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# IS POSTERIOR TIBIAL NERVE STIMULATION (PTNS) COST EFFECTIVE IN COMPARISON TO ANTIMUSCARINIC THERAPY? A COST COMPARISON STUDY IN THE MANAGEMENT OF OVERACTIVE BLADDER (OAB)

Hypothesis / aims of study

Overactive Bladder (OAB) syndrome, defined as 'urgency with or without urgency urinary incontinence, usually accompanied by daytime frequency and nocturia' (1), is a prevalent condition known to adversely affect quality of life (QoL). Whilst antimuscarinic therapy remains integral in the management of OAB, compliance and persistence may be affected by antimuscarinic side effects such as dry mouth and constipation. For those patients unable to tolerate antimuscarinic therapy, or who have intractable symptoms, Posterior Tibial Nerve Stimulation(PTNS) has been shown to offer similar efficacy to tolterodine in conjunction with fewer side effects (2) Our aim was to perform a cost minimisation analysis, based on equal efficacy, of PTNS and tolterodine ER in the management of OAB over a four year period as the initial study(3) showed a reduction in the cost of PTNS between 1st and 2nd year due to low maintenance cost.

Study design, materials and methods

All patients who were diagnosed with OAB and refractory to three or more anti muscarinic medications were offered PTNS treatment at a tertiary referral centre. All patients were treated for four years with an initial 12 weeks standard treatment and subsequent patient directed top ups. Patients made follow up appointment based on their perception of symptoms. For the PTNS model the cost of treatment was estimated using current standard NHS sources for equipment and disposables (Urgent PC, Uroplasty) whilst the lifespan of the device was estimated to be 5 years. This allowed calculation of the annual equivalent cost (amortisation) and an estimate of equipment cost per use. We performed 125 patient treatments per year per machine, each visit would last 30 minutes, and staff costing was based on a specialist nurse salary. For the antimuscarinic model drug costs were estimated using the national NHS prescriptions tariff (BNF 57, September 2012) for tolterodine ER 4mg OD. Subsequent follow up visits were assumed to be three monthly in the first year and six monthly in the second and were priced using the NHS tariff. We compared the cost of actual four year treatment of PTNS with the predicted model cost for four years of tolterodine 4mg to evaluate the cost effectiveness of PTNS.

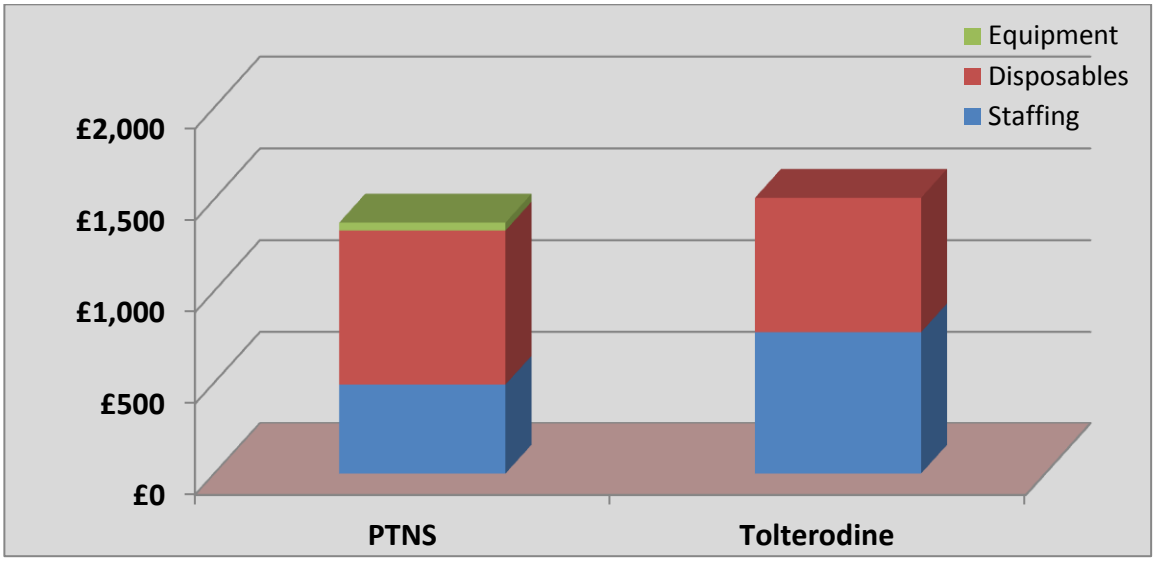
Results

Twenty three patients were treated with PTNS. The cost of PTNS and tolterodine were calculated using the cost minimisation model considering current values of equipment, services and drug costs. These values are shown in table 1.

| **PTNS** | **Value** | **Range** | **Tolterodine** | **Value** | **Range** |
|---|---|---|---|---|---|
| Equipment Cost | 1005 | £700-£1200 | Daily drug cost | £1.04 | £0.50-£2.50 |
| Life-span | 5 | 1-5 | OPD Cost | £79.00 | £50-£150 |
| Treatments per annum | 125 | 50-200 | OPD Visits Yr1 | 4 | 1-7 |
| Disposable lead | £39.00 | £20-£50 | OPD VisitsYr. 2-4 | 6 | 1-12 |
| Hourly nursing cost | £43.00 | £20-£60 | | | |
| Initial Treatments | 12 | 6-20 | | | |
| Maintenance Yr1 | 9 | 5-15 | | | |
| Maintenance Yr2 | 12 | 6-18 | | | |
| Duration of visit (hrs) | 0.5 | 0.2-1.0 | | | |
| NHS Discount Rate | 3.5% | 1.0%-6.0% | | | |

**Table 1:**
**Model inputs for cost minimisation comparison for PTNS and Tolterodine**

| **Results** | **PTNS** | **Tolterodine** |
|---|---|---|
| Staffing | £488 | £774 |
| Disposables | £840 | £732 |
| Equipment | £43 | |
| Total | **£1,371** | **£1,506** |




When the cost was calculated based on current values using the cost minimisation model the cost of PTNS over four year was £1371 and the cost for Tolterodine was £1506. Cost reduction was due to less frequent top ups compared to the prediction model. The cost of generic tolterodine has reduced over the last three years. There was no change in the nursing costs and clinic visit costs. There was a slight increase on the PTNS equipment cost.

Interpretation of results

The evidence from this cost minimisation analysis would suggest that long term PTNS treatment is cost effective compared to antimuscarinic treatment despite the reduction in antimuscarinic drug cost and increase in the PTNS equipment cost. A limitation to this study was our failure to consider patient satisfaction in each treatment group.

Concluding message

Based on cost minimisation analysis PTNS is cost effective compared to antimuscarinics in the longer term

References

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Disclosures

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