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Impact of long-term potassium citrate therapy on urinary profiles and recurrent stone formation.

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Abstract

PURPOSE:

Potassium citrate therapy has become one of the cornerstones of medical stone management. We elucidated the long-term effects of potassium citrate on urinary metabolic profiles and its impact on stone formation rates.

MATERIALS AND METHODS:

We performed a retrospective cohort study in patients treated at the Comprehensive Kidney Stone Center at our institution between 2000 and 2006. Patients with pre-therapy and post-therapy 24-hour urinary profiles available who remained on potassium citrate for at least 6 months were included in the analysis.

RESULTS:

Of the 1,480 patients with 24-hour urinary profiles 503 met study inclusion criteria. Mean therapy duration was 41 months (range 6 to 168). Overall a significant and durable change in urinary metabolic profiles was noted as soon as 6 months after the onset of therapy. These changes included increased urinary pH (5.90 to 6.46, $p < 0.0001$) and increased urinary citrate (470 to 700 mg a day, $p < 0.0001$). The stone formation rate also significantly decreased after the initiation of potassium citrate from 1.89 to 0.46 stones per year ($p < 0.0001$). There was a 68% remission rate and a 93% decrease in the stone formation rate.

CONCLUSIONS:

Potassium citrate provides a significant alkali and citraturic response during short-term and long-term therapy with the change in urinary metabolic pro-