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LONG-TERM EFFECT ON LUTS AND SEXUAL FUNCTION OF INTRAPROSTATIC BOTULINUM TOXIN TYPE-A (BONT/A) INJECTION FOR TREATMENT OF PATIENTS WITH BENIGN PROSTATIC ENLARGEMENT REFRACTORY TO MEDICAL TREATMENT

Hypothesis / aims of study

Botulinum toxin type-A (BoNT/A) has been investigated recently as a possible novel treatment for lower urinary tract symptoms (LUTS) in patients with benign prostate enlargement (BPE) due to benign prostatic hyperplasia (BPH).
The primary aim of this study is to measure the efficacy of intraprostatic injection of BoNT/A in patients with benign prostatic enlargement (BPE) and LUTS refractory to standard medical treatment. In addition, sexual function, urinary flow, post void residual volume, prostate volume and serum total PSA were also investigated.

Study design, materials and methods

Thirty-seven patients (mean age 75.9 years) with symptomatic BPE refractory to standard medical therapy and with severe contraindications for BPH surgery were enrolled. All the patients voided spontaneously. A total of 200 U of BoNT/A were administered by transrectal route, using a 22 Chiba needle guided by ultrasound. The neurotoxin was injected in the transitional zone and in the median lobe if present, as an outpatient procedure, without anaesthetic support. Prophylactic antibiotherapy was initiated 2 days before the procedure and prolonged for 1 week. Changes in IPSS and associated QoL, maximum urinary flow rate (Qmax), post void residual volume (PVR), total serum PSA and prostate volume were evaluated at 1, 3, 6, 12 and 18 months after treatment. Erectile function was evaluated using the International Index of Erectile Function (IIEF) short-form questionnaire. Orgasmic/ejaculatory function and libido were evaluated using questions number 9, 10, 11 and 12 of the IIEF long-form. Total testosterone, FSH, LH and prolactin were evaluated at baseline and 1, 6 and 12 months after treatment. A paired sample T-Test was used for statistical analysis of the results.

Results

Five patients abandoned the study and were submitted to BPH surgery (two at 6 months; one at 9 months; one at 12 months and one at 15 months of follow-up). Two patients were lost to follow-up at 6 and 12 months, respectively. One patient required permanent urinary catheter after a bout of prostatitis after 15 months of follow-up. Data from these patients were included in the analysis until the last observation.
IPSS (20.0 ± 4.65) and associated QoL (4.0 ± 0.81) at baseline significantly decreased at 1 month (13.9 ± 4.3 and 2.8 ± 1.2), 3 months (10.1 ± 3.8 and 2 ± 1.1), 6 months (8.8 ± 4.5 and 2 ± 1.1), 12 months (8.7 ± 3.9 and 2.2 ± 1.5) and 18 months (9.1 ± 4.4 and 2.3 ± 1.7) ($p<0.05$) with a nadir at 6-12 months.
IIEF mean score was 17.5 ± 4.25 at baseline, 17.1 ± 4.5 at 1 month, 17.3 ± 4.8 at 3 months, 16.7 ± 5.8 at 6 months, 15.7 ± 5.6 at 12 months and 16.2 ± 2.7 at 18 months (all $p > 0.05$). Orgasmic and ejaculatory function (questions 9 and 10) did not show significant differences from baseline to 18 months of follow-up. Sexual desire score (questions 11 and 12) did not change significantly from baseline to 18 months.
Total testosterone, FSH, LH and prolactin mean values did not show any significant variations during the follow-up.
Mean Q max increased from baseline (9.5 ± 3 ml/sec) to 11.8 ± 4.1 ml/sec at 1 month ($p<0.05$), 13.1 ± 5.4 ml/sec at 3 months ($p<0.05$), 12.1 ± 4.8 ml/sec at 6 months ($p<0.05$), 11.7 ± 4.6 ml/sec at 12 months ($p<0.05$) and returned to baseline levels, 9.9 ml/sec ± 4.4 ml/sec at 18 months. Mean PVR decreased from 129.3 ± 101.3 ml at baseline to 74.5 ± 68.9 ml at 1 month ($p <0.05$), 74.6 ± 73.4 ml (3 months; $p<0.05$), 64.0 ± 52.9 ml (6 months; $p<0.05$). At 12 months, PVR started to increase and at 18 months was similar to baseline levels.
Mean prostate volume (76.6 ± 35.4 ml at baseline) had a nadir between 3 and 6 months (42.6 ± 22.1 ml at 3 months and 42.9 ± 21.8 ml at 6 months), with a slow increase therafter. Total PSA did not show any statistically significant variation from baseline to 18 months.
Six patients developed mild clinical prostatitis after injection and required additional antibiotherapy. No symptoms of botulism were reported by any patient.

Interpretation of results

Intraprostatic injection of BoNT/A significantly decreases LUTS in BPE/BPH patients refractory to medical therapy for a prolonged period of time, without deleterious effects on sexual function. In addition, there is an increase in urinary flow and a decrease in prostate volume and PVR.

Concluding message

Intraprostatic BoNT/A injection seems to be an effective and safe treatment for BPE/BPH in patients with LUTS refractory to medical treatment and with severe contraindications for BPH surgery.

References

1. Brisinda G, Cadeddu F, Vanella S, Mazzeo P, Marniga G, Maria G. Relief by Botulinum Toxin of Lower Urinary Tract Symptoms Owing to Benign Prostatic Hyperplasia: Early and Long-Term Results. Urology. 2009 Jan;73(1):90-4.

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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**