

team for at least 12 m. continence was defined as < 1/7 day's wet overnight, and during the day.

Results : 108 patients (35M/F73, age 7-18 y, time from intake 12- 37 m), 29F with UTI, 9M had history of urethra valves. 1 F was lost for follow up immediately after the hospitalisation. The total intake of enuresis/incontinence patients during the study-period was \pm 2000 patients (1992-1998). At 12 m follow up: there was a significative decrease in frequency of UTI, and disappearance of diurnal problems in 99/108 patients, of nocturnal continence in 92/108 for at least 3 month's. Relapses were frequent : 28/92 patients, but could be treated ambulatory. 2 patients needed a second training-period. Poor outcome rate correlated with initial bladdervolume (<100ml), age (<8y), diagnosis (urethral valves) and motivation of parents during follow up.

Conclusion : A voiding school with an intensive training is effective in dysfunctional voiders, resistant to conventional therapy. The high succes-rate, despite the poor prognosis of this patient-group seems to be related to the multidisciplinary approach, and an integrated use of multiple therapeutical tools.

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BIOFEEDBACK METHODOLOGY: DOES IT MATTER HOW WE TEACH CHILDREN WITH VOIDING DYSFUNCTION TO RELAX?

Aims of Study

Biofeedback is a non-invasive treatment that has been documented to be helpful for children with daytime wetting and/or urinary tract infection (UTI) secondary to voiding dysfunction. A multidisciplinary voiding dysfunction center developed at our institution has utilized two different methods of biofeedback to manage this condition. Specifically we wish to:

1. Determine the effectiveness of biofeedback in a large population of children presenting with voiding dysfunction.
2. Evaluate differences between two different methods with regard to resolution of symptoms, improvement of objective measurements and patient satisfaction.

Methods

The charts of 102 consecutive patients treated with biofeedback were reviewed. Twenty-one patients were asked to void 4 to 8 times over the course of 6 hours seated in front of a uroflow device while receiving coaching by a designated staff member (Method A, median 1 session, range 1-2 sessions). Fifty-six patients were taught pelvic floor relaxation techniques in front of a computer monitor that displayed electromyogram readings for 45-90 minutes by the same or similar staff member (Method B, median 3 sessions, range 1-6 sessions). Both methods were used in 25 patients (A+B, median 3 sessions, range 2-10 sessions). Outcome variables were obtained through chart review telephone contact and included resolution of symptoms (success, improved, failed), elimination of UTI, character of voiding curve evaluated blindly (normal, abnormal), post-void residual as a % of voided volume (PVRVV), decrease in relaxation score (method B only) and parental satisfaction.

Results

Females comprised 79% of the population. The median age at first treatment was 7.7 years (range 4.3 to 15.4 years). Day wetting was seen in 84% and recurrent UTI in 66% of patients. Of those experiencing UTI, 54% had febrile infections and 71% had at least 2 UTI per year. Among children with daytime wetting, there was 100% success or improvement with Method A, 91% with Method B and 80% with A+B (p=NS). Among those with UTI, 2 (25%) subsequent UTI were seen with Method A, 6 (25%) with Method B and 5 (31%) with A+B (p=NS). Normalization of the flow curve was seen in 94% with Method A, 67% with Method B and 30% with A+B. Patients using A+B had a significantly greater median PVRVV compared to patients using method A (0 vs 33%, p=.003). Relaxation scores were found to decrease a median of 11.4% in patients using method B and A+B. After a mean follow-up of 1.4 years, 98% of parents expressed satisfaction with biofeedback with over 80% indicating a high degree of satisfaction. According to parents, biofeedback was felt to be helpful in 89% of patients. No differences were seen between groups.

Conclusion

Reduction of both daytime wetting and UTI can be achieved regardless of the type of biofeedback employed. Although improved relaxation was observed objectively, patients utilizing a shorter but more intensive approach aimed at teaching control of the pelvic floor musculature were more likely to demonstrate persistent post void residuals and abnormal flow curves. A considerable degree of enthusiasm was reported using both of these non-invasive forms of treatment.

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THE OVERACTIVE BLADDER OF CHILDHOOD: LONG-TERM RESULTS WITH CONSERVATIVE MANAGEMENT

Aims of study: Idiopathic detrusor hyperactivity has not been thoroughly investigated and its natural history remains largely anecdotal. Whereas bladder hyperreflexia resulting from neurogenic and anatomic conditions have been well described, we decided to investigate the long term results of conservative management in children with symptomatic and refractory detrusor overactivity in the absence of an overt neurologic or anatomic disorder.

Methods: We reviewed the records of 58 children between 1988 and 1994, who had an isolated finding of detrusor overactivity (premature contractions of the bladder during filling before capacity was reached on a cystometrogram) when studied urodynamically for refractory nocturnal and/or polysymptomatic enuresis. Exclusion criteria included recurrent urinary infection, a neurologic lesion, or an anatomic abnormality of the lower urinary tract, and children with follow-up on treatment that was shorter than 1 year. Management consisted of solely oxybutynin (18), hyoscyamine (3), imipramine (1), glycopyrrolate (1), or combination drug therapy (7).

Results: Thirty children met our criteria for inclusion. The mean age at presentation was 10.9 years (range 4.7 - 18.9 years) and the average length of follow-up was 4.7 years (range 1.0 - 8.2 years). Eighty-seven percent (26) had complete (21) or substantial resolution (5) of their symptoms. The average time to resolution was 2.7 years (range 0.2 - 6.6 years), while the average age at complete resolution was 14.3 years (range 4.9 - 22.2 years). Patients whose bladder capacity fell within the range of 50 - 90% of expected for their age were more likely to benefit from therapy than those whose capacities were outside that range. Neither age at initiation of treatment, nor gender were prognosticators of resolution. Only 1 family consented to a 'follow-up on treatment' cystometrogram, so comparison studies were not available for review.

Conclusion: Idiopathic detrusor overactivity is amenable to medical therapy in the overwhelming majority of patients but a prolonged period of time is needed before an effect may be seen. This may reflect the natural history of improvement in detrusor overactivity over time or the prolonged exposure to anticholinergic medication that is needed before the bladder fully responds. The duration of successful therapy before it can be safely terminated remains to be determined.

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