

### Editorial Comment

The authors analyze the effect of raloxifene, estrogen and placebo on the incidence of urinary incontinence in postmenopausal women that were participating in an osteoporosis prevention trial. Urinary incontinence was self reported and self rated by the patients during the study as mild, moderate or severe. There was no clear differentiation between symptoms of urinary urge incontinence, stress urinary incontinence, or mixed urinary incontinence. After three years of follow-up, the authors noted that estrogen was found to be associated with a statistically greater increase of urinary incontinence in women with prior hysterectomy than that found with either placebo or raloxifene.

This paper raises interesting issues regarding the potential use of medical therapy as a prophylaxis against urinary incontinence. In addition, an interesting sidebar is made in the article about the potential effects of raloxifene on the incidence of female pelvic prolapse. The biological actions of raloxifene are mainly through the binding of estrogen receptors with secondary effect on estrogenic pathways. This result will potentially decrease the resorption of bone to that noted in the premenopausal state. The use of raloxifene has been noted to increase the risk of venous thromboembolism and thus the medication should be discontinued at least 3 days prior to any potential surgery, which would result in prolonged patient immobilization.

Of specific note is that the incidence of incontinence in this patient population through self reporting was vastly lower than that previously reported in the United States (1). In addition, potential points of contention in this paper are self noted by the authors and do include that the screening for incontinence was not completed through a validated questionnaire and there was no differentiation between urge or stress incontinence. This article does bring up some fascinating points in the discussion section about the use of estrogen therapy and its effect on collagen content and architecture in the paraurethral tissues and vaginal epithelium.

### Reference

1. Stewart WF, Van Rooyen JB, Cundiff GW, Abrams P, Herzog AR, Corey R, Hunt TL, Wein AJ: Prevalence and burden of overactive bladder in the United States. *World J Urol.* 2003; 20: 327-36.

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## PEDIATRIC UROLOGY

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### **Subureteral injection of Deflux for correction of reflux: analysis of factors predicting success**

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**Objective:** To review, prospectively, our experience with endoscopic Deflux injection and evaluate the volume injected, grade, endoscopic appearance after injection, and presence or absence of voiding dysfunction as predictors of success. Subureteral injection of dextranomer/hyaluronic acid copolymer (Deflux) has become an effective treatment of vesicoureteral reflux.

**Methods:** A total of 52 patients (50 females and 2 males; 80 ureters) were treated with a single subureteral injection of Deflux. The mean patient age was 7.6 years (range 14 months to 22 years). The presence or absence of voiding dysfunction was evaluated with a preoperative questionnaire and patient history. The volume of

Deflux injected in each ureter was recorded. The endoscopic appearance after injection was recorded as “volcano” or “other.” Success was defined as no reflux on postoperative voiding cystourethrography.

Results: The success rate by grade of reflux in individual ureters was 82%, 84%, 78%, and 73% for grade 1, 2, 3, and 4 vesicoureteral reflux, respectively. No statistically significant difference was found in the cure rate by grade ( $P = 0.76$ ). The overall cure rate by ureter was 80% and by patient was 71%. New contralateral reflux developed in 12.5% of patients. No statistically significant difference was found in the cure rate with respect to the volume injected or the presence or absence of voiding dysfunction. The ureteral cure rate with volcano and alternate morphology was 87% and 53%, respectively ( $P = 0.004$ ).

Conclusions: Mound morphology was the only statistically significant predictor of a successful outcome, with an associated cure rate of 87%. Concomitant voiding dysfunction did not have an adverse effect on the cure rate. In our experience, no statistically significant difference was found in the cure rate for grades 1 through 4 vesicoureteral reflux after a single injection of Deflux.

### Editorial Comment

This paper reviews a relatively small experience with using subureteral injection of Deflux for the treatment of reflux. In the sense that this is a report that is representative of a typical pediatric urologist, it is quite interesting. The authors report good results in that they were able to cure (no reflux at 3 months) about 80% of ureters and 70% of patients using this minimally invasive technique.

Several other findings were interesting in their study. First the grade of reflux had no relationship to the degree of success (Grade V patients were excluded). Second, there was a 12.5% rate of new contralateral reflux. Third, a history of voiding dysfunction had no influence on the results. Finally, and perhaps most important, the configuration of the ureter immediately after injection had the most to do with ultimate success.

There are several important caveats to this study. The average age of the patients was over 7 and the study included primarily girls. Older patients and girls may be easier to inject, partially skewing the results. Most important though is the question of how to judge success. One measure of success is whether the reflux is gone. However, is a 3 month VCUG adequate? Some of the Deflux is absorbed with time. Would less Deflux mean a recurrence of the reflux over time? How about the effect of voiding dysfunction? This would likely increase over time. Although voiding dysfunction had no effect on the 3 month VCUG, would it have a stronger effect if a VCUG were done at 12 or 24 months? Furthermore, we have pretty good evidence that open surgery prevents reflux for many years. What about Deflux? Clearly, there are no data on VCUGs 5-10 years after Deflux. Finally, is the resolution of reflux really the correct end-point? We really are trying to prevent recurrent pyelonephritis. Reflux resolution is in some ways a “proxy endpoint.” We really need a study of the rate of pyelonephritis with and without Deflux treatment. Hopefully one will be forthcoming soon.

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### **Dysfunctional voiding and incontinence scoring system: quantitative evaluation of incontinence symptoms in pediatric population**

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**Purpose:** Functional voiding problems in children are common. Although pathophysiology and presentation of this clinical entity are well described, there is not yet a generally accepted method of quantitative and standard evaluation of clinical symptoms, and there are few studies addressing the issue of symptom scoring in children. We investigated use of a symptom scoring system in children with functional voiding problems and the normal population, and validated it using a scientific tool.

**Materials and Methods:** A symptom scoring system was designed empirically. The questionnaire was composed of items regarding daytime symptoms, nighttime symptoms, voiding habits, bowel habits and quality of life. There were 2 groups whose symptoms were evaluated using this scoring system. Group 1 consisted of 86 patients who were admitted to our clinic with various wetting and daytime voiding problems. Group 2 consisted of 265 controls with no urological complaints. Parents of all children were asked to fill out a questionnaire that included the symptom scoring system. Boys with lower urinary tract abnormalities, and patients with spina bifida occulta and neurogenic bladder were excluded from the study. Odds ratios of answers to each item in the questionnaire were used to define strength of the questions to differentiate patients from healthy controls. According to the value of odds ratios, questions were modified and a score for each question was given. Receiver operating characteristic plots were used to define detection cutoff or threshold score, and Youden's index was used to detect best reflecting optimal sensitivity and specificity.

**Results:** The total score was determined to range from 0 to 35, and items were modified to 13 questions and 1 quality of life question at the end of the study. Among the 86 patients in group 1 (female-to-male ratio 1.5:1) mean score was 18.56. Among the 265 controls in group 2 (female-to-male ratio 1.5:1) mean score was 2.88. Statistical analysis revealed that within a confidence interval of 96.2% patients with a score of 8.5 or greater had voiding abnormalities, with 90% sensitivity and 90% specificity. There were no statistically significant differences between the 2 genders and 2 age groups of 4 to 7 and 8 to 10 years.

**Conclusions:** This statistically validated functional voiding problems symptom score may provide accurate, objective and scientific bases to grade the symptoms in comparative research, diagnosis, treatment and followup of patients with wetting and functional voiding disorders

### **Editorial Comment**

Dysfunctional voiding is common, but can be extremely difficult to identify with certainty and even harder to grade. Furthermore, it is very difficult to objectively monitor progress in the treatment of dysfunctional voiding. This is concerning, considering that dysfunctional voiding has considerable importance because of its role in the pathophysiology of urinary tract infections, vesicoureteral reflux and incontinence. In that sense, this paper, describing a new, and indeed the first, validated questionnaire for identifying and grading dysfunctional voiding is of considerable value.

Although this questionnaire is a major advance, there are some questions that remain to be answered. For example, are all voiding dysfunctions alike? In other words, how well will this scoring system separate children with frequency/urgency from those with infrequent voiding? Also, we know that in many children, bowel and bladder dysfunction co-exist. Moreover, in some children treatment of constipation will help resolve the voiding dysfunction. Unfortunately, this questionnaire only has one question about bowel function and that one only adds 1 point to the scoring system.

Despite these concerns, this paper is an important contribution. The authors are to be congratulated.

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