Outcomes Follow Up Management of Posterior Urethral Valves in Children

Thesis

Submitted for Partial Fulfillment of the Requirements of the M.D. Degree in Urology

By

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Summary and Conclusion

Posterior urethral valve (PUV) is the most common cause of urinary outflow obstruction in pediatric practice. PUV is estimated to occur in 1 of every 5000 to 8000 male births and constitutes about 10% of prenatally diagnosed hydronephrosis.

Children with congenital posterior urethral obstruction present in a variety of ways, depending primarily on the degree of obstruction. They ranged from newborns with life threatening renal insufficiency and pulmonary hypoplasia to older children with minor voiding dysfunction or urinary tract infection. Today, most patients with posterior urethral valves are diagnosed with prenatal ultrasonography.

Management of posterior urethral valves depends on the degree of renal function. Currently, many patients with posterior urethral valves are diagnosed by prenatal ultrasound. After birth, a urethral catheter is placed; further management is dictated by the level of renal function. In the presence of satisfactory renal function, transurethral valve ablation is performed. In the unusual situation in which the newborn urethra seems too small to accommodate the available endoscopes, an elective vesicostomy is appropriate and safe. The major area of continuing controversy involves the most appropriate approach for management of the infant who has significant renal insufficiency that persists after a satisfactory period of transurethral drainage. The options for managing this group of children include endoscopic destruction of the urethral valves only, elective vesicostomy, or high-loop ureterostomy.

The aim of the work to determine which method achieves the current posterior urethral valve management goals of preserving renal function and functional integrity of the lower urinary tract

To accomplish this aim, the records of 30 consecutive patients with posterior urethral valves of different age were reviewed. At hospital admission a clinical examination was done for all patients. Serum creatinine was measured. Abdominal & pelvic ultrasound and voiding cystourethrogram (VCUG) were done for all patients. Urodynamic studies were carried out only for patients who were toilet trained after at least one year of the management. Patients were divided into 2 groups according to primary surgical management. Group 1 includes (15) patients managed by endoscopic valve ablation, group 2 includes (15) patients managed by vesicostomy with delayed valve ablation

Both groups were subjected to follow up, 3months, 6 months & one year after management. During follow up the children were subjected to: clinical assessment, laboratory assessment, radiological assessment, and urodynamic studies were carried out only for patients who were toilet trained.

The most common presentation in group 1 managed by valve ablation was difficult micturition (60%). While, in group 2 managed by initial vesicostomy the most common presentation was febrile urinary tract infection (66.67%). While the preoperative presentations have significantly improved during the postoperative follow up in both groups, the incontinence was not improved, which may be due to irreversible detrusor dysfunction.

In both groups of our study the preoperative serum creatinine is significantly improved during follow up after 1 year of the management. Postoperative serum creatinine is significantly lower in group 1 than group 2. Preoperative mean serum creatinine levels for groups 1 and 2 were 1.16 ± 0.32 mg/dl and 1.529 ± 0.622 mg/dl, respectively. At the end of 1 year the serum creatinine decreased to 0.55 ± 0.22and 0.8 ± 0.39 mg/dl, in groups 1 and 2, respectively.

In our study, the improvement of postoperative hydronephrosis grade in both groups is not significantly different. In group 1, backpressure changes improved in 70.0% of affected renal units. In group 2, backpressure changes improved in 63.3% affected renal units

In our study, the incidence of VUR is 63.3%. In group 1 after surgical correction of urethral obstruction, VUR improved in 77.78% of affected renal units. In group 2 VUR improved in 65% of affected renal units. The improvement of postoperative hydronephrosis grade in both groups is not significantly different.

The improvement of postoperative bladder score in both groups is not significantly different. The mean postoperative bladder score in group 1 was 2.13± 1.45. The mean postoperative bladder score in group 2 was 2.40± 1.12.

Our cases who had urodynamic studies demonstrate higher incidence of hypocompliant bladder in group 2 managed by initial vesicostomy (75%) than patients managed by valve ablation (33.3%).

Conclusion

In this study the improvement of renal functions and bladder functions is significantly higher in patients managed by primary valve ablation than those managed by initial vesicostomy, as demonstrated by postoperative serum creatinine and urodynamic studies. However, this study is a randomized study, in which the selection criteria are not the same in both group. Also, considering that, the number of surgical procedures is greatly increased in diversion patients, posterior urethral valves should be treated with primary valve ablation

Vesicostomy should be reserved for patients in whom valve ablation is not technically possible. It should be done with discretion in patients with significant renal insufficiency that persists after a satisfactory period of transurethral drainage, and patients with no response to primary valve ablation but the likelihood of improving renal function in these patients is low.