Potassium Binders in the Management of Chronic Hyperkalemia

AMERICAN COLLEGE of CARDIOLOGY

PROBLEM

- ✖ Development of hyperkalemia can be either acute or chronic depending on the time of onset, the presence or absence of symptoms, and underlying etiology.
- ✖ Chronic hyperkalemia is a potentially life-threatening condition commonly seen in older patients with heart failure (HF), chronic kidney disease (CKD), and renin-angiotensin-aldosterone system (RAAS) inhibitor therapy.
- ✖ Although sodium polystyrene sulfonate (Kayexalate®) is widely used for hyperkalemia management, its use has many limitations including:
  - A lack of robust randomized clinical trials showing evidence for efficacy and safety[2]
  - An association with serious gastrointestinal (GI) injury (e.g. intestinal necrosis)[2,5]
  - Limited use in patients with sodium intake restrictions[3]

SOLUTION

- ✔ Prior to initiating potassium binders, patients should be on a low potassium diet and treated with a potassium-wasting diuretic if appropriate. A dose adjustment of RAAS inhibitor therapies should be attempted in patients with CKD.
- ✔ Newer potassium binders, patiromer and sodium zirconium cyclosilicate, have more robust clinical trials documenting improved safety profile by reducing serum potassium and maintaining normokalemia in patients with HF and CKD.[1,6,8,9]
  - RAAS inhibitors were able to be continued in patients with HF and CKD when receiving concurrent patiromer[1,6,9]
  - Normokalemia was maintained in CKD patients with and without RAAS inhibitors therapy while receiving concurrent sodium zirconium cyclosilicate[8]

TREATMENT TABLE:

Drug Name	Patiromer	Sodium zirconium cyclosilicate
Mechanism of Action	Binds potassium in lumen of GI and increases its fecal excretion	
	Colon	Small and large intestine
Dosing	8.4 grams daily	Initial dose: 10 grams 3x daily for up to 48hrs Maintenance dose: 10 grams daily
	Up-titrate at weekly intervals to reach desired serum potassium concentration (max. 25.2 grams daily)	Up-titrate at weekly intervals by 5 grams daily to reach desired serum potassium concentration (max. 15 grams daily)
Sodium Content	N/A	400 mg sodium in 5 g dose
Adverse Effects	Hypokalemia, hypomagnesemia, constipation, diarrhea, nausea, abdominal discomfort, flatulence	Hypokalemia, mild to moderate edema (dose dependent due to sodium content)
Warnings/ precautions	Avoid use in patients with severe constipation, bowel obstruction or impaction as these agents may be ineffective and worsen GI conditions	
Drug Interactions	Separate other oral medications by at least 3 hours before or 3 hours after patiromer	Separate other oral medications by at least 2 hours before or 2 hours after sodium zirconium cyclosilicate
Cost Considerations	Costs of newer potassium binders may pose a barrier for patients. Additionally, these agents commonly require a prior authorization.	

SAFETY CONSIDERATIONS

- ✔ Before starting potassium binders, assess patients for any contraindications and/or GI disorders.
- ✔ Closely monitor serum electrolytes and signs/symptoms of fluid overload in patients sensitive to sodium intake such as those with HF and CKD.
- ✔ Separate other oral medications from potassium binders by at least 2 hours (sodium zirconium cyclosilicate) or 3 hours (patiromer).

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