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IMPACT OF DEEP BRAIN STIMULATION ON THE BLADDER FUNCTION IN PATIENTS WITH IDIOPATHIC PARKINSON SYNDROME

Aims of Study

Between 45% and 90% of patients with advanced idiopathic Parkinson syndrome report about dysuric complaints with urge symptoms. The motoric Parkinson symptoms (rigor, tremor, akinesis) improved significantly ($p<0.05$) through chronic high frequency stimulation in the area of the nucleus subthalamicus (STN). In this study we investigated the impact of STN stimulation on the functioning of the urinary bladder.

Methods

A total of 12 patients between 53 and 73 (average age: 61.6) were exposed to chronic STN stimulation. 10 of the patients reported urge incontinence as their main complaint (mean IPSS 10.7), 2 patients did not report any complaints (IPSS 2.5). Video-urodynamic investigations, once with the impulse generator switched on and once switched off, were carried out in randomised order. An intermission of 20 min was allowed to pass between the two measurements.

Results

With impulse generator switched OFF:

An initial urge to void was registered at a bladder filling of 135 ml, the maximum bladder capacity was 174 ml, the sphincter-EMG was normal, compliance was reduced. 6 patients were able to micturate on the site of urodynamic investigation, with an average detrusor pressure (P_{det}) of 23 cmH_20, a flow (Q_{max}) of 11 ml/sec and an average amount of residual urine of 114 ml as well as a normal EMG.

With impulse generator switched ON:

On average, the first desire to void occurred at a bladder filling of 199 ml, the maximum bladder capacity was 302 ml with normal EMG and normal compliance. During voiding, a P_{det} of 32 cmH_20 and a Q_{max} of 13 ml/sec were registered. The mean residual urine was 71 ml.

Conclusions

The results of these investigations show that chronic high frequency stimulation in the area of the nucleus subthalamicus has an impact on bladder sensitivity. In the investigated patients, STN stimulation has significantly ($p<0.05$) increased both the value of the first desire to void as well as the maximum bladder capacity.