ePoster #475

Outcomes of Percutaneous Tibial Nerve Stimulation (PTNS) for the Treatment of Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS)

Abdelrahman Sherif Abdalla MD[1], Sean W. Berquist MD MS[1], Stefanie van Uem MD[1], Ashu Mohammad MD[1], Chen Shenhar MD[1,2], Amy D. Dobberfuhl MD MS[1]

[1]Department of Urology, Stanford University School of Medicine, Stanford, CA, USA
[2]Division of Urology, Rabin Medical Center, Petah Tikva, Israel

BACKGROUND

Interstitial cystitis/bladder pain syndrome

- Interstitial cystitis/bladder pain syndrome (IC/BPS) is defined as "*an unpleasant sensation (pain, pressure, discomfort) perceived to be related to the urinary bladder, associated with lower urinary tract symptoms of more than six weeks duration, in the absence of infection or other identifiable causes*. (Hanno P, 2009)
- Percutaneous tibial nerve stimulation (PTNS) is approved by the United States Food and Drug Administration (FDA) for the treatment of urinary urgency / frequency associated with overactive bladder (OAB), however is still not FDA approved for the IC/BPS indication. (Staskin DR, 2012)

AIMS

PTNS for the treatment of IC/BPS

- Our primary outcome was to investigate the efficacy of PTNS in IC/BPS.
- Our secondary outcomes included looking at the effect of diabetes and psychiatric comorbidities on the success of PTNS therapy.

METHODS

Data collection

- We performed a retrospective chart review analysis of patients who completed at least 10 weekly treatments of PTNS from January 1st, 2010, and October 1st, 2021
- After Institutional review board (IRB) approval, patients were screened using STARR and data were analyzed accordingly with missing data excluded final analysis.

Clinical characteristics

- Data was analyzed and primary outcome measures included improvement in nocturia, urinary urgency, urinary frequency, and pelvic pain.
- Clinical covariates included medical comorbid conditions, diabetic status, psychiatric diagnoses and allergies.
- Urinary frequency was recorded by time interval (hours).
- Nocturia was recorded as the number of nocturnal micturitions per night.
- Urgency was measured using the urgency severity scale (USS).
- Pelvic pain was quantified using the ICSI questionnaire (Sirinian-Payne version) question item number four (Sirinian E, 2005)

Statistical analysis

- Paired 2-tailed t-test was performed to analyze continuous variables within subject changes in lower urinary tract symptoms (LUTS) before and after treatment. Fisher exact test was performed on categorical variables, to explore the effects of diabetes and psychiatric co-morbidities on the outcomes of PTNS. Data was analyzed using SAS Studio (Cary, NC, USA)

Success definition

- Success was defined as a clinical improvement in LUTS equal to or more than 50%, or patient reported satisfaction with the improvement in his/her LUTS.

RESULTS

Table 1. Baseline characteristics

Sample size (n)	34
Age (y, mean±SD)	52.9±16.8
Gender (female, n, %)	25 (75%)
BMI (kg/m^2, mean±SD)	27.9±6.3
Duration of therapy (months, mean±SD)	6.7±9.8
HbA1c (%, mean±SD)	5.7±1
Comorbidities (n, mean±SD)	6.2±4.6
Patients with diabetes mellitus (n, %)	6 (17.6%)
Patients with psychiatric comorbidities (n, %)	17 (50%)
Allergies (n, mean±SD)	3.5±5.7
Success rate (n, %)	17 (50%)
Proceeded to maintenance (n, %)	13 (38.2%)
Discontinued maintenance (n, %)	5 (38.5%)
Completed 12-week sessions (n, %)	27 (79.4%)

Table 1. Thirty-four patients were included in the final analysis. Patients had a mean number of comorbidities of 6.2±4.6.

- The study population tended to be overweight with mean BMI of 27.9±6.3.
- Success was reported in 17 (50%) patients with 13 (38.2%) proceeding to maintenance PTNS therapy.

Table 2. Change from baseline lower urinary tract symptoms before and after PTNS

	(Mean±SD)	95% CI	p-value
Daytime void interval before treatment (hours)	1.3±0.71	-	-
After PTNS	1.9±1.1	-	-
Change from baseline	0.58±0.8 (46.2%)	9-60	0.01
Urgency severity scale before treatment (USS, range 0-4)	3±1.1	-	-
After PTNS	1.7±1.4	-	-
Change from baseline	-(1.3±-1.5) (43.3%)	0.27-2.27	0.02
Nocturnal void frequency before treatment (# of voids)	3.6±2	-	-
After PTNS	2.5±1.7	-	-
Change from baseline	-(1.1±1.6) (30.6%)	0.47-1.67	0.001
Bladder pain before treatment (ICSI question #4, range 0-4)	2.4±1.4	-	-
After PTNS	1.8±1.9	-	-
Change from baseline	0.7±1.1 (25%)	0.79-1.98	0.13

Table 2. Sixteen patients with daytime frequency showed improvement in daytime void interval from 1.3±0.71 at baseline to 1.9±1.1 with a relative improvement of 0.58±0.8 hours (46.2%) (p=0.01) in their daytime micturition interval.

- There were significant improvements in urinary urgency, with 11 patients who underwent PTNS noting improvement in their urinary urgency from 3±1.1 at baseline to 1.7±1.4 with a relative improvement of 1.3±1.5 (43%) on the USS (p=0.02).
- Nocturnal urinary frequency decreased from 3.6±2 at baseline to 2.5±1.7 with a relative improvement of 1.1±1.6 (31%) voids per night (p=0.001).
- Bladder pain showed a non-statistically significant improvement from 2.4±1.4 at baseline to 1.8±1.9 after PTNS treatment, with a relative improvement of 0.7±1.1 (28%) on question #4 of the ICSI (p=0.13).

Effect of Psychiatric Comorbidities and Diabetes on PTNS outcomes

- The Fisher exact test was performed to compare success rate in patients with versus without psychiatric comorbid diagnoses.
- There was no difference in success rate in subjects with versus without psychiatric comorbid conditions (p=0.3).
- There were only 6 patients with diabetes and IC/BPS who were included in our diabetes subgroup analysis, with 3 patients showing success following PTNS induction (50%, 3/6), and the remaining 3 patients showing no improvement with PTNS (p=1).

CONCLUSIONS

PTNS resulted in a statistical improvement in urinary urgency, urinary frequency and nocturia. There was a non-statistically significant improvement in bladder pain. PTNS appears to be a plausible option for managing refractory IC/BPS.

DISCLOSURES

- **The authors declare no conflict of interest in relationship to the content of this presentation.**