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Percutaneous tibial nerve stimulation for overactive bladder syndrome

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Abstract

Percutaneous tibial nerve stimulation (PTNS) presents an interesting alternative for the 20–30% of refractory patients with overactive bladder (OAB) who do not respond satisfactorily to conventional treatment. The technique involves retrograde neuromodulation of the sacral plexus by electrical stimulation of an acupuncture needle placed 3–5 cm above the medial malleolus. The present author's department has used PTNS for over 3 years with a success rate of approximately 60%, with a further 25% not responding to this modality. Reviewing the literature provides an opportunity to compare these provisional audit results, and to ensure that the protocol being used is in line with current evidence and the recent National Institute for Health and Clinical Excellence guidelines (NICE 2010). Over 30 papers have addressed PTNS in relation to OAB, and the most relevant publications were examined in greater detail. The research promotes this minimally invasive technique, which has few reported side effects, although the physiological mechanisms involved remain unclear. Considering the relative infancy of this modality, the evidence behind PTNS is very promising, particularly in the short term, and includes:

- a success rate of 56–80% in refractory patients;
- statistically favourable results in comparison to placebo; and
- an effectiveness equivalent to tolterodine.

The long-term effects of using PTNS are inconclusive, although neural plasticity of the cerebral cortex has been observed following the application of this modality, which correlates with reported periods of treatment overflow. Furthermore, some individuals have been cured after a course of PTNS, although the reported recovery rate varies from 4% to 88%, with non-refractory patients responding best. However, several papers agree that the majority of cases will require maintenance therapy. The frequency of long-term treatment remains uncertain, with growing evidence supporting maintenance therapy on an individualized basis varying from 2 to 5 weeks. One limitation of PTNS is its expense, with equipment and staffing costing double that incurred by conservative treatments, including the use of antimuscarinics. Most papers concur that PTNS should only be used as a second-line therapy for refractory patients. Therefore, in comparison with other second-line surgical interventions, PTNS is very promising in terms of expense, outcomes and complication rates. Furthermore, areas of weak evidence surrounding protocol details have been identified, including:

- needle placement location;
- treatment adjuncts;
- prognostic factors; and
- trialling self-maintenance with acupressure, transcutaneous electrical nerve stimulation or electroacupuncture.

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It can be concluded that PTNS is a promising option for second-line treatment of individuals with OAB syndrome, as approved by NICE (2010). Reduced expense and greater long-term evidence could result in the future use of this modality in front-line treatment for this patient group, perhaps with a finite cure. Therefore, continuous re-evaluation of these patients is required to ensure that correct practice is being followed as this intervention develops further.

Keywords: neuromodulation, overactive bladder syndrome, percutaneous tibial nerve stimulation, physiotherapy, women's health.

Further reading

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