



Bonus Monographs



Sodium polystyrene sulfonate

(SOH-dee-um pol-ee-STY-reen SUL-fon-ayt)

PREGNANCY CATEGORY: C
CLASSIFICATION(S):

Potassium-removing resin

Rx: Kayexalate, SPS

★**Rx:** PMS Sodium Polystyrene Sulfonate

ACTION/KINETICS

Resin that exchanges sodium ions for potassium ions primarily in the large intestine. Thus, excess amounts of potassium (as well as calcium and magnesium) may be removed. Therapy is governed by daily monitoring of serum potassium levels. Discontinue therapy when serum potassium levels have reached 4–5 mEq/L. Monitor for serum calcium and magnesium levels.

Onset, PO: 2–12 hr.

USES

Hyperkalemia.

SPECIAL CONCERNS

Use with caution in geriatric clients because they are more likely to develop fecal impaction. Use with caution in clients sensitive to sodium overload (e.g., in CV disease) or for those receiving digitalis preparations because the action of these agents is potentiated by hypokalemia. Effective decreases in potassium may take several hours to accomplish; other treatment (e.g., IV calcium or sodium bicarbonate or glucose and insulin) may be consid-

ered in states of severe hyperkalemia (e.g., burns, renal failure).

SIDE EFFECTS

GI: N&V, constipation, anorexia, gastric irritation, diarrhea (rarely). Fecal impaction in geriatric clients. **Electrolyte:** Sodium retention, hypokalemia, hypocalcemia, hypomagnesemia. **Other:** Overhydration, **pulmonary edema.**

DRUG INTERACTIONS

Aluminum hydroxide / ↑ Risk of intestinal obstruction; ↓ effect of resin to exchange potassium

Calcium- or magnesium-containing antacids or laxatives / ↑ Risk of metabolic alkalosis; ↓ effect of resin to exchange potassium

HOW SUPPLIED

Powder for reconstitution: About 100 mg/g; *Suspension:* 15 g/60 mL

DOSAGE

• **POWDER FOR RECONSTITUTION, SUSPENSION**

Hyperkalemia.

Adults: 15 g resin suspended in 20–100 mL water or syrup (to increase palatability) 1–4 times/day. Up to 40 g/day has been used. **Pediatric:** To calculate dose, use an exchange ratio of 1 mEq potassium/g resin (usually, 1 g/kg dose).

• **ENEMA**

Hyperkalemia.

Adults: 30–50 g suspended in 100 mL sorbitol or 20% dextrose in water q 6 hr.

NURSING CONSIDERATIONS

ADMINISTRATION/STORAGE

1. Designate on orders the grams of powder and the percent sorbitol and

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volume to be used or the amount of premixed suspension; specify frequency and route of administration.

2. Avoid inhaling the powder for suspension when admixing.

ASSESSMENT

1. Document serum potassium levels. Attempt to identify cause for increased levels. Also monitor VS, renal function studies and levels of sodium, magnesium, and calcium.

2. Determine any history of CV disease and/or if taking any digitalis preparations. Review ECG.

3. Assess clients on sodium restrictions closely; drug contains 100 mg Na/g.

INTERVENTIONS

1. For PO administration, give the resin suspended in water or sorbitol syrup (3–4 mL/g resin). If necessary, the resin can be administered through a NGT, either as an aqueous suspension, mixed with dextrose, or as a peanut or olive oil emulsion.

2. Rectal administration:

- First, administer a cleansing enema.
- To administer medication, insert a large-size rubber tube (e.g., 28 French) into the rectum for a distance of 20 cm until it is well into the sigmoid colon and tape in place.

- Suspend resin in appropriate vehicle (see *Dosage*; 30–50 g suspended in 100 mL sorbitol or 20% dextrose in water) at body temperature. Administer by gravity while stirring suspension.

- Flush remaining suspension in the container with 50–100 mL fluid, clamp the tube, and leave in place.

- Elevate hips or assume a knee-chest position for a short time if there is back leakage.

- Keep the enema in the colon as long as possible (3–4 hr).

- Resin is removed by colonic irrigation with 2 quarts of a *non-sodium*-containing solution warmed to body temperature. Returns are drained constantly through a Y tube.

3. With enemas, retain solution for several hours to ensure effectiveness.

4. Retention enemas are not as effective as oral administration.

5. Use freshly prepared solutions within 24 hr. Do not heat resin.

CLIENT/FAMILY TEACHING

1. The use of Ca- or Mg-containing antacids during PO administration of sodium polystyrene may cause metabolic alkalosis; use cautiously.

2. Take exactly as prescribed; report as scheduled for F/U.

3. Report any increase in urinary output or constipation or lack of response.

4. To treat or to prevent constipation, 10–20 mL of 70% sorbitol may be given PO q 2 hr (or as necessary) to produce 1–2 watery stools each day.

5. Oral suspension products contain sorbitol and sodium.

OUTCOMES/EVALUATE

↓ Serum K⁺ levels (4.0–5.5 mEq/L)