

PERCUTANEOUS TIBIAL NERVE STIMULATION IN THE TREATMENT OF REFRACTORY PAINFUL BLADDER SYNDROME / INTERSTITIAL CYSTITIS

Hypothesis / aims of study

Painful bladder syndrome/Interstitial cystitis is a chronic, severely debilitating disease of the urinary bladder characterized by urinary frequency, urgency, nocturia and pelvic pain in the absence of obvious bladder pathology 1. Painful bladder syndrome/Interstitial cystitis primarily occurs in middle-aged women, with female to male ratio 9:1

Management of Painful bladder syndrome/Interstitial cystitis includes diet modification, pelvic floor exercise, oral medications, intravesical therapy and surgical intervention. Neuromodulation is reserved for those cases with persistent unacceptable complains despite oral or intravesical therapy. The Food and Drug Administration (FDA) approved for use of sacral neuromodulation in refractory urge incontinence and chronic non-obstructive retention².

Mac Guire (1983)³ was the first to use percutaneous tibial nerve stimulation for neuromodulation . The mechanism of percutaneous tibial nerve stimulation is thought to be retrograde modification of S3 nerve root function or inhibiting sacral reflexes pathway.

The aim of the work is to evaluate the effects of intermittent Percutaneous Tibial Nerve Stimulation (PTNS) in treating refractory cases with Painful bladder syndrome/Interstitial cystitis (PBS/IC).

Study design, materials and methods

A total of 20 patients, all were females older than 18 years, accepted and completed the study. Age incidence ranged between 31 and 53 years (40.8 ± 6.3 years). All cases met the National Institute of Diabetes and Digestive and Kidney Diseases criteria for Interstitial cystitis , and reported at least pain and frequency for a minimum of six months. Patients with neurological diseases, pregnancy, diabetes mellitus or other urological troubles or surgery were excluded from the study.

Percutaneous tibial Nerve Stimulation (PTNS) apparatus consists of pulse generator with electrical current of up to 9 mA and lead set with 34 sterile needles. All patients had 12 sessions, once a week, each lasts for 30 min.

All patients were evaluated with 3-day voiding diary, Visual Analog Scale for pain (VAS), Interstitial Cystitis Problem and Symptom Indices (ICPI & ICSI) and General Response Assessment (GRA) scale before percutaneous tibial nerve stimulation and after the 6 sessions and at the end of the 12th session of treatment (all indices were translated into Arabic language)

Results

VAS changed statistically insignificantly from 5.650 ± 1.182 to 5.450 ± 1.146 and 5.250 ± 1.517 after 6 and 12 PTNS sessions. Only two patients experienced relief in the daytime frequency. Day time frequency decreased statistically insignificantly from 14.55 ± 4.097 to 12.05 ± 3.034 and 12.15 ± 3.717 after 6 and 12 PTNS sessions. There was no statistically significant difference of nocturia at weeks 0, 6 and 12 (changed from 3.050 ± 0.998 to 2.900 ± 0.967 to 2.650 ± 0.745). The mean voided volume changed insignificantly from 131.8 ml at week 0 to 134.3 ml at week 6 and 141.0 ml at week 12. The O'Leary Saint IC Symptom Index score (ICIS) changed statistically insignificantly from 12.25 at week 0 to 11.95 at week 6 & 11.70 at week 12. Moreover, the O'Leary Saint IC Problem Index score (ICPI) decreased statistically insignificantly from 9.8 at week 0 to 9.6 at week 6 & 9.55 at week 12. Global Response Assessment (GRA) showed that at week 6 and 12 only 2 patients (10%) reported good response to the treatment sessions.

Interpretation of results

In the present study, the patients accepted percutaneous tibial nerve stimulation once per week for treatment of refractory painful bladder syndrome/ interstitial cystitis, and only two patients out of twenty, noted subjective improvement. The interstitial cystitis symptom index and interstitial cystitis problem index scores and nighttime voiding volumes did not significantly improve statistically in the cases. Moreover, the general response assessment scale, showed only two cases of improvement, 15 cases reported no effect and three cases of worse complaint.

Concluding message

Intermittent percutaneous tibial nerve stimulation is **not** a satisfactory treatment for refractory painful bladder syndrome/ interstitial cystitis.

References

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3. McGuire EJ, Shi-Shun Z, Horwinski ER et al: Treatment of motor and sensory detrusor instability by electrical stimulation. *J Urol* 1983. 129:78-79

Disclosures

Funding: None **Clinical Trial:** Yes **Registration Number:** M Sc thesis registered in Faculty of Medicine, Tanta University on June 2013 **RCT:** No **Subjects:** HUMAN **Ethics not Req'd:** The ethical committee of Tanta Faculty of Medicine was created only in January 2014, after the start of the current work **Helsinki:** Yes **Informed Consent:** Yes