

STONE DISEASE

Tamsulosin treatment increases clinical success rate of single extracorporeal shock wave lithotripsy of renal stones

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Objectives: To design a randomized, no-treatment, controlled, prospective study to determine whether the administration of tamsulosin, as adjunctive medical therapy, increases the efficacy of one extracorporeal shock wave lithotripsy (ESWL) session to treat renal stones and decreases the use of analgesic drugs after the procedure.

Methods: A total of 130 patients underwent a single ESWL session to treat solitary radiopaque renal stones 4 to 20 mm in diameter. After treatment, all patients were randomly assigned to receive our standard medical therapy alone (controls) or in association with 0.4 mg tamsulosin daily for a maximum of 12 weeks. All 130 patients were followed up for 3 months or until an alternative treatment was given.

Results: Of the 130 patients, 78.5% of those receiving tamsulosin and 60% of controls had achieved clinical success at 3 months ($P = 0.037$). When we stratified patients according to stone size, for those with a stone size larger than 10 mm, the success rate was significantly greater in the tamsulosin group ($P = 0.028$). Renoureteral colic occurred in 76.9% of patients treated with standard therapy but in only 26.1% of those receiving tamsulosin ($P < 0.001$). The mean cumulative diclofenac dose was 375 mg per patient in the tamsulosin group and 675 mg per patient in the control group ($P < 0.001$).

Conclusions: The results of our study have demonstrated that tamsulosin therapy, as an adjunctive medical therapy after ESWL, is more effective than lithotripsy alone for the treatment of patients with large renal stones and is equally safe. In addition, our results also indicated that adjunctive treatment with tamsulosin could decrease the use of analgesic drugs after ESWL.

Editorial Comment

The benefit of pharmacotherapy in promoting spontaneous passage of ureteral calculi has been demonstrated in a number of randomized clinical trials. Medical regimens consisting of calcium channel blockers in conjunction with corticosteroids, and alpha-adrenergic antagonists with or without corticosteroids, have proven efficacy in facilitating ureteral stone passage, and are being increasingly administered to patients presenting with an acute stone event. In a prospective, randomized trial, Gravina and colleagues evaluated the efficacy of the alpha-1-adrenergic receptor antagonist tamsulosin compared with no treatment in patients undergoing shock wave lithotripsy (SWL) for isolated, non-lower pole, renal calculi between 4 and 20 mm in size, in whom corticosteroids were additionally administered to all patients. Stone free rates at 3 months by KUB/renal ultrasound or IVP were superior in the tamsulosin group compared with the control group (78.5% versus 60%, respectively). When stratified by stone size, however, the difference between groups was statistically significant only in patients with larger stones (between 11 and 20 mm). Furthermore, the occurrence of renal colic and the need for analgesics was reduced in the tamsulosin group compared with the control group.

This intriguing study and others have explored the use of adjuvant pharmacotherapy, including potassium citrate (1) and nifedipine and corticosteroids (2), which are aimed at increasing the efficacy of SWL by improving stone clearance. In the kidney, potassium citrate likely acts to reduce aggregation of stone fragments, thereby facilitating discharge of fragments after SWL. In the ureter, nifedipine and deflazacort (2) and tamsulosin (3) are presumed to inhibit uncontrolled contraction of ureteral smooth muscle thereby facilitating spontaneous

stone passage. The mechanism of action of tamsulosin and corticosteroids in promoting passage of fragments after SWL of renal calculi is less readily apparent. Although this drug regimen may facilitate passage of fragments that might otherwise hang up in the ureter, the mechanism by which it enhances clearance of fragments from the collecting system is not clear. Alpha-adrenergic receptors have been identified in the ureter but their presence in the collecting system has not been reported. Further investigation into the action of tamsulosin on the renal collecting system and is warranted, as are further trials looking at the role of tamsulosin alone as adjuvant therapy after SWL.

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Effect of ureteral access sheath on stone-free rates in patients undergoing ureteroscopic management of renal calculi

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Objectives: To evaluate the effect of ureteral access sheaths (UASs) on stone-free rates (SFRs) during ureteroscopic treatment of renal calculi. Several advantages of UASs during flexible ureteroscopy have been documented. However, no study has evaluated their impact on SFRs.

Methods: We retrospectively reviewed all ureteroscopic cases for the management of renal stones performed at our Stone Center. Data were stratified according to the use or lack of use of the UAS. The groups were stratified by stone location within the kidney. Stone-free status was determined at 2 months postoperatively by either intravenous urography with tomograms or noncontrast renal computed tomography in patients with contrast allergies.

Results: A total of 256 ureteroscopic procedures for the removal of renal calculi were performed between 1997 and 2003 (173 with UAS and 83 without). The groups were similar in age, sex, and stone burden. Stents were placed in nearly 80% of patients. The lower renal pole represented the most common presenting location. Stone displacement with a ureteroscopic basket for efficient fragmentation was necessary in 34%. The overall SFR in the UAS group and non-UAS group was 79% and 67%, respectively ($P = 0.042$). The SFRs were improved for calculi in all portions of the kidney.

Conclusions: In addition to facilitating ureteroscopic access, reducing costs, and lowering intrarenal pressures, the results of the current study suggest that UASs improve SFRs during the management of renal calculi. It is now our current practice to use the UAS routinely during ureteroscopic treatment of renal and upper ureteral calculi.

Editorial Comment

Although the concept of the ureteral access sheath is not new, a recent redesign has resulted in a safer, more user-friendly and versatile product. A number of advantages have been demonstrated with use of the ureteral access sheath, including the ability to repeatedly access the upper tract and a reduction in intrarenal pressures. These benefits alone support the use of a ureteral access sheath in select cases. However, an advantage with regard to stone free rates has not been clinically demonstrated, despite the obvious benefit that stone fragments can be manually removed.

In this retrospective study, L'Esperance and colleagues compared 256 cases of ureteroscopic management of renal calculi with or without a ureteral access sheath and determined that overall stone free rates were higher with (79%) than without (67%) the access sheath. When stratified by location in the collecting system, stone free rates were higher in all locations with the access sheath, although the differences did not reach statistical significance. Interestingly, despite higher stone free rates with use of the access sheath, no attempt was made to manually remove fragments after intracorporeal lithotripsy. Thus flow dynamics associated with the access sheath must encourage passage of fragments from the kidney. An obvious study of interest would be one in which every attempt is made to manually retrieve fragments from the kidney via the access sheath.

This study suffers from the usual limitations of a retrospective series, in that selection bias with regard to patient selection may come into play and the fastidiousness with which the stone is treated could be affected by use of the access sheath. However, the results of this study are encouraging; now, a prospective randomized trial should be performed to confirm these findings. For now, use of a ureteral access sheath may be advantageous not only for lengthy and complex ureteroscopic cases, but perhaps for routine cases as well.

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IMAGING

Prostatic biopsy directed with endorectal MR spectroscopic imaging findings in patients with elevated prostate specific antigen levels and prior negative biopsy findings: early experience

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Purpose: To prospectively evaluate the accuracy of transrectal ultrasonography (US)-guided biopsy directed with magnetic resonance (MR) spectroscopic imaging in patients with an elevated prostate specific antigen (PSA) level and negative findings at prior biopsy by using subsequent biopsy results as the reference standard.