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K-STON

Potassium Citrate

Extended Release Tablet
(10 mEq per tablet)

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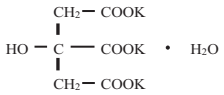
COMPOSITION:
Each extended release tablet contains:
Potassium Citrate USP ..... 10 mEq.

Product Specs.: USP

DESCRIPTION:
K-STON is a citrate salt of potassium. Its empirical formula is $C_6H_5O_7K_3 \cdot H_2O$ and it has the following chemical structure:



CLINICAL PHARMACOLOGY:
Mechanism of Action:
When given orally, the metabolism of absorbed citrate produces an alkaline load. The induced alkaline load in turn increases urinary pH and raises urinary citrate by augmenting citrate clearance without measurably altering ultra-filterable serum citrate. In addition to raising urinary pH and citrate, increases urinary potassium by approximately the amount contained in the medication. It causes a transient reduction in urinary calcium. The changes induced by K-STON produce urine that is less conducive to the crystallization of stone-forming salts (calcium oxalate, calcium phosphate and uric acid). Increased citrate in the urine, by complexing with calcium, decreases calcium ion activity and thus the saturation of calcium oxalate. Citrate also inhibits the spontaneous nucleation of calcium oxalate and calcium phosphate (brushite). The increase in urinary pH also decreases calcium ion activity by increasing calcium complexation to dissociated anions. The rise in urinary pH also increases the ionization of uric acid to the more soluble urate ion. Therapy does not alter the urinary saturation of calcium phosphate, since the effect of increased citrate complexation of calcium is opposed by the rise in pH-dependent dissociation of phosphate. Calcium phosphate stones are more stable in alkaline urine.In the setting of normal renal function, the rise in urinary citrate following a single dose begins by the first hour and lasts for 12 hours. With multiple doses the rise in citrate excretion reaches its peak by the third day and averts the normally wide circadian fluctuation in urinary citrate, thus maintaining urinary citrate at a higher, more constant level throughout the day. When the treatment is withdrawn, urinary citrate begins to decline toward the pre-treatment level on the first day. The rise in citrate excretion is directly dependent on the dosage. In patients with severe renal tubular acidosis or chronic diarrheal syndrome where urinary citrate may be very low (<100 mg/day), It may be relatively ineffective in raising urinary citrate. A higher dose may therefore be required to produce a satisfactory citraturic response. In patients with renal tubular acidosis in whom urinary pH may be high, it produces a relatively small rise in urinary pH.

INDICATIONS AND USAGE:
- Indicated for management of
- Renal tubular acidosis (RTA) with calcium stones
- Hypocitraturic calcium oxalate nephrolithiasis of any etiology
- Uric acid lithiasis with or without calcium stones

DOSAGE & ADMINISTRATION:
- Treatment with extended release potassium citrate should be added to a regimen that
- Limits salt intake (avoidance of foods with high salt content and of added salt at the table) and
- Encourages high fluid intake (urine volume should be at least two liters per day).

The objective of treatment is to provide potassium citrate in sufficient dosage to restore normal urinary citrate (greater than 320 mg/day and as close to the normal mean of 640 mg/day as possible) and to increase urinary pH to a level of 6.0 or 7.0.

ADMINISTRATION:
Severe hypocitraturia:
In patients with severe hypocitraturia (urinary citrate < 150 mg/day), therapy should be initiated at a dosage of 60 mEq/day (2 tablets TID with meals or within 30 minutes after meals or bedtime snack.
Mild to moderate hypocitraturia:
In patients with mild to moderate hypocitraturia (urinary citrate > 150 mg/day) therapy should be initiated at 30 mEq/day (1 tablet TID within 30 minutes after meals or bedtime snack).

DOSE MODIFICATION AND MONITORING:
- Doses greater than 100 mEq/ day should be avoided.
- 24 hours' urinary citrate and/or urinary pH measurements should be used to determine the adequacy of the initial dosage and to evaluate the effectiveness of any dosage change.
- In addition, urinary citrate and/or pH should be measured every four months.
- Monitor serum electrolytes (sodium, potassium, chloride and carbon dioxide), serum creatinine and complete blood counts every four months and more frequently in patients with cardiac disease, renal disease or acidosis.
- Perform electrocardiograms periodically.
- Treatment should be discontinued if there is hyperkalemia, a significant rise in serum creatinine or a significant fall in blood hemocrit or hemoglobin.

CONTRAINDICATIONS:
- In patients with hyperkalemia (or who have conditions pre-disposing them to hyperkalemia), as a further rise in serum potassium concentration may produce cardiac arrest. Such conditions include: chronic renal failure, -uncontrolled diabetes -mellitus, acute dehydration, strenuous physical - exercise in unconditioned individuals, adrenal insufficiency, extensive - tissue breakdown or the administration of a potassium-sparing agent - (such as triamterene, spironolactone or amiloride).
- In patients in whom there is cause for arrest or delay in tablet passage through the gastrointestinal tract, such as those suffering from delayed - gastric emptying, -esophageal compression, intestinal obstruction or - stricture, or those taking anticholinergic medication.
- In patients with peptic ulcer disease because of its ulcerogenic potential.
- In patients with active urinary tract infection (with either urea-splitting or - other organisms, in association with either calcium or struvite stones). - The ability of K-STON to increase urinary citrate may be attenuated by - bacterial enzymatic degradation of citrate. Moreover, the rise in urinary - pH resulting from K-STON therapy might promote further bacterial growth.
- In patients with renal insufficiency (glomerular filtration rate of less - than 0.7 ml/kg/min), because of the danger of soft tissue calcification and increased risk for the development of hyperkalemia.

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WARNINGS AND PRECAUTIONS:
Hyperkalemia: In patients with impaired mechanisms for excreting potassium, administration can produce hyperkalemia and cardiac arrest. Potentially fatal hyperkalemia can develop rapidly and be asymptomatic. The use of K-STON in patients with chronic renal failure, or any other condition which impairs potassium excretion such as severe myocardial damage or heart failure, should be avoided. Closely monitor for signs of hyperkalemia with periodic blood tests and ECGs.
Gastrointestinal lesions: Upper gastrointestinal mucosal lesions and bleeding should be anticipated. If there is severe vomiting, abdominal pain or gastrointestinal bleeding, K-STON should be discontinued immediately and the possibility of bowel perforation or obstruction investigated.

DRUG INTERACTIONS:
Potential effects of potassium citrate on other drugs: Potassium-sparing Diuretics: Concomitant administration of K-STON and a potassium-sparing diuretic (such as triamterene, spironolactone or amiloride) should be avoided since the simultaneous administration of these agents can produce severe hyperkalemia.
Potential effects of other drugs on potassium citrate: Drugs that slow gastrointestinal transit time: These agents (such as anticholinergic) can be expected to increase the gastrointestinal irritation produced by potassium salts.
Use in Specific Populations:
Pregnancy:
Pregnancy Category C: It is also not known whether K-STON can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. K-STON should be given to a pregnant woman only if clearly needed.
Nursing mothers: The normal potassium ion content of human milk is about 13 mEq/L. It is not known if K-STON has an effect on this content. K-STON should be given to a woman who is breast feeding only if clearly needed.
Pediatric use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS:
Some patients may develop gastrointestinal complaints during K-STON therapy, such as abdominal discomfort, vomiting, diarrhea, loose bowel movements or nausea. These symptoms are due to the irritation of the gastrointestinal tract, and may be alleviated by taking the dose with meals or snacks, or by reducing the dosage. Patients may find intact matrices in their feces.

OVERDOSAGE:
Treatment of over dosage: The administration of potassium salts to persons without predisposing conditions for hyperkalemia rarely causes serious hyperkalemia at recommended dosages. It is important to recognize that hyperkalemia is usually asymptomatic and may be manifested only by an increased serum potassium concentration and characteristic electrocardiographic changes (peaking of T-wave, loss of P-wave and depression of S-T segment and prolongation of the QT interval). Late manifestations include muscle paralysis and cardiovascular collapse from cardiac arrest.
Treatment measures for hyperkalemia include the following:
- Patients should be closely monitored for arrhythmias and electrolyte changes.
- Elimination of medications containing potassium and of agents with potassium-sparing properties such as potassium-sparing diuretics, ARBs, ACE inhibitors, NSAIDs, certain nutritional supplements and many others.
- Elimination of foods containing high levels of potassium such as almonds, apricots, bananas, - beans (lima, pinto, white), cantaloupe, carrot juice (canned), figs, grapefruit juice, halibut, milk, oat bran, potato (with skin), salmon, spinach, tuna and many others.
- Intravenous calcium gluconate if the patient is at no risk or low risk of developing digitalis toxicity.
- Intravenous administration of 300-500 mL/hr of 10% dextrose solution containing 10-20 units of crystalline insulin per 1,000mL.
- Correction of acidosis, if present, with intravenous sodium bicarbonate.
- Hemodialysis or peritoneal dialysis.
- Exchange resins may be used. However, this measure alone is not sufficient for the acute treatment of hyperkalemia.

INSTRUCTIONS:
Store below 30ºC. Protect from heat, sunlight & moisture. Keep out of the reach of children. To be sold on the prescription of a registered medical practitioner only.

PRESENTATION:
K-STON Tablet : Plastic Bottle of 30 tablets.

ہدایات:
۳۰ درجہ سینٹی گریڈ سے کم درجہ حرارت پر رکھیں۔
گرمی، دھوپ اور نمی سے بچائیں۔
بچوں کی پہنچ سے دور رکھیں۔
صرف ڈاکٹر کے نسخہ پر فروخت کریں۔

ISO 9001 & 14001 Certfied Company
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