STONE DISEASE

Jejunoileal bypass reversal: effect on renal function, metabolic parameters and stone formation

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Purpose: While the effect of jejunoileal bypass (JIB) reversal has been well studied regarding hepatic function, there is little information regarding the effect of reversal on renal function and even less data regarding the metabolic urinary stone environment. We evaluated the results of JIB reversal on renal function, the urinary stone milieu and the clinical development of recurrent calculi in affected patients.

Materials and Methods: From 1995 to 2003, 4 female patients with a mean age of 48.2 years underwent JIB reversal primarily for refractory stone disease. The clinical and metabolic courses prior to and following bypass reversal were reviewed specifically to evaluate renal function, serum and urinary metabolic stone profiles, and clinical stone formation.

Results: At initial presentation following JIB all 4 patients had significantly increased 24-hour urinary oxalate (range 80 to 160 mg, mean 112.5, normal less than 50) and significantly low 24-hour urinary citrate (range 5 to 62 mg, mean 21.5, normal greater than 320). Following reversal 24-hour urinary oxalate normalized to between 31 and 36 mg (mean 33.75). However, 24-hour urinary citrate continued to be low (range 215 to 248 mg, mean 226.5). After JIB reversal all 4 patients continued to have new stones until the commencement of urinary alkalization, following which only 1 had 1 calculus, which occurred 47 months after reversal. After JIB mean serum creatinine was 1.48 mg/dl (range 0.8 to 1.9) and mean urinary creatinine excretion was 0.91 mg per hour (range 0.69 to 1.15). After JIB reversal mean serum creatinine was 1.28 mg/dl (range 0.6 to 2.0) and mean urinary creatinine excretion was 1.0 mg per hour (range 0.85 to 1.10).

Conclusions: JIB reversal normalizes 24-hour urinary oxalate. While urinary citrate improves, it continues to be low and such patients are at high risk for recurrent stone formation. However, in this setting appropriate replacement therapy has a significant and positive impact on that propensity.

Editorial Comment

Bone loss, liver disease and renal calculi are only a few of the metabolic consequences of jejunoileal bypass. Stones form as a consequence of hyperoxalauria, low urine volume and pH and hypocitraturia that occur because of metabolic acidosis and malabsorption. Stone disease in some patients has been severe enough to prompt JI bypass reversal. Dhar and colleagues seized a unique opportunity to study 4 such patients before and after JI bypass reversal. They documented a significant reduction in stone formation rate, from 3.2 to 0.19 stones/patient/year after bypass reversal. Of note, however, reversal of the JI bypass failed to completely reverse the marked hypocitraturia associated with bypass surgery that is due to severe metabolic acidosis. Initiation of alkalinization with potassium citrate, however, led to complete cessation of stone formation in all but 1 of the 4 patients, who produced a single stone. These findings are particularly relevant as laparoscopic intestinal bypass surgery has become increasingly popular. We should heed the lessons learned from JI bypass surgery and take a proactive approach to avert the metabolic consequences of intestinal surgery, and further, to continue to follow patients after bypass reversal since their risks may not completely reverse without pharmacologic intervention.

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Medical-expulsive therapy for distal ureterolithiasis: randomized prospective study on role of corticosteroids used in combination with tamsulosin-simplified treatment regimen and health-related quality of life

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Objectives: To assess the clinical efficacy of the addition of a corticosteroid drug to tamsulosin in the medical-expulsive therapy of distal ureterolithiasis.

Methods: Sixty consecutive patients with a symptomatic distal ureteral stone were included in our study and randomized to one of two home treatment groups. Group 1 patients (n = 30) received tamsulosin (0.4 mg daily), and group 2 patients (n = 30) were treated with a corticosteroid drug (deflazacort, 30 mg daily) plus tamsulosin. The treatment duration was until stone expulsion or 28 days, whichever came first. The primary endpoint of the study was the stone expulsion rate. The secondary endpoints were the expulsion time; use of analgesics; number of emergency room admissions, hospitalizations, and workdays lost; drug side effects; and quality of life of the patients (EuroQol questionnaire, EQ-5D) during treatment.

Results: The two groups had a similar expulsion rate (90% for group 1 and 96.7% for group 2; P = 0.612), but the expulsion time was significantly reduced in group 2 patients (P = 0.036). During the treatment period, we did not observe significant differences between the two groups in the number of emergency room visits or hospitalizations, analgesic use, number of workdays lost, or incidence of drug side effects. The quality of life of the patients during therapy, as determined using the EQ-5D, was similar in both groups.

Conclusions: The use of a corticosteroid drug in association with tamsulosin seemed to induce more rapid stone expulsion. In addition, tamsulosin alone as medical-expulsive therapy for distal ureteral calculi had excellent expulsive effectiveness.

Editorial Comment

One of the most significant advances in stone management that has come about in the last few years is the use of pharmacotherapy to facilitate spontaneous passage of ureteral calculi. A number of well-designed, prospective, randomized trials demonstrated the efficacy of calcium channel blockers and tamsulosin, in conjunction with corticosteroids, in promoting stone passage and reducing the pain associated with it. With comparable efficacy demonstrated for nifedipine and tamsulosin, the reduced side-effect profile of tamsulosin has made it the drug of choice in treating patients with ureteral calculi. However, prior trials included corticosteroids along with tamsulosin or nifedipine, although many practitioners simply skipped this component of the pharmacologic regimen for fear of steroid-related complications such as ulcer disease. Dellabella and colleagues performed a head-to-head comparison of tamsulosin with or without corticosteroids for the management of patients with > 4 mm distal ureteral calculi. Although spontaneous passage rates (90% versus 97%, respectively), ER/admission rates, and pain medication requirements were comparable between the 2 groups, the group receiving corticosteroids passed their stones an average of 2 days sooner. Consequently, the addition of corticosteroids results in quicker stone passage, but the benefit of improved stone passage rates and reduced need for pain medication are still obtained with tamsulosin alone. Thus, for patients without a contraindication to corticosteroids, the use of both tamsulosin and prednisone provides optimal therapy. However, tamsulosin alone is effective and even in patients in whom corticosteroids are best avoided.

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