Urine alkalinization

The mainstay for medical management of uric acid stones is alkalinization (increasing the pH) of the urine.

Uric acid stones are among the few types amenable to dissolution therapy, referred to as chemolysis. Chemolysis is usually achieved through the use of oral medications, although in some cases intravenous agents or even instillation of certain irrigating agents directly onto the stone can be performed, using antegrade nephrostomy or retrograde ureteral catheters.

Acetazolamide (Diamox) is a medication that alkalinizes the urine. In addition to acetazolamide or as an alternative, certain dietary supplements are available that produce a similar alkalinization of the urine.

These include sodium bicarbonate, potassium citrate, magnesium citrate, and Bicitra (a combination of citric acid monohydrate and sodium citrate dihydrate).

Aside from alkalinization of the urine, these supplements have the added advantage of increasing the urinary citrate level, which helps to reduce the aggregation of calcium oxalate stones.

Increasing the urine pH to around 6.5 provides optimal conditions for dissolution of uric acid stones.

Increasing the urine pH to a value higher than 7.0 increases the risk of calcium phosphate stone formation.

Testing the urine periodically with nitrazine paper can help to ensure that the urine pH remains in this optimal range. Using this approach, stone dissolution rate can be expected to be around 10 millimeters of stone radius per month