Enuresis in Children in Tikrit City

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Abstract

To determine the pattern of enuresis in children who consult the pediatric outpatient clinic in Tikrit Teaching Hospital for management, a cross-sectional study was carried out on a randomly selected sample of (50 enuretic children) and compared with a control group (50 healthy subjects). 32 patients of them 64% were males. Primary nocturnal enuresis was the commonest type in 41 (82%), enuresis commonly affect children in the age group 5-10 years, were 40 of (80%) patients. Urinary tract infection was found only in 11 patients 22%. Sixty two percent of patients had positive family history of enuresis and 34 patients (78%) had history of stressful event prior to the onset of enuresis. Enuresis had no relation with growth or developmental delay, hyposthenurea, and glucoseurea.

Introductions

Enuresis is one of the most common and perplexing problems brought to the attention of the pediatrician. It is estimated that around 10-20% of 5-year-old children wet the bed at night. However, by adolescence only 1% continue to have this problem\(^1\). Enuresis defined as the voluntary or involuntary repeated discharge of urine in the clothes or bed after a developmental age when bladder control should have been established. Diagnosis of enuresis is made when urine is voided twice a week for at least three consecutive months or clinical significant distress occurs in areas of child's life as a result of wetting \(^2\).

Enuresis is primary if the child has never been continent of urine for a prolonged period and which constitute 85% of the cases and secondary when incontinence recurs after a prolonged period of continence 3-6 months \(^3,4\). Nocturnal enuresis is often used to mean wetting during nighttime and sleep, the daytime wetting is termed diurnal enuresis. Fewer than 10% of all children who have nocturnal enuresis wet in daytime and diurnal enuresis infrequently occurs without nocturnal enuresis\(^5\). Both primary and secondary can be caused by maturational, organic, and psychological problems but many authorities think that secondary enuresis is less likely to be due to a simple maturational factor\(^3\). To determine the epidemic-etiological characteristics of enuretic patients attending Tikrit teaching hospital and compare it with a control group, the relation of enuresis with growth pattern, family history, and the distribution of enuresis cases in relation to UTI, glucoseurea, hyposthenurea, low specific gravity, psychological problems, and radiological findings.

Patients and methods

We prospectively reviewed all children and adolescent patients with the clinical diagnosis of renal stones and ureteric stones patients, referred to our urology center, department of surgery, at Al Jomhoury teaching hospital in Mosul, from Jan 2000 – July 2004. The medical history, physical examination, laboratory investigations, and ultrasound, plain x-ray of the abdomen and intravenous urography were performed to help in their clinical diagnoses and as preparation for ESWL treatment. The stones were varied in size, numbers, and sites, some patients have had bilateral renal stones, there were no associated congenital abnormality, and no neoadjuvent double (J) ureteric stenting was needed. All patients were treated on an over night hospital stay basis. The treatment with lithostar lithotripter necessitated an intravenous general anesthesia and foam padded shield over the chest to protect the lungs. We gave each patient single vial of cephalothine (1gm) intravenously with one pint of normal saline (500cc to enhance diuresis) during the procedure.

The number of shock waves varied between (400-4000) shock wave per session with a mean of 2250 shock wave per session and the maximum generator voltage was (18kv). The patients were followed up for a mean period of one and half year at three months intervals.
Results

During the period of the study, from Jan 2000 through July 2004, two hundred twenty pediatric patients were underwent ESWL for renal stones in 190 (86%) patients and ureteric stones in 30 (14%). The total number of the patients underwent ESWL since the availability of the lithotripter in our center is (4400) adult and paediatric patients. The paediatric age patients group is about (5%) of the total. The age of the patients is varied between (1-13) years, with mean of (5.8) years. One hundred forty five (66%) patients were male and 75 (34%) patients were female, with male to female ratio of (1.9:1), while 89 (40%) patients were from rural area, 131 (60%) patients were from urban. The right kidney was affected in (76) patients [% of renal stone patients] and (34.5% of all patients], while the left kidney affection was found in (114) patients [% of renal stone patients] and (64.5% of all patients].

Regarding the ureteric involvement, we found that 17 (57%) patients were having stones in their right ureter, and 13 (43%) patients in their left ureter. One hundred sixty four (86%) patients having single renal stones and 26 (14%) patients having multiple renal stones, including five (3%) patients discovered to have bilateral renal stones. Nine (5%) patients presented with history of recurrent stones after surgical removal of their primary stones.

The stone free result was obtained in 198 (90%) patients from the first session of ESWL. The stone sizes were ranged from (4-23) mm, with mean (9.4) mm, and the total number was (245) stone that demands (261) sessions. The average shock wave per session was (2250). The over all stone clearance rates after one month was (87%). Twenty (9%) patients with large residual fragments or having stones in the other side, a complete stone free result was obtained after a second session of treatment in 20 (11%) patients and a third session of treatment for only two (1%) patients, on three month intervals. We noticed that the ureteric stone, in order to be cleared up needs more number of shock waves than a similar sized stone situated in the kidney, in order to disintegrate.

No preoperative double (J) ureteral stenting catheter was needed. No intra-operative complications were recorded. Hematuria post shock wave was noticed in almost all the patients, which subsides after the 3rd post treatment day in maximum, with no need for blood transfusion. Pain post ESWL was recorded in 30 (13%) patients, that resolved by simple oral analgesia and reassurance. Stone street was found in 15 (7%) patients, no adjuvant treatment needed, as they passed the stone by conservative treatment (simple oral analgesia and encouraging fluid intake). Minor cutaneous spot bleeding at coupling site recorded in those patients needs more than two session, and it was found in two (1%) patients, it did not required any treatment.

Discussion

From our study, the number of paediatric patients affected by urolithiasis in relation to the adult is (5%), and it appears that ESWL has made a substantial impact on the treatment of urinary stones in children, when compared to the traditional mode of stone treatment, now fewer patients required open surgery. In contrast to our work prior to the availability of the ESWL in our center and in the reported series from 1970s in which only open surgical procedures are mentioned (9), while the long-term effect of ESWL on children remain unknown (13,14). Frick et al observed no significant effect of ESWL on children in term of renal functions and hypertension, after a mean follow up of three years (15). Large stone burden patients and large stones that appear dense on x-rays are less likely to respond to ESWL monotherapy, all patients whom their treatment were failed to respond by one session, they were either have had multiple renal or ureteric stones, or a calculus greater than (10) mm in diameter.

Some patients need open surgery to treat associated structural anomalies, such as megaureter or ureteropelvic junction obstruction (5, 7). Although, there is now a growing body of evidence to suggest that ESWL is the preferred method of treatment in the paediatric patients with upper urinary tract calculous disease (10, 12,14). The stone free rate in our study, in patients with renal stones treated by ESWL was (88%).after
three months of follow up, this result looks higher than that mentioned in the series of Losty et al, in which the stone free rate after ESWL monotherapy in children was eight out of 28 (28%) patients (17), and it was only (45%) (16 out of 35 patients) as reported by series of David J. Lim et al (18). Stone free rate with ureteric stones was (100%).

**Conclusion**

The study concludes that ESWL is a safe and effective method for the treatment of urolithiasis in children.

**References**