

Patient treatment preferences for symptomatic refractory urodynamic idiopathic detrusor overactivity

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Abstract

Introduction: There is a multiplicity of treatments currently available for patients with symptomatic refractory urodynamic idiopathic detrusor overactivity (SRU IDO). We have assessed patient treatment preferences and their outcomes over a 12-month period from January 1 2009 to December 31 2009.

Patients and Methods: A retrospective database of all patients with SRU IDO was reviewed for patient demographics, treatment preference, and outcome. All patients attending for treatment in the time period were offered: no further treatment, repeat bladder training \pm antimuscarinic (BT \pm AM), acupuncture, intravesical botulinum toxin injection, sacral neuromodulation (SNM), clam cystoplasty \pm Mitrofanoff channel formation, and ileal conduit.

Statistical Analysis Used: Statistical analysis of outcomes was done by Chi-square test, and statistical significance was determined as $P < 0.05$.

Results: A total of 217 patients with SRU IDO underwent primary treatment in this time period, with a median age of 56 years and follow-up for a minimum of 12 months' posttreatment to determine outcome. No patients opted for any further treatment or an ileal conduit. The majority of patients opted for intravesical botulinum toxin injections and SNM with similar success rates (approximately 70%). A small number of patients decided to have nonsurgical interventions (BT \pm AM or acupuncture) and had a broadly similar success rate (50%). A minority opted for clam cystoplasty \pm Mitrofanoff channel formation – this group reported the highest success rate at 86%.

Conclusions: Treatment options in SRU IDO are diverse, with the majority of patients opting for minimally invasive surgery. Clinicians should be familiar with all treatment options for management of SRU IDO.

Keywords: Detrusor overactivity, patient preference, treatment

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INTRODUCTION

Idiopathic detrusor overactivity (IDO) is defined by the International Continence Society as “the occurrence of involuntary detrusor contractions during filling cystometry. These contractions, which may be spontaneous or

provoked, are unable to be suppressed by the patient. They may take a wave form (phasic), of variable duration and amplitude, on the cystometrogram. Urgency is generally associated in women with normal bladder sensation though contractions may be asymptomatic or may be interpreted as a normal desire to void. Incontinence may or may not

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occur.”^[1] It is recognized as a chronic syndrome with no current ideal treatment or cure.^[2] IDO is a distressing condition with significant emotional burden placing restriction on activities of daily living.^[3]

Current guidelines for the management of patients with symptomatic IDO suggest a multiplicity of treatments.^[2,4,5] Treatment options are generally divided into first, second, third, and fourth line; although there is no requirement for patients to go through each treatment group in a step-wise manner. Initially, patients with IDO are managed with lifestyle and/or behavioral changes, such as bladder training (BT) – this is usually followed by antimuscarinic (AM) therapy if conservative management fails.^[2,4,5] AM therapy is often limited by lack of compliance due to intolerable side effects and low patient-defined success rates.^[6]

Patients who fail conservative management and/or AM therapy are deemed to have symptomatic refractory urodynamic IDO (SRU IDO). Treatment options for SRU IDO include repetition of first-/second-line treatment, or third- and fourth-line options such as oral beta-agonist, percutaneous modulation techniques (acupuncture or percutaneous tibial nerve stimulation [PTNS]), intravesical botulinum toxin, sacral neuromodulation (SNM), augmentation (clam cystoplasty ± Mitrofanoff), and ileal conduit.^[2,4,5,7-14]

At our center, patients with SRU IDO are offered all treatment options and treatment is based on patient preference. We assessed patient treatment preferences and their outcomes over a 12-month period between January and December 2009. During this time period, PTNS and beta-agonist treatment options were not available within the UK.

PATIENTS AND METHODS

A retrospective database of all patients attending with SRU IDO between January and December 2009 was reviewed for patient demographics, treatment preference, and outcome. All patients attending for treatment in this time period were offered treatment choices of: no treatment, repeat BT ± AM therapy (BT ± AM), acupuncture, intravesical botulinum toxin injection, SNM, clam cystoplasty ± Mitrofanoff channel formation, or ileal conduit. SNM at this time was performed as a percutaneous nerve evaluation (PNE) for the assessment of benefit followed by a one-stage insertion of SNM device in those with a successful PNE. We have since moved to a staged procedure with the initial first-stage tined lead placement (FSTL) for evaluation with a second-stage placement of battery in those having successful evaluation and removal of FSTL in those who do not.

Institution and National Society-approved patient information leaflets were provided in conjunction with discussion with a clinician in the outpatient clinic setting. Treatment was based on patient preference, and all patients were followed up for a minimum of 12 months’ posttreatment to determine success. Successful outcome was determined by the patients’ binary delineation of outcome as a success or a failure and their wish to continue on that treatment.

Statistical analysis of outcomes was by Chi-square test, and statistical significance was determined as *P* < 0.05.

RESULTS

A total of 217 patients (median age: 56 years, range: 18–82 years) with SRU IDO underwent primary treatment in this time period. About 73 of these patients were men (median age: 55 years, range: 20–80 years) and 210 were new referrals.

The majority of patients opted for minimally invasive surgical treatment with intravesical botulinum toxin injection or SNM, with equivalent success rates in those patients having a successful PNE [Figure 1]. A smaller number opted for nonsurgical treatments with moderate success. The minority opted for open surgery with clam cystoplasty ± Mitrofanoff, but appeared to have the most successful outcomes [Table 1]. No patients opted for no further treatment or an ileal conduit. The more invasive

Table 1: Treatment choices and outcomes

Treatment	n (%)	Patient-defined success, n (%)
Repeat BT ± AM	10 (3.5)	5 (50)
Acupuncture	24 (8.5)	14 (56)*
Intravesical botulinum toxin	70 (25)	49 (70)*
SNM-PNE	71 (25)	35 (49)
SNM-definitive	35 (13)	24 (68)
Clam cystoplasty ± Mitrofanoff channel formation	7 (2.5)	6 (86)

**P* < 0.05. BT: Bladder training, SNM: Sacral neuromodulation, PNE: Percutaneous nerve evaluation, AM: Antimuscarinic

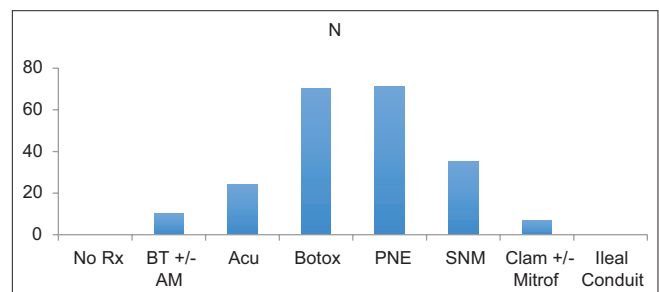


Figure 1: Histogram of frequency of choice versus invasiveness

the treatment, the more likely the chance of a successful outcome [Figure 2].

DISCUSSION

Most patients opted for minimally invasive surgery. Current evidence suggests that minimally invasive surgery is equally as effective at improving IDO symptoms as compared to placebo or AM therapy, and both botulinum toxin and SNM have been given a Grade A recommendation for use in refractory detrusor overactivity.^[2,4,5,7,14]

A minority of patients opted for repeat BT ± AM. This showed moderate success, as compared with minimally invasive surgery. Adherence and persistence with AM therapy is low in patients with IDO, perhaps suggesting that repeat AM therapy would not be beneficial in this patient group.^[6] Recent literature has advocated discontinuing the concept of AM cycling because of a high dropout rate and no improvement in symptoms with the administration of multiple AMs.^[15] In addition, although not approved for use at the time, the beta-agonist mirabegron is emerging as a safe and effective treatment of IDO and would now likely be offered to patients instead of/in addition to repeat AM therapy.^[7]

The more invasive the treatment, the more likely the patient was to report a successful outcome. The improvement in outcome was only statistically significant when comparing acupuncture and intravesical botulinum toxin injections ($P = 0.048$). This is mainly related to a relative paucity of numbers in the BT and clam cystoplasty groups – meaning that, while trends can be commented upon and highlighted, statistical significance cannot be claimed.

Clam cystoplasty appears to have had the most successful outcome and is known to provide a good urodynamic improvement.^[16] This is in keeping with many studies on the outcome of clam cystoplasty for SRU IDO,^[12,17-19]

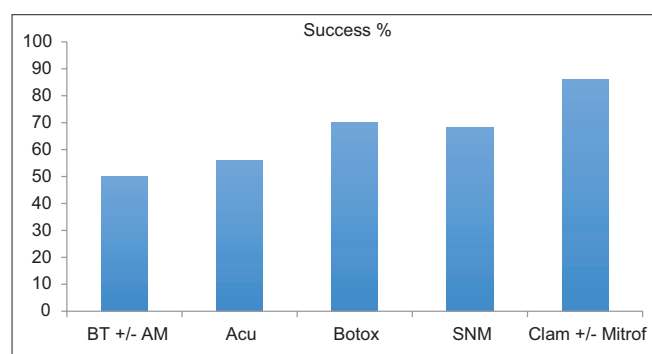


Figure 2: Histogram of effectiveness versus invasiveness

showing success in terms of control of urinary symptoms in 80%–95% of cases. However, long-term failure of cystoplasty due to persistence/recurrence of lower urinary tract symptoms may occur in some (42%–47%) of the patients with IDO.^[20,21] The risk of early and late complications including a small risk of malignancy must also be acknowledged.^[22] There has been a decline in the number of augmentations performed for IDO in the recent years,^[23] particularly with the advent of efficacious minimally invasive surgical treatment as well as most guidelines recommending its use only in those patients with severe refractory detrusor overactivity, and generally for patients with neurogenic, rather than idiopathic, detrusor overactivity.^[2,4,5] It may be that those patients with the most severe symptoms of SRU IDO, in particular those with urge incontinence, have the most to gain.

IDO, and its treatment, presents a significant emotional and lifestyle burden to patients.^[3] It has been suggested that patients do not necessarily choose the most effective treatment for SRU IDO, but the one that is tailored to their needs or lifestyle.^[24] Minimally invasive treatment often requires repeated hospital attendance; acupuncture involves attendance at weekly sessions for 6 weeks and then monthly top-up sessions whereas PTNS involves weekly sessions for 12 weeks followed by 3–6 monthly top-up sessions. SNM is a two-stage procedure with need for re-intervention for exchange of battery for every 5–7 years, whereas intravesical botulinum toxin injection necessitates repeat procedures at 6–12 monthly intervals, notwithstanding the impact of possible side effects. In addition, at our center, there are significantly different waiting times for each treatment. Both lifestyle implications and immediacy of treatment have been shown to have a significant impact in patient preference in minimally invasive treatment for detrusor overactivity.^[25] The incidence and perceived severity of treatment-related side effects also effects the choice of treatment.^[26]

At present, there is no conclusive guideline in the management of SRU IDO. As clinicians, it is important that we should be familiar with all options available for the management of SRU IDO and engage in positive patient–clinician communication. This will enable accurate determination of disease symptom burden and treatment goals; allowing better matching of treatment to the individual patients and improved patient satisfaction.^[27] Discontinuation of treatment, secondary to unmet expectations, is relatively high in patients with detrusor overactivity, and we must be realistic with patients regarding both risks and benefits of each treatment option to improve adherence and patient-defined success.^[28] This

has been evidenced previously where SNM preparedness improves patient-defined outcome regardless of the actual outcome^[29] and where a dedicated botulinum toxin service has been associated with high patient satisfaction and positive patient experience.^[30]

CONCLUSIONS

While treatment options in IDO are diverse, the majority of patients with SRU IDO appear to opt for minimally invasive surgical treatment with intravesical botulinum toxin or SNM with equivalent patient-defined success rates. The most successful symptomatic outcomes are in those having clam cystoplasty ± Mitrofanoff; however, the minority of patients opt for this. Clinicians should be familiar with all treatment options for the management of SRU IDO to facilitate patients' choice of a treatment that is most suitable to them and therefore most likely to be adhered to and deemed successful.

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Conflicts of interest

There are no conflicts of interest.

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