

## PEDIATRIC UROLOGY

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### **Antibiotic prophylaxis for the prevention of recurrent urinary tract infection in children with low grade vesicoureteral reflux: results from a prospective randomized study**

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**Purpose:** Antibiotic prophylaxis is given to children at risk for urinary tract infection. However, evidence concerning its effectiveness in grade I to III vesicoureteral reflux is lacking. The objective of this study was to determine whether antibiotic prophylaxis reduces the incidence of urinary tract infection in young children with low grade vesicoureteral reflux.

**Materials and Methods:** Children 1 month to 3 years old with grade I to III vesicoureteral reflux were assigned randomly to receive daily cotrimoxazole or no treatment, and followed for 18 months. A urinary tract infection constituted an exit criterion. Infection-free survival rates were calculated using the Kaplan-Meier method and compared using the log rank test.

**Results:** A total of 225 children were enrolled in the study. Distribution of gender, age at inclusion and reflux grade were similar between the 2 groups. There was no significant difference in the occurrence of urinary tract infection between the 2 groups (17% vs. 26%,  $p = 0.2$ ). However, a significant association was found between treatment and patient gender ( $p = 0.017$ ). Prophylaxis significantly reduced urinary tract infection in boys ( $p = 0.013$ ), most notably in boys with grade III vesicoureteral reflux ( $p = 0.042$ ).

**Conclusions:** These data suggest that antibiotic prophylaxis does not reduce the overall incidence of urinary tract infection in children with low grade vesicoureteral reflux. However, such a strategy may prevent further urinary tract infection in boys with grade III reflux.

### **Editorial Comment**

This study again tries to demonstrate whether prophylactic antibiotics are of value in refluxing patients and could not show a significant difference for prophylaxis in mild refluxing patients, except in Grade III boys.

I have concerns with urine samples of bag collections and their lack of attempt to define poor compliance. Previous studies have either measured drug excretion in the urine or sensitivity of the bacteria to the antibiotic that the patient was taking and 27% of the E-coli infections in the prophylactic group were sensitive to the medication that the patient was supposed to be taking. Other studies have suggested up to one-third of patients and parents are non-compliant with recommended prophylactic treatments.

I must admit that I do struggle with data such as this, where 17% of the treatment patients had an infection and 26% of the no treatment had an infection. This brings into question the difference between statistical significance and clinical significance, and makes it hard to recommend no treatment over prophylactic antibiotics. It points out how difficult it is to do a large study with sufficient number of patients to leave the readers without any doubt of the proper treatment. It is tempting to make the conclusion that no treatment is the right answer but I wonder whether the more cautious approach is to recommend early surgical treatment of reflux, which has been shown to protect kidneys from scarring, even though it does not alter the recurrent UTI rate.

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## **Failed pyeloplasty in children: comparative analysis of retrograde endopyelotomy versus redo pyeloplasty**

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**Purpose:** We compared retrograde endopyelotomy to redo pyeloplasty for the treatment of failed pyeloplasty in children.

**Materials and Methods:** Of 32 patients with recurrent ureteropelvic junction obstruction retrograde endopyelotomy was performed in 18 and redo pyeloplasty was performed in 14. Patient age, gender, side, stent placement at initial pyeloplasty, presentation of secondary ureteropelvic junction obstruction, hospital stay, complications and success rates were compared. Success was defined as radiographic relief of obstruction as determined by ultrasound or diuretic renography at latest followup.

**Results:** Median patient age was 6 years (range 2 to 14) at retrograde endopyelotomy and 7.2 years (1 to 17) at redo pyeloplasty. Retrograde endopyelotomy technique consisted of holmium laser in 10 patients and cautery/balloon dilation in 8. Redo pyeloplasty was performed through a flank incision in 12 patients and by laparoscopy in 2. Retrograde endopyelotomy was successful in 39% of the patients, while redo pyeloplasty had a 100% success rate ( $p = 0.002$ ). Of the patients with failed retrograde endopyelotomy 5 had a stricture greater than 1 cm and 7 were younger than 4 years. Mean length of the narrowed ureteral segment was 10.1 mm in the failed retrograde endopyelotomy group vs. 5.8 mm in the successful group ( $p < 0.01$ ). Only 1 of 8 children (13%) had a successful retrograde endopyelotomy using cautery followed by balloon dilation. Hospital stay was 1.3 days for the retrograde endopyelotomy group and 2.9 days for the redo pyeloplasty group ( $p < 0.01$ ). Mean followup was 47 months (range 15 to 132) after retrograde endopyelotomy and 33.1 months (12 to 78) after redo pyeloplasty.

**Conclusions:** Retrograde endopyelotomy had a significantly lower success rate than redo pyeloplasty for correction of recurrent ureteropelvic junction obstruction after failed pyeloplasty in children. Patient age less than 4 years and narrowed ureteral segment greater than 10 mm were associated with a poor outcome after retrograde endopyelotomy.

### **Editorial Comment**

Redo pyeloplasty was remarkably successful with an average of a 3 day stay in the hospital. One wonders about patient selection in a study such as this, as obviously that could make a great difference in the outcome.

These authors suggested that patients under 4 and strictures longer than a centimeter were not as well treated with endoscopic techniques. An interesting thought suggested by the authors was that patients, who did not have an initial ureteral stent and then subsequently had failure, perhaps had more urine leakage and fibrosis and were better treated by redo pyeloplasty than endoscopic techniques. The authors did not comment on whether the endoscopic techniques made redo pyeloplasty afterwards any more difficult but all their open pyeloplasties were successful after their endoscopic procedures. This is a difficult segment of patients to deal with and all of the urologic techniques should be considered. In these authors' hands, the retrograde endopyelotomy with electrocautery was not very successful.

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