

A PILOT STUDY OF TRANSCUTANEOUS MAGNETIC STIMULATION IN CHILDREN WITH OVERACTIVE BLADDER.

Hypothesis / aims of study

This prospective pilot study evaluated the efficacy and safety of transcutaneous magnetic stimulation (TMS) with an interferential device in children with overactive bladder (OAB). Children with OAB are often treatment resistant. TMS has been successful in some OAB cases.[1,2] Almost infinite variations exist for TMS, with respect to application site, frequency and current settings. This original study presents an optional method of TMS in children with OAB.

Study design, materials and methods

48 children aged 6-14 years with OAB diagnosed by urodynamics failing standard management were treated with TMS. TMS was added to treatment as usual. Patients were kept on the same regimen (medication and dosage) as they were before study initiation. TMS was administered with magnetic coil placed in the sacral, perineal and suprapubic region over the bladder twice daily for 20 minutes per site for four weeks. Patients were monitored for four weeks before and after TMS therapy. Baseline measurements prior to the commencement of the treatment included: urinary control assessment form, PedsQL questionnaires and weekly urinary diaries.

Results

Compared to baseline, there was a significant decrease in the number of urinary urgency and incontinence during TMS therapy ($p < 0.05$). Similarly, there were significant improvements in urinary control and both the parental and children quality of life scores after TMS treatment. Instead, most patients reported a non-significant improvement in abdominal pain.

Interpretation of results

Compared to the traditional TMS with only directed across the sacral region, we used alternative method with magnetic coil application to the sacral, perineal and suprapubic region over the bladder. By the new TMS, we were able to achieve statistically significant results increasing urinary control in children with OAB. The trend for improvement in quality of life was also demonstrated. This new method of TMS warrants further assessment in a randomised control trial comparing new coil placement versus traditional sacral placement.

Concluding message

TMS in the sacral, perineal and suprapubic region is a safe and optional method in children with OAB. It warrants further evaluation in a randomised, controlled trial.

References

1. O'Reilly BA, Fynes M, Ahtari C, Hiscock R, Thomas E, Murray C, Dwyer PL. A prospective randomised double-blind controlled trial evaluating the effect of trans-sacral magnetic stimulation in women with overactive bladder. *Int Urogynecol J Pelvic Floor Dysfunct.* 2008 Apr;19(4):497-502.
2. Lim R, Lee SW, Tan PY, Liong ML, Yuen KH. Efficacy of electromagnetic therapy for urinary incontinence: A systematic review. *Neurourol Urodyn.* 2015 Nov;34(8):713-22.

Disclosures

Funding: The study was supported by National natural science foundation of China (No.30700917, No.81570465) **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** The Ethics Committee of Shengjing Hospital of China Medical University **Helsinki:** Yes **Informed Consent:** Yes