

S3 NEUROMODULATION USING CHINESE ELECTRO-ACUPUNCTURE TO TREAT DETRUSOR OVERACTIVITY IN PATIENTS WITH SPINAL CORD INJURY

Hypothesis / aims of study

Sacral nerve modulation (SNM) has been shown a positive effect in the treatment for overactive bladder, but the device of SNM is too expensive to be widely used in China. In traditional Chinese medicine, the acupuncture at Zhongliao acupoint (BL33) which is just located at S3 sacral foramen is usually used to treat voiding dysfunction. Our research aimed at whether this Chinese acupuncture worked well as the neuromodulation at S3 foramen and what the effective intensity and frequency for the electro-acupuncture were.

Study design, materials and methods

Twelve spinal cord injury (SCI) patients with detrusor overactivity (DO) which was demonstrated by video-urodynamic tests were included in this study. The selected patients were given electro-acupuncture treatment at the bilateral S3 foramen (Zhongliao) at the lateral position during the video-urodynamic investigation. The different intensities of electrical stimulation were used when the DO appeared during cystometry, and the most effective intensity to inhibit DO was determined. The bladder was emptied and the stimulation with selected intensity was used at the beginning of cystometry. The acute changes of the pressures and volume were observed.

Results

At the baseline, the parameters of intravesical pressure (Pves), abdominal pressure (Pabd), detrusor pressure (Pdet) and bladder volume before the first detrusor contraction during the baseline cystometry were measured, see table 1. After the electro-acupuncture stimulation with the selected intensity, the bladder capacity increased significantly, $p < 0.05$; but Pves, Pabd and Pdet did not underwent significant changes, see table 1.

Table 1. The acute effects after the electro-acupuncture stimulation with the selected intensity at S3 foramen (Zhongliao) in 12 patients with SCI (mean \pm SD)

	Pves	Pabd	Pdet	Bladder capacity
Pre-acupuncture	80.79 \pm 7.08	11.31 \pm 1.65	66.03 \pm 8.68	105.52 \pm 14.21
Post-acupuncture	77.34 \pm 6.48	11.29 \pm 1.47	65.85 \pm 6.73	161.39 \pm 17.58
p value	0.383	0.994	0.131	0.018

Interpretation of results

The results from table 1 showed us that there was a significant increase on the bladder capacity after the electro-acupuncture. The trend of decrease was shown at Pves, Pabd and Pdet without any statistic significance; it may be due to the small sample of this study.

Concluding message

The Chinese electro-acupuncture at S3 foramen (Zhongliao) in the SCI patients with DO was demonstrated an initial effect. After the treatment bladder capacity could be increased and the pressures underwent a trend of decrease. This study indicated us the Chinese electro-acupuncture at S3 foramen (Zhongliao) might reduce the therapy cost for the SCI patients. However a study with large sample or the multi-centers clinical trial is needed in the future.

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Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	Ethics Committee of Chinese Rehabilitation Research Center
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes