

TREATMENT OF VESICAL SPHINCTER DYSSYNERGIA IN CHILDREN USING EMG-BIOFEEDBACK – RESULTS OF A 2 YEAR FOLLOW-UP STUDY

Hypothesis / aims of study

Non-neurogenic lower urinary tract dysfunctions (NNLUTDs) in childhood usually manifest themselves by urinary infections in conjunction with urinary incontinence. It is believed that some of the methods children use to achieve bladder control are the source of many problems. Some children learn to retain urination by contracting the sphincter, rather than relaxing it while contracting the detrusor, causing an increase of vesical pressure and incomplete evacuation of the bladder and leading to a functional obstruction of bladder evacuation [1]. EMG-Biofeedback uses equipment that monitors muscular activity (pelvic and abdominal) and shows these data to the patient instantaneously and continuously, in the form of visual and/or auditory signals. The child learns to contract and relax the musculature of the pelvic floor and uses this knowledge during urination [2].

Study design, materials and methods

We conducted a prospective, nonrandomized clinical study involving uncoordinated miction patients, which received the approval of the Hospital Ethics Committee. Twenty one children with uncoordinated miction (5 boys and 16 girls; mean age, 10 years) were selected as candidates to physiotherapeutic treatment and training with biofeedback in an outpatient clinic of Children Mictional Dysfunction. During the sessions, pelvic floor training and biofeedback were reinforced. At the end of each session a flowmetric study was made. The evaluation of the results was made through urine examinations for control of infections of the urinary tract (IUT), by analyzing the number of pads used in a month (PD), by filling out a bladder diary, the number of incontinence episodes in a month (IE), a vesical ultrasonography exam for evaluation of post-mictional residue, a cystography for evaluating vesical-uretral reflux (RFL), an urodynamic study, and by filling out the Quality of Life Questionnaire (QL). All of these measurements were taken pre and post treatment. The following aspects were evaluated in the QL questionnaire: self esteem, social relations, school performance and home behavior. The statistical significance levels was of 0.05 levels.

Results

The mean follow up period was 24 months. Below is a table showing the main results of our research. In the medical examinations (IE, IUT, PD, RFL) as well as in the clinical evaluation (QL), our statistics indicated significant improvement in the post treatment phase compared to the pre treatment period.

	IE	IUT	PD	RFL	QL
Pre Treatment	33.8	6.3	31	0.76	1.5
Post Treatment	0.5	0.2	0	0.19	4.7
p value	0.0001	0.0001	0.0001	0.0001	0.0001

IE: mean of the number of incontinence episodes in a month; IUT: mean of infections of the urinary tract a month; PD: mean of number of pads used in a month; RFL: mean of vesical-uretral reflux; QL: mean of Quality of Life score.

Interpretation of results

Our results indicate that the rehabilitation of the pelvic floor in children with NNLUTDs presents to be a safe, non invasive therapeutic resource and associated to significant and lasting results.

Concluding Message

This combined therapy may represent the first choice for the treatment of children with non-neurogenic lower urinary tract dysfunctions. Our results suggest that combining pelvic floor physiotherapy with EMG-Biofeedback is a non-invasive and secure method with enduring results.

References

1. Standardization and definitions in lower urinary tract dysfunction in children. BJU 1998, 81, Suppl. , 1-16.
2. Pelvic –floor therapy and toilet training in young children with dysfunctional voiding and obstipation. BJU Int., 2000, 85(7):889-93.