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## Effectiveness of Treatment Modalities on Kidney Stone Recurrence

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### Abstract

Nephrolithiasis is highly prevalent across all demographic groups in the Western world and beyond, and its incidence rates are rising. In addition to the morbidity of the acute event, stone disease often becomes a lifelong problem that requires preventative therapy to diminish ongoing morbidity. Across the majority of stone types, increased fluid intake and targeted dietary modifications are mainstays of therapy. Specific dietary interventions associated with reduced calcium stone risk include adequate dietary calcium intake and restriction of sodium, protein, and oxalate intake, among others. Pharmaceutical therapy may be required if lifestyle changes are insufficient to minimize risk of stone recurrence, and must be targeted to the specific metabolic abnormalities portending risk for a given patient. Therapeutic options for idiopathic calcium stone disease include thiazides, citrate salts, and uric acid-lowering agents. Alkali salts are also the treatment of choice for uric acid stone disease. Management of struvite stone disease is largely surgical, but acetohydroxamic acid is a proven second line therapy. Cystinuria requires lifestyle modifications and may call for thiol-binding agents. Significant heterogeneity of the clinical population with stone disease has previously limited opportunities for large randomized controlled trials. However, as clinical phenotypes and genotypes are increasingly clarified, there are mounting opportunities for targeted randomized controlled trials in stone prevention. In the meantime, the currently available evidence for both lifestyle and pharmacologic interventions is reviewed herein.

nephrolithiasis thiazide citrate Cystinuria Uric Acid  
acetohydroxamic acid Sodium Salts Calcium Dietary Struvite  
Thiazides Incidence Kidney Calculi Hydroxamic Acids Sodium  
Dietary Life Style Oxalates Western World Genotype Phenotype  
Sulfhydryl Compounds Disease Management Citrates Alkalis

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