

Case Report

Botulinum Toxin A Injection in the Bladder Neck: A Promising Treatment for Urinary Retention

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Secondary to failure of optimal medical therapy and the high morbidity that accompanies surgical techniques in high risk patients, the use of de novo treatments including botulinum toxin A is emerging in the treatment of benign prostatic hyperplasia (BPH). However, the treatment of urinary retention secondary to BPH via injecting botulinum toxin into the bladder neck is not well established in the literature. This case report describes the case of a 75-year-old male patient with a chronic history of obstructive lower urinary tract symptoms (LUTS) and multiple comorbidities who was admitted to the hospital for management of recurrent urinary retention. The patient was not a surgical candidate for transurethral incision of the prostate (TUIP) or transurethral resection of the prostate (TURP). Botulinum toxin injection into the bladder neck was performed with very satisfying results. Botulinum toxin injection in the bladder neck presents a promising minimally invasive, tolerated, and cost-effective approach for the treatment of urinary retention in patients with benign prostatic obstruction who are not candidates for surgery or in whom medical treatment has failed. More research is needed to identify the efficacy of this novel approach.

1. Introduction

Benign prostatic hyperplasia (BPH) is a benign enlargement of the prostate gland that affects 30% of males between 50 and 60 years old and up to 90% of males above the age of 85 years [1]. Symptoms of BPH result from obstruction of the prostatic urethra and gradual failure of bladder function, which result in a deficient bladder emptying that can lead to complications, including acute urinary retention [2]. Although several treatment options are available, following the adverse effects of medical treatments and the morbidity that accompanies surgical techniques in high risk patients, the use of de novo treating modalities is emerging in the treatment of benign prostatic hyperplasia [3]. Yet, available research on this topic has mainly reported injections sites into the prostate. To the best of our knowledge, no study has described Botox injections into the bladder neck as an alternative treatment for BPH. The patient described in this case report underwent bladder neck injection for the management of urinary retention with satisfying postprocedure outcomes.

2. Case Presentation

A 75-year-old male patient known to have hypertension, diabetes mellitus for 35 years, chronic kidney disease (baseline creatinine 2.4 mg/dL), congestive heart failure (ejection fraction 37%), obstructive lower urinary tract symptoms (LUTS), and peripheral vascular disease presented for syncope. The list of the patient's medications is shown in Table 1. Investigations in the hospital were done and the patient was diagnosed with decompensation of heart failure by pneumonia. During his hospital stay, the patient developed acute urinary retention (postvoid residue PVR 1200 mL). Urologic evaluation revealed a chronic history of bladder outlet obstruction with an IPSS score of 32 despite treatment with alpha blockers. Digital rectal exam was compatible with a small and soft prostate. Cystoscopy was done and showed a mild bilobar prostatic hypertrophy but significantly obstructive and high bladder neck. The patient was scheduled for transurethral incision of the prostate (TUIP) but clearance for surgery was denied from both anesthesia and cardiology

of BoNT-A, this case report which performed transurethral injection into the bladder neck, notably the anterior urethral wall, presents a promising and safe novel therapy for the treatment of urinary retention in patients with bladder neck hypertrophy who are poor surgical candidates or in whom medical treatment has failed. As our case have shown, after bladder neck injection, the patient presenting with history of recurrent episodes of urinary retention had major improvements in postvoid residue and IPSS scores. Besides, the use of transurethral approach provides a direct view of the bladder neck, median lobe, and transition zone and presents a secure method as compared to transrectal and transperineal injections [7]. Also, transurethral injection of BoNT-A was done with only local anesthesia compared to other studies using epidural and general or light general anesthesia [6]. This route of administration has been observed to be a safe procedure. Studies have revealed no early or late complications and patients usually tolerate the injections well [8]. The underlying mechanism behind the symptoms relief is related to volume shrinkage (decreasing the level of obstruction by the high bladder neck) as well as smooth muscle inhibition and relaxation [9].

The relief in symptoms is most probably related to the relaxing properties of the toxin as observed in other applications of the drug. Although not demonstrated, the dose of 100 U seems appropriate to obtain satisfactory results.

Multiple minimally invasive procedures that deal with medically resistant, surgically contraindicated BPH have emerged. One of the latter techniques “Urolift” is used to relieve urinary symptoms caused by BPH. It is a minimally invasive approach that lifts the enlarged prostate, relieving obstruction, and can be done under local anesthesia [10]. However, such technique, like others, deals mainly with BPH rather than high bladder neck presented in our case and may not be recommended for patients with high bladder neck or modest median lobe.

6. Conclusion

Wrapping up this case report, botulinum toxin injection into the bladder neck appears to offer a new promising treatment option for bladder neck hypertrophy. However, further trials are needed to establish the validity of this new indication as well as the adequate dosage of the toxin required. Establishment of follow-up protocols, time interval between injections, and comorbidities associated with this treatment need to be appropriately addressed. The ease of installation, the lack of need of anesthesia, the possibility of outpatient treatment models, and the efficacy of such minimally invasive approach to persistent LUTS due to bladder neck hypertrophy seem to be of a promising value. Our team will continue to further study such approach, with enrolment of new patients for better understanding of the benefits of such treatment modalities. To the best of our knowledge, such minimally invasive approach for treatment of medication-refractory urinary retention due to bladder neck hypertrophy is the first of its kind in the Middle East region.

Disclosure

The authors confirm that the paper has been read and approved by all named authors. The authors also confirm that they have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing the authors confirm that they have followed the regulations of their institutions concerning intellectual property.

Competing Interests

The authors wish to confirm that there is no known conflict of interests associated with this paper and there has been no significant financial support for this work that could have influenced its outcome.

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