Acupuncture for neurogenic bladder urinary retention after spinal cord injury: a clinical plan for a randomized trial

Xu Zhenhua  
Henan Provincial Hospital of Traditional Chinese Medicine

Liu Haoyuan  
Henan Provincial Hospital of Traditional Chinese Medicine

Li Yanjie (✉️ 3110837613@qq.com)  
Henan Provincial Hospital of Traditional Chinese Medicine

Qin Hewei  
Henan Provincial Hospital of Traditional Chinese Medicine

Ma Luyao  
Henan Provincial Hospital of Traditional Chinese Medicine

Liu Juan  
Henan Provincial Hospital of Traditional Chinese Medicine

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Method Article

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Abstract

**Background:** Neurogenic bladder urinary retention is one of the most common complications of spinal cord injury, severely affecting patient satisfaction and quality of life. The clinical treatment of urinary retention is generally targeted therapy with intermittent voiding using a urinary catheter combined with the etiology, but the overall treatment effect is not ideal. Men with prostatic hyperplasia also need medication or surgery to reduce bladder outlet obstruction, with cystostomy, suprapubic catheterization, or urethral diversion as a last resort. Acupuncture is accepted by patients because of its simplicity, safety, and effectiveness, and clinical studies have shown that acupuncture can reduce urinary retention and improve patients' quality of life. This study aims to provide scientific basis for the treatment of neurogenic bladder dysfunction after spinal cord injury by acupuncture Ciliao BL32, Sanyinjiao SP6, Pangguangshu BL28, and Zhonglvshu BL29.

**Objective:** This paper aims to explore the effectiveness of acupuncture in treating neurogenic bladder dysfunction after spinal cord injury, and to provide more high-quality empirical evidence for the clinical application of acupuncture in treating neurogenic bladder dysfunction after spinal cord injury.

**Methods:** The study design was a single-blind, multicenter, randomized controlled trial. A total of 136 patients aged 18~70 years old with neurogenic bladder urinary retention after spinal cord injury were randomly divided into two groups: the experimental group (N=68) adopted the treatment plan based on acupuncture of the Ciliao BL32, Sanyinjiao SP6, Pangguangshu BL28, and Zhonglvshu BL29, and the control group (N=68) used intermittent urination, manipulative assisted urination and arranged drinking water plan according to the guidelines for urinary management and clinical rehabilitation of patients with spinal cord injury. The trial cycle for both regimens was two weeks, five times a week. The trial results were divided into primary and secondary outcomes. The primary outcome was differences in urinary symptoms before and after treatment, as reported by participants in voiding records or self-report questionnaires, which included mean urine output per 24 hours, number of participants with urinary retention, and number of participants requiring catheterization. Secondary outcomes mainly included the following: (1) changes in urodynamic testing before and after treatment, such as residual urine volume after voiding, maximum bladder capacity and maximum urine flow velocity; (2) changes in quality of life questionnaires before and after treatment; (3) the efficacy rate of treatment; (4) Changes in clinical evaluation before and after treatment.

**Discussion:** The results of this experiment are helpful to provide scientific clinical evidence for the clinical efficacy and feasibility of acupuncture in the treatment of neurogenic bladder urinary retention after spinal cord injury.

**Test registration:** Chinese Clinical Trial Registry, ChiCTR2100051049. Registered on 20 October 2023, https://www.chictr.org.cn/bin/project/edit?pid=209451

Introduction
In China, acupuncture, moxibustion, ear acupuncture and acupoint patches are widely used in the treatment of urinary retention after spinal cord injury, and in recent years, many studies have proved that the use of acupuncture to treat urinary retention can achieve good clinical results but different schools and theories of acupuncture have their own rhetoric, the purpose of this study is to provide a clinical basis for the treatment of urinary retention after spinal cord injury and to explore the clinical efficacy of acupuncture in improving urinary retention in patients with spinal cord injury.

**Reagents**

**Equipment**

using millineedle, twisting the needle inward and downward

**Procedure**

(1) Zhonglvshu BL29

It belongs to the foot solar bladder meridian. Located 1.5 inches from the median sacral crest (under the spinous process of the third sacral vertebra), it has the gluteus maximus muscle and is deep at the beginning of the sacral tubercle ligament. When the branches of the arterial and veins under the gluteus, there is a gluteal cutaneous nerve.

Operation method: routine disinfection, using 0.35 mm×75 mm millineedle, twisting the needle inward and downward, needle puncture about 60~70 mm, through the gluteus maximus and piriformis muscle through the ischial foramen, the needle sinks tightly, can continue to needle, subject to the spread of needle sensation to the perineum and lower abdomen, leave the needle for 20 min. Five times a week for two weeks.

(2) Ciliao BL32

One of the commonly used acupoints of the foot solar bladder meridian, located between the posterior superior iliac spine and the posterior median line, the beginning of the gluteus maximus, the lateral sacral arterial arterial and posterior venous ramus, suitable for the second posterior sacral foramen. It has a posterior branch of the second sacral nerve.

Operation method: 0.35 mm×75 mm millineedle was selected, and the twisting and turning method was inserted to make up for the laxative method, and the straight puncture was about 65 mm, twisted once in 10 min, and the needle was left for 20 min. Five times a week for two weeks.

(3) Sanyinjiao SP6, Pangguangshu BL28

Sanyinjiao SP6 belongs to the foot taiyin and spleen meridian. It is the meeting of foot taiyin, yin and less yin. On the inside of the calf, 3 inches above the tip of the medial malleolus of the foot, behind the
medial edge of the tibia. It has a cutaneous nerve on the medial calf and a tibial nerve at the back of the deep back; And there are great saphenous veins, posterior tibial arterial and venous.

Pangguangshu BL28 belongs to the foot solar bladder meridian. In the sacrum, 1.5 inches next to the median sacral crest, the second posterior sacral foramen is flat, and there is a posterior arterial and venous ramus on the lateral side of the sacrum. The posterior branches of the first and second sacral nerves are distributed.

Operation method: 0.3mm×40 mm milli needle is selected, and the flat supplement and laxative method is directly pierced for about 25~30 mm, and the needle is performed until there is a local feeling of soreness to get gas, and leave the needle for 20 min. Five times a week for two weeks.

Troubleshooting

Time Taken

Recruitment for participants began on January 1, 2024 and is expected to close on January 1, 2025, and the recruitment program will end early subject to sufficient eligible volunteers enrolling.

Anticipated Results

References


