

Short Communication 300 Unit Botulinum toxin type A injections for patients with neurogenic detrusor overactivity secondary to cerebrovascular accident

Lin JM^{1,2}, Chen Hui^{1*}, Liu QL¹, Huang MP¹, Li QQ¹, Huang TH¹, Yang XY¹

1 Department of Urology in Guangdong Provincial Work Injury Rehabilitation Hospital, Guangdong, China

2 Departments of Emergency, Eighth Hospital of Guangzhou, Guangdong, China

***Corresponding Author:** Dr. Chen Hui, Department of Urology in Guangdong Provincial Work Injury Rehabilitation Hospital, Guangdong, China. email: doc.chenhui@163.com

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Abstract

Objective: To assess the clinical outcomes with intradetrusor neurogenic detrusor overactivity (NDO) secondary to cerebrovascular accident.

Methods: Patients with cerebrovascular accident were enrolled. All were received 300 U BTX-A injections in detrusor. Primary outcome was maximum detrusor pressure (P_{detmax}) during cystometry and urinary incontinence (UI) episodes. Secondary outcomes were improvement of Incontinence-Specific Quality-of-Life Instrument (I-QoL). Related adverse events were recorded. **Results:** From 2012 to 2018, 15 male patients participated in this study. The mean age was 39.06 years. Compared the baseline data, P_{detmax} decreased from 59.08 cmH₂O to 20.68cmH₂O while UI from 8.16/day to 2.01/day respectively. The I-QoL also showed a consistent improvement after injections. **Conclusion:** Intradetrusor BTX-A injections is effective treatment for patients with neurogenic detrusor overactivity secondary to cerebrovascular accident.

Keywords: Botulinum toxin A; Neurogenic detrusor overactivity; Cerebrovascular accident.

INTRODUCTION

Neurogenic detrusor overactivity (NDO) defined as an involuntary detrusor contraction during filling phase in urodynamic test, especially in patients with cerebrovascular accident [1]. NDO can result in a variety of long-term complications; the most dangerous being damage of renal function. Onabotulinumtoxin A (BTX-A, Allergan, Inc., Irvine, CA, USA) has been proven effective for patients with NDO and repeated injections seem to be possible without loss of efficacy [2]. The aim of our trail was to assess the clinical outcomes of BTX-A injections for NDO secondary to cerebrovascular accident in China.

METHOD

From 2012 to 2018, patients with cerebrovascular accident were enrolled. The inclusion criteria included: (1) Age >18 years; (2) urodynamic DO; (3) adults who have either failed or have been unable to tolerate treatment with at least two

different antimuscarinic agents. Exclusion criteria were: (1) Acute urinary tract infections; (2) Patients who were unable to perform CIC. Bladder diaries, urodynamic test, and I-QoL were performed at baseline and 12 weeks postinjections. 300U BTX-A was injected under a rigid cystoscope and 30 injections of 1 ml each, evenly distributed across the detrusor [3]. Primary outcome was maximum detrusor pressure (P_{detmax}) during cystometry and urinary incontinence (UI) episodes. Secondary outcomes were improvement of Incontinence-Specific Quality-of-Life Instrument (I-QoL). Related adverse events were recorded. Student's t-test was used for statistical relationships between pre- and postoperative variables. $P < 0.05$ was considered statistically significant.

RESULTS

A total of 15 patients (all male) completed the trail. The mean age was 39.06 years. Compared the baseline data, there were statistical difference in P_{detmax} (59.08 cmH₂O vs 20.68cmH₂O, $P < 0.001$), UI episodes (8.16/day vs 2.01/day, $P < 0.001$) and I-QoL (59.15 vs 31.44, $P < 0.001$). In this study, no related adverse events were recorded.

DISCUSSION

Neurogenic detrusor overactivity (NDO) commonly occur in patients with cerebrovascular accident. BTX-A has been demonstrated to protect the function of upper urinary tract for these patients. In this trail, BTX-A injections resulted in a low-pressure bladder to avoid the damage to renal function. There was a significant increase in a mean decrease of maximum detrusor pressure (P_{detmax}) which reduced to be below 40 cmH₂O at 3 months follow up. One study [4] reported that for adults with detrusor pressures above 40 cmH₂O, 81% were potentially dangerous to renal function.

Undoubtedly, BTX-A injections also improved patients' quality of life which was another aim for treatment of NDO. After treatment, the mean QoL index increased from 31.44 to 59.15.

No one reported related adverse events. Previous studies also reported the similar results [5]. Small case number and short follow-up was the limitation of this study.

CONCLUSION

Intradetrusor BTX-A injections is effective treatment for patients with neurogenic detrusor overactivity secondary to cerebrovascular accident.

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Conflict of interest: None.

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