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INTRADETRUSOR INJECTIONS OF BOTULINUM TOXIN TYPE A (BOTOX®) IN PATIENTS WITH DETRUSOR OVERACTIVITY DUE SPINAL CORD INJURY: URODYNAMIC RESPONSE AND IMPACT OF TREATMENT ON QUALITY OF LIFE.

Hypothesis / aims of study

Traumatic spinal cord injury (SCI) is often associated with neurogenic bladder dysfunction. The principal objective of any treatment in patients with detrusor overactivity is to preserve kidney function (1). Patients with neurogenic bladder dysfunction frequently struggle with urinary incontinence that may severely affect their quality of life (QoL). Oral anticholinergic agents have been widely used as a first-line treatment option for urinary incontinence. However, this class of medications is ineffective in some patients and may also cause systemic side effects, such as dry mouth, constipation or blurred vision (2). Intradetrusor injections of botulinum toxin type A (BoNTA) are a minimally invasive procedure to treat bladder dysfunction. This treatment has become a second-line option for patients who are unable to tolerate anticholinergic drugs or whose clinical response to these drugs is unsatisfactory. The goal of this study was to evaluate the impact on quality of life (QoL) and urodynamic parameters on patients with SCI who were treated with intradetrusor injections of botulinum toxin type A (BoNTA).

Study design, materials and methods

We designed a prospective study to evaluate 82 patients with spinal cord injuries (SCI) and detrusor overactivity over a 24-week who were treated with intradetrusor injections of 300 U BoNTA (Botox®) into 30 different segments of the urinary bladder wall sparing of the trigone. Urodynamic evaluation was performed in accordance with the recommendations set forth by the International Continence Society (3). Bladder compliance (ml/cm H_2O), maximum cystometric capacity (ml) and maximum detrusor pressure (cm H_2O) were recorded for each patient. Bladder compliance was calculated from the variation in volume divided by the variation in detrusor pressure, and a value of ≥ 12.5 ml/cm H_2O was set as normal. QoL scores were obtained by applying the Qualiveen questionnaire. Evaluations were performed at baseline and at 4, 12 and 24 weeks of treatment. The Wilcoxon test was used to compare baseline numerical variables at 24 weeks. The significance level was set at 5%.

Results

Of the 82 patients 66 (80.4%) were male. The mean age of patients was 30.84 ± 7.73 years old. After 24 weeks, the maximum cystometric capacity increased from 157.36 ± 33.53 to 481.91 ± 149.74 mL ($p<0.001$). We determined a decrease of the maximum detrusor pressure from 82.01 ± 21.97 cm H_2O to 30.89 ± 24.45 cm H_2O ($p<0.001$). Furthermore, the bladder compliance increased from 12.89 ± 3.25 mL/cm H_2O to 40.21 ± 25.10 mL/cm H_2O ($p<0.001$). Scores in the Qualiveen questionnaire that focused on the specific impact of urinary dysfunction were decreased from 3.28 ± 0.49 to 1.89 ± 0.81($p<0.001$). Importantly, the Qualiveen scores related to the QoL index increased from -1.38 ± 0.35 to -0.75 ± 0.59 ($p<0.001$). No systemic effects following BoNTA treatment were observed in the present study. In six patients (7.3%), no changes were determined in urodynamic parameters or in QoL scores, and one patient actually presented with a reduction in bladder compliance.

Interpretation of results

Intradetrusor injections of botulinum toxin type A (BoNTA) showed to be a minimally invasive, safe and effective procedure to treat bladder dysfunction in spinal cord injured patients.

Concluding message

Intradetrusor injections of botulinum toxin type A (Botox®) resulted in a significant improvement in urodynamic parameters and QoL in patients with detrusor overactivity due to SCI.

References

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Is this a Randomised Controlled Trial (RCT)?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
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Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**