERkalemia.