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Horng Y[1], Kuo H C[1], Liang C[1], Chiang R[1]
1. Tzu Chi general hospital

BIOFEEDBACK COMBINED ELECTRICAL STIMULATION IN PATIENTS WITH VOIDING DYSFUNCTION

Aims of study

Previous evaluation of a new electrical stimulation pattern has demonstrated significant decreases in lower urinary tract symptoms with improved voiding patterns. However, frequent treatment sessions were required to ensure effectiveness of the electrical stimulation. Rather than being single factorial, voiding dysfunction due to pseudodyssynergia or pelvic floor overactivity is a complex condition with various combinations of symptoms and mechanisms. This condition needs to be treated with an appropriate treatment protocol. Pelvic floor biofeedback training has recently been advocated as an effective treatment in patients with dysfunctional voiding. Electrical stimulation in conjunction with biofeedback may provide a cost-effective strategy in treating those patients. The aims of this pilot study are to investigate the efficacy of a biofeedback therapy in conjunction with electrical stimulation in patients with voiding dysfunction due to pseudodyssynergia or pelvic floor overactivity.

Methods

Between November 2001 and October 2002, patients diagnosed as pseudodyssynergia or pelvic floor overactivity and refractory to medical treatment were candidates for our study. The diagnosis was confirmed by clinical history and videourodynamic study (VUDS). Pseudodyssynergia was diagnosised if the VUDS showed a high voiding pressure at maximal flow rate (Pdet.Qmax) ($\geq$50cmH2O in men, $\geq$40cmH2O in women) and low maximal flow rate (Qmax) ($\leq$15mL in men and $\leq$12mL in women) with intermittent sphincter electromyography (EMG) during voiding. Pelvic floor overactivity was diagnosed if VUDS showed a normal Pdet Qmax and low Qmax with intermittent sphincter EMG during voiding. Patients with current urinary tract infection, sensory urgency, true urethral stricture or neuropathic voiding dysfunction were excluded. All patients received therapy which consisted of individually adapted voiding and drinking schedule, behavior modification, pelvic floor EMG biofeedback, and electrical stimulation. The response to treatment was assessed by International Prostate Symptoms Score (IPSS), Qmax and flow pattern between baseline and at the end of treatment. A clinically significant reduction in symptoms is defined as an improvement in IPSS of more than 50%.

Results

Seventeen patients (4 males and 13 females, mean age 48 years old, range 20-66) entered the program and were available for evaluation. Of the 17 patients, 7 were diagnosed as Pseudodyssynergia and 10 were pelvic floor overactivity. These patients received therapy ranged from 3 to 13 sessions (average 6.4). The mean International Prostate Symptom Score (IPSS) decreased significantly from 23.2 $\pm$9.8 to 9.9 $\pm$5.6 with a mean of $-$13.4 points (p= .00). There was a mean decrease of 5.9 points in irritative symptom subscores and 7.1 points in obstructive symptom subscores. The mean quality of life score also improved from 4.6 $\pm$1.2 to 2.7 $\pm$1.3 (-1.9) points. Uroflowmetry analysis revealed significant increase in mean Qmax from 11.4 $\pm$7.0 to 15.2 $\pm$6.5 ml. per second (P= .00). Twelve patients (70%) achieved clinically significant reduction in IPSS. Twelve patients (70%) achieved normal flow pattern. Improvements in both IPSS and Qmax at the end of treatment were found in 10 subjects (59%). More patients with pelvic floor overactivity (70%) achieved significant improvements in both IPSS and flow pattern than patients with pseudodyssynergia (43%).

Conclusions

In patients with voiding dysfunction due to pseudodyssyneria or pelvic floor overactivity refractory to medical treatment, a therapy combining biofeedback with electrical stimulation produced significant changes in presenting symptoms and remedied voiding pattern in majority of the patients. The treatment protocol provides satisfactory results in alleviating lower urinary tract symptoms in those patients.