

Bukolysis: Young Coconut Water Renoclysis for Urinary Stone Dissolution

In treating urinary stones, chemolysis or dissolution has been one major objective of the different chemolytic agents.^{1,2} A more direct approach was stimulated by the development of Endourology^{3,4} which advocates various types of closed and controlled manipulation within the urinary tract system.^{5,6,7} The procedures utilized included any of the following: percutaneous endoscopy,⁸ percutaneous nephroscopy,⁹ ureteroscopy,¹⁰ ESWL with combined percutaneous nephroscopy¹¹ and supplementary chemolysis.¹²

The available chemolytic solutions have been classified as alkalinizing, acidifying thiols, chelating, enzymes and natural solutions.² Buko Water (BW) or young coconut water belongs to the last group. This has been defined as water of the young immature coconut.¹³ It is known as «Deb» in Sri Lanka and India,¹⁴ «Buko Water» in the Philippines.¹⁵ The age of the young coconut is six to nine months, the ideal age for stable and constant fluid, electrolyte, and protein content.¹⁶

The hospital-based treatment of 57 patients, 28 female and 29 male, with 134 upper urinary stones was examined. Criteria for selection included compromised and high risk surgical patients and those refusing open surgery. There were ten uremic patients with six under chronic renal dialysis. Bilateral urolithiasis were seen in ten renal and six ureteral patients with seven additional recurrent contra-lateral uretero-renal stones. All the above cases needed more than one operation.

«Bukolysis» or Renoclysis with BW utilizes the endoscopic procedure of MUT (Multiple Ureteral Tubation)⁷ for stone chemolysis (MUT-BW) under spinal anesthesia. Two to twelve ureteral catheters sizes 4-10F were inserted through the ureter to the kidney guided by KUB X-ray and/or retrograde studies until the tips of the ureteral catheters were located above and below the stone(s). The upper catheter becomes the «Bukolysis» inlet while the others serve as the outlet. Three to five «Bukos» were utilized per day for a period of two to nineteen days.

The «Buko Connection» is an «IV Set» punctured into one of the three «coconut eyes». Freshly picked (3-5 days) or refrigerated coconuts (7-10 days) were used with 10% stone size reduction per day. Hundred and thirty-four uretero-renal stones were treated with 37 ureteral stones delivered, and 80 of 86 stones from the kidney, dissolved, or delivered after a 20 to 100% reduction. In bukolysis as an adjunct to ureterolithotomy, eight of eleven patients had a simple ureterolithotomy with three refusing surgery.

There were 3% complications, mostly from infection, mainly nosocomial. Chills and fever were seen in the early stage when old and non-refrigerated Buko was utilized. The procedural dif-

ficulties include instability of the BW, Buko connection and other problems.

In this day of stone management by endourological procedures and/or lithotripsy, an effective stone-solvent could be most useful in adjunctive or follow-up treatment to eliminate residual sandy or gravelly stones. Buko Water may be the answer.

The isolation, purification and possible synthetic preparation of the enzyme and co-enzymes from Buko Water still lies ahead.

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