**INDICATIONS AND USAGE**

Urocit®-K is a citrate salt of potassium indicated for the management of:

- Renal tubular acidosis (RTA) with calcium stones (1.1)
- Hypocitraturic calcium oxalate nephrolithiasis of any etiology (1.2)
- Uric acid lithiasis with or without calcium stones (1.3)

**TOXICITY AND SYSTEMIC EFFECTS**

- Patients with hyperkalemia (or who have conditions predisposing them to hyperkalemia). Such conditions include chronic renal failure, uncontrolled diabetes mellitus, acute dehydration, strenuous physical exercise in unconditioned individuals, adrenal insufficiency, electrolyte disturbances, 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 severe uric acid urolithiasis because of its uricosuric potential.
- In patients with active urinary tract infection (with either urea-splitting or non-urea-splitting organisms, in association with either calcium or struvite stones).
- The ability of Urocit®-K to increase urinary citrate may be attenuated by bacterial enzymatic degradation of citrate. Moreover, the rise in urinary pH resulting from Urocit®-K therapy might promote further bacterial growth.
- In patients with renal insufficiency (glomerular filtration rate of less than 0.7 ml/min/1.73 m²), because of the danger of soft tissue calcification and increased risk for the development of hyperkalemia.

**WARNINGS AND PRECAUTIONS**

- Pregnancy Category C: Animal reproduction studies have not been conducted. It is not known whether Urocit®-K can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Urocit®-K should be given to a woman who is breastfeeding only if clearly needed.
- Nursing Mothers: The normal potassium ion content of human milk is about 13 mEq/L. It is not known if Urocit®-K has an effect on this content. Urocit®-K should be given to a woman who is breastfeeding only if clearly needed. Urocit®-K is contraindicated:
- In patients with hyperkalemia or who have conditions predisposing 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, electrolyte disturbances, 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.
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**ADVERSE REACTIONS**

- Patients may develop gastrointestinal complaints such as abdominal discomfort, vomiting, diarrhea, loose bowel movements or nausea. These may be alleviated by taking the dose with meals or snacks or by reducing the dosage (6.1).
- Some patients may develop minor gastrointestinal complaints such as abdominal discomfort, vomiting, diarrhea, loose bowel movements or nausea. These may be alleviated by taking the dose with meals or snacks or by reducing the dosage (6.1).
- Potassium-sparing Diuretics: Concomitant administration of these agents can produce severe hyperkalemia (7.1).
- Drugs that slow gastrointestinal transit time: These agents (such as anticholinergics) can be expected to increase the gastrointestinal irritation produced by potassium salts (7.2).
- Pregnancy Category C: Animal reproduction studies have not been conducted. It is not known whether Urocit®-K can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Urocit®-K should be given to a woman who is breastfeeding only if clearly needed (8.1).
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- In patients with renal insufficiency (glomerular filtration rate of less than 0.7 ml/min/1.73 m²), because of the danger of soft tissue calcification and increased risk for the development of hyperkalemia.

**DRUG INTERACTIONS**

- The following drug interactions may occur with potassium citrate:
- Potassium-sparing diuretics: Concomitant administration should be avoided since the simultaneous administration of these agents can produce severe hyperkalemia (7.1).
- Drugs that slow gastrointestinal transit time: These agents (such as anticholinergics) can be expected to increase the gastrointestinal irritation produced by potassium salts (7.2).

**USE IN SPECIFIC POPULATIONS**

- Pregnancy Category C: Animal reproduction studies have not been conducted. It is not known whether Urocit®-K can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Urocit®-K should be given to a woman who is breastfeeding only if clearly needed (8.1).
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**PATIENT COUNSELING INFORMATION**

- Urocit®-K tablets are uncoated, tan to yellowish in color, modified ball shaped, with M15 debossed on one side and blank on the other.
When Urocit®-K is 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 ultrafilterable serum citrate. Thus, Urocit®-K therapy produces an alkaline load. The induced alkaline load in turn increases urinary pH and raises urinary citrate by augmenting citrate clearance without measurably altering ultrafilterable serum citrate. Thus, Urocit®-K therapy increases urinary pH and raises urinary citrate by augmenting citrate clearance without measurably altering ultrafilterable serum citrate. Thus, Urocit®-K therapy may play some role, however, as in small comparisons of oral citrate and oral bicarbonate, citrate had a greater effect on urinary pH. In addition to raising urinary pH and citrate, Urocit®-K increases urinary citrate by approximately 400 mg/day and increases urinary pH from 5.6-6.0 to approximately 6.5. The stone formation rate was reduced in all groups as shown in Table 1.

<table>
<thead>
<tr>
<th>Group</th>
<th>Baseline</th>
<th>On Treatment</th>
<th>Remission*</th>
<th>Any Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (n=18)</td>
<td>12.3 ± 0.9</td>
<td>12.3 ± 0.9</td>
<td>58%</td>
<td>90%</td>
</tr>
<tr>
<td>II (n=15)</td>
<td>12.3 ± 0.9</td>
<td>12.3 ± 0.9</td>
<td>89%</td>
<td>97%</td>
</tr>
<tr>
<td>IV (n=18)</td>
<td>12.3 ± 0.9</td>
<td>12.3 ± 0.9</td>
<td>94%</td>
<td>100%</td>
</tr>
<tr>
<td>Total (n=60)</td>
<td>12.3 ± 0.9</td>
<td>12.3 ± 0.9</td>
<td>90%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Remission defined as “the percentage of patients remaining free of newly formed stones during treatment”.

14.3 Uric acid lithiasis with or without calcium stones
A long-term non-randomized, non-placebo controlled clinical trial with eighteen adult patients with uric acid lithiasis participated in the study. Six patients received only uric acid stones, and the remaining 12 patients formed mixed stones containing both uric acid and calcium salts or formed both uric acid stones (without calcium salts) and calcium stones (without uric acid) on separate occasions.

Eleven of the 18 patients received potassium citrate alone. Six of the 7 other patients also received allopurinol for hyperuricemia with gouty arthropathy, symptomatic hyperuricemia, or hyperuricosuria. One patient also received hydrochlorothiazide because of unclassified hypercalciuria. The main inclusion criterion was a history of stone passage or surgical removal of stones during the 3 years prior to initiation of potassium citrate therapy. All patients received potassium citrate at a dosage of 30-80 mg/day in three-to-four divided doses and were followed every four months for up to 5 years. While on potassium citrate treatment, urinary pH rose significantly from 5.6 to 6.0 mg/day, and a sustained increase in urinary citrate excretion from subnormal values to normal values (400 to 700 mg/day), and a sustained increase in urinary pH from 5.6-6.0 to approximately 6.5. The stone formation rate was reduced in all groups as shown in Table 1.

14.1 Renal tubular acidosis (RTA) with calcium stones
The effect of oral potassium citrate therapy in a non-randomized, non-placebo controlled clinical study of five men and four women with calcium oxalate and calcium phosphate stones on the treatment of potassium citrate in patients with distal renal tubular acidosis. The Journal of Urol-