

## **Nonpharmacological treatment of lower urinary tract dysfunction using biofeedback and transcutaneous electrical stimulation: a pilot study.**

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**OBJECTIVE:** To report a series of children with lower urinary tract dysfunction (LUTD) whose urge syndrome was treated by electrical stimulation, and their voiding dysfunction by biofeedback; none of the children were using anticholinergic drugs during treatment.

**PATIENTS AND METHODS:** In all, 36 children who presented with symptoms of urinary urgency and/or daily incontinence completed the treatment and were prospectively evaluated. The mean (range) follow-up was 13.8 (4-24) months, and their mean age 7 (3-14) years, 17 children were aged <5 years. The children were divided into two groups: group 1, with urge syndrome treated with superficial parasacral electrical stimulation, and group 2, with voiding dysfunction, treated with biofeedback.

**RESULTS:** In group 1, the mean (range) number of electrical stimulation sessions was 13.1 (4-20). Of the 19 children treated, 12 had a complete clinical improvement, six a significant improvement, and one a mild improvement. In group 2, the mean (range) number of biofeedback sessions was 6 (4-14). Of the 17 children treated, there was complete improvement of symptoms in 10, significant improvement in two and mild improvement in five. Six children who had no resolution of symptoms after biofeedback had salvage therapy with electrical stimulation, after which four had complete improvement of symptoms, and two a 90% and 40% improvement, respectively. Taking the two groups together, after treatment, four children developed isolated episodes of urinary tract infection. Of 21 children with nocturnal enuresis, bed-wetting continued in 13 (62%) after treatment.

**CONCLUSION:** In this short-term follow-up, the nonpharmacological treatment of voiding dysfunction using biofeedback, and of urge syndrome by electrical stimulation, was effective for treating LUTD in children.

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