

공 려

Effects of Acupuncture on Symptoms in a Patient with Interstitial Cystitis

Yoo-Haeng, Choi · Seung-Deok, Lee · Kap-Sung, Kim

Department of Acupuncture & Moxibustion, College of Oriental Medicine Dong-Guk University

초 록

간질성 방광염에 대한 침치료 효과

최유행, 이승덕, 김갑성

동국대학교 한의과대학 침구학교실

간질성 방광염이란 성인여성에서 생기는 질환으로 일종의 근육에 생긴 염증이며 미국에서는 아주 흔한 질환이나 국내에서는 그 동안 진단기준이 없어 단순한 방광염으로 오인 되어왔다. 증상은 일반적인 방광염과 비슷하나 너무 자주 재발하고 잘 낫지 않으며 방광용적의 감소로 빈뇨와 급뇨, 하복부와 회음부의 통증이 흔하고 방광을 비우면 증상은 호전되는 양상을 보인다. 진단을 확실히 할 정확한 검사가 없기 때문에 반드시 다른 질환이 없음을 증명하여야 한다. 즉 방광염을 일으키는 원인들인 요로 감염, 골반염, 결핵, 결석, 성병, 전립선염, 방광암 등이 없이 빈뇨와 소변을 참지 못하고 하복통이 있을 때 일단 의심을 하고 방광내시경상에 방광 벽의 염증이나 점상성 출혈, 궤양이 있으면 확진한다. 양방에서는 한가지 완벽한 치료가 없어 여러 가지 복합적인 치료를 하며 일차적으로는 약물요법과 방광확장술을 시도한다. 먹는 약으로는 아직 공인된 것은 없으며 이 약들은 증상의 호전을 기대할 수 있으나 일시적인 경우가 많으며 결국은 방광확장술을 추가하는 경우가 대부분이다. 이에 이 질환을 갖고 있는 여자 환자에게 침 치료를 시행한 결과 주관적인 통증과 급박감에 있어서 감소와 객관적인 소변 횟수의 감소에 있어 만족할 만한 효과를 얻었기에 보고하는 바이다.

· 접수 : 7월 3일 · 수정 : 7월 16일 · 채택 : 7월 21일

· 교신저자 : 김갑성, 경북 경주시 용강동 357, 동국대 경주한방병원 침구과(Tel : 054-770-1558)

E-mail : kapsung@unitel.co.kr

Abstract

Objective : A highly effective treatment for interstitial cystitis (IC) remains elusive. We determined whether acupuncture might be effective in relieving symptoms of IC.

Method : A consecutive patient(F/67yrs) with symptoms and cystoscopic findings compatible with IC underwent one month of continuous acupuncture by way of needles inserted into acupuncture points which are known to be effective for the symptoms of cystitis. Patient filled out voiding frequency, pain and urgency score charts during treatment.

Results : Acupuncture significantly improved all measured parameters toward normal values. Voiding frequency decreased twofold from 41 to 18 voids daily the end of treatment. Pelvic pain on a scale of 1 to 10 decreased from 10 to 2.8. Urinary urgency on a scale of 1 to 10 decreased from 10 to 5.2.

Conclusions : Acupuncture significantly decreased symptoms in a patient with IC. These results suggest that acupuncture may be beneficial in treating IC.

Key words : Acupuncture, interstitial cystitis, Electroacupuncture

I. Introduction

Interstitial cystitis is a chronic inflammatory disease of the urinary bladder. Its cause is unknown, and it occurs predominantly in middle-aged women, with the characteristic symptoms of frequent urination, urgency, and pain that is partially relieved by voiding.^{1,2)} Many possible etiologies have been suggested, including viral or bacterial infection, deficiency of the glycosaminoglycan layer, mast cell infiltration, or an alteration in the sensory nervous system¹⁾.

It remains a disease that is difficult to treat once diagnosed. Because of the unknown etiology of this disease, curative treatment is not possible and is directed only at relieving symptoms. Oxybutynin, tolterodine, hyosyamine, pentosan -

polysulfate (Elmiron), tricyclic antidepressant (Elavil), and antihistamines (eg, hydroxyzine) have all been used singularly or in conjunction in the treatment of IC. Intravesical agents such as dimethyl sulfoxide, heparin, steroids, silver nitrate, and chlorpactin have also been used. Unfortunately, all these agents have potential side effects, are not uniformly successful, and do not cure IC³⁾.

Acupuncture has been used extensively to reduce symptoms of urinary frequency or urgency or pelvic pain. This study explored how acupuncture affected IC symptoms. Not only were subjective pelvic pain and urgency symptoms analyzed, but also the objective parameter of voiding frequency.

II. Material and methods

1. Patient

A consecutive patient (Canadian woman, 67yrs) with National Institutes of Health criteria for IC (symptoms of urinary frequency/urgency /pelvic pain and presence of glomerulations in bladder after hydrodistension under anesthesia) in whom multiple previous therapeutic interventions (oral and intravesical agents) had failed and who remained symptomatic were offered a trial of acupuncture.

2. Technique

Acupuncture was performed under sterile conditions in an outpatient setting. In brief, the patient was placed in the supine position. The abdomen area and both legs area were cleaned with an alcohol sponge and we did two kinds of acupuncture at the same time as follows.

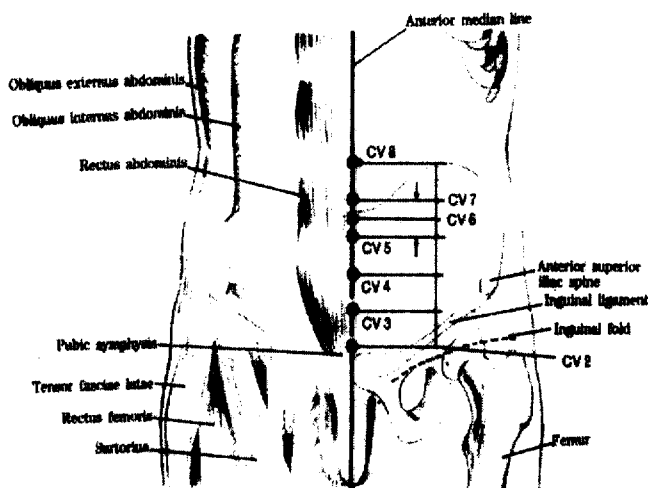
The first was that 30-gauge needles were punctured through the skin and advanced approximately 3 cm, posterior to the back, at a 90° angle. The main acupuncture points are Table I.

The needles were connected to a 9-V DC pulse generator device (PG306, suauki iryoki, made in Japan). The stimulator is attached with connecting leads to CV3, CV6 and Rt S28, Lt S28. Stimulation was selected within 5 mA with a mixed pulse (low frequency 2Hz and high frequency 30Hz). Proper stimulation was identified by patient's feeling. Stimulation continued for 15 minutes during the every treatment.

The second was that 30-gauge needles were punctured through the skin and advanced approximately 2 cm, posterior to the both side tibiae. The support acupuncture points are Table II.

3. Symptom scores, and voiding diary

Patient filled out pelvic pain scores (scale 0 to 10 ; 0 representing no pain and 10 the worst possible pain), urinary urgency scores (scale 0 to 10), and a 24-hour voiding diary during treatment.



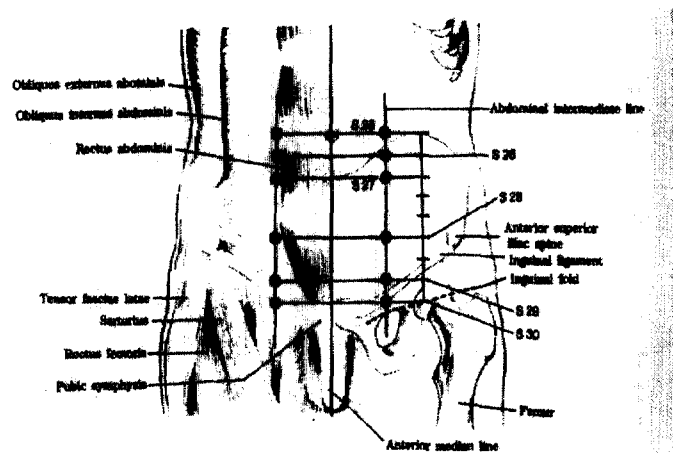


FIGURE 1. Schematic of the site of stimulation. Stimulation of main acupuncture points are performed with the pulse generator device (PG 306, suuki iryoki, made in Japan). The stimulator is attached with connecting leads to CV3, CV6 and Rt S28, Lt S28.

TABLE I. Main Points for Electroacupuncture

CV3. (中極) Bladder Alarm Point	<p>Identification</p> <p>Depth of the needle insertion</p> <p>Muscles; Blood supply</p> <p>Nerves</p> <p>Symptoms</p>	<p>located on the median line of the abdomen, 4 ch'on below the umbilicus, 1 ch'on above Gok Gol(CV 2).</p> <p>3-4cm</p> <p>M. rectus abdominis(linea alba). ; superficial epigastric a., inferior epigastric a., iliohypogastric n., ilioinguinal n..</p> <p>dysmenorrhea, nephritis, gonorrhea, endometritis, enuresis, leucorrhea, paralysis of the bladder sphincter muscle, disturbance of menstruation, spermatorrhea, impotence.</p>
CV6. (氣海)	<p>Identification</p> <p>Depth of the needle insertion</p> <p>Muscles; Blood supply</p> <p>Nerves</p> <p>Symptoms</p>	<p>located 1.5 ch'on below the umbilicus, 0.5 ch'on above Serk Moon(CV5), on the median line of the abdomen.</p> <p>3-4cm</p> <p>M. rectus abdominis(linea alba).; inferior epigastric a., anterior cutaneous rami of thoracic nn., intercostal nn..</p> <p>fatigue, neurathenia, lumbago, enuresis , disturbance of menstruation, shock, coma, leucorrhea, impotence, spermatorrhea, prolonging life, mental disorder, gastritis</p>
S28. (水道) (both)	<p>Identification</p> <p>Depth of the needle insertion</p> <p>Muscles; Blood supply</p> <p>Nerves</p> <p>Symptoms</p>	<p>located 3 ch'on below Chun Choo(S25), 2ch'on on either side of Gwan Won(CV4) of the conception vessel meridian on the median line of the abdomen</p> <p>3-4cm</p> <p>M. rectus abdominis, Mm. oliqus exterus & internus abdominis.; inferiorepigastric a., anterior cutaneous rami of thoracic nn., iliohypogastric n..</p> <p>enteritis, cystitis, orchitis, nephritis, distention of the hypogastrium, intoxication in the intestine.</p>

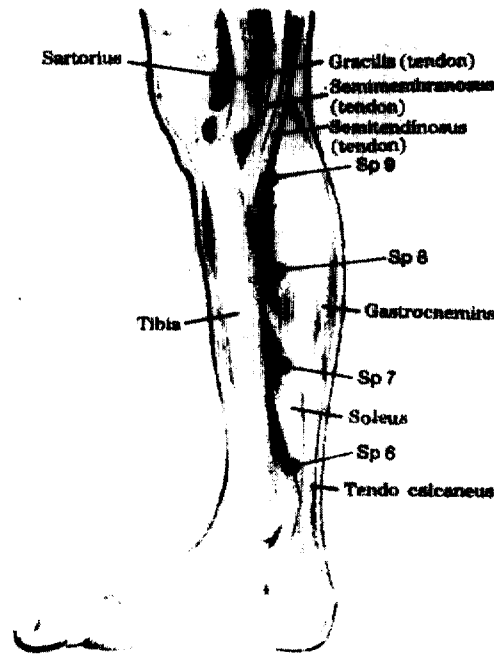


FIGURE 2. Schematic of the site. the 30-gauge needles were punctured through the skin and advanced approximately 2 cm, posterior to the tibia.

TABLE II. Support Acupuncture Points

Sp6. (三陰交)	Identification	located 3 ch'on above the medial malleolus, 0.3 ch'on behind the tibia.
	Depth of the needle insertion	1-2cm
	Muscles: Blood supply	tendon of M. flexor digitorum longus & M. tibialis posterior.; digital aa. of first dorsal metatarsal a. & medial plantar a..
	Nerves	posterior tibial n..
	Symptoms	endometritis, cystitis, disturbance of menstruation, sterility, leucorrhea, endocrine disorder, dyspepsia, genital organ disease of the male and female, pain control.
Sp7. (漏谷)	Identification	located on the medial surface of the leg behind the tibia, 6 ch'on above the medial malleolus
	Depth of the needle insertion	1-2cm
	Muscles: Blood supply	M. soleus, M flexordigitorum longus.; posterior tibial a..
	Nerves	tibia n., saphenous n..
	Symptoms	distention of abdomen, dyspepsia, leucorrhea, dysuria, paralysis of the lower extremities, meteorism.
Sp9. (陰陵泉)	Identification	located on the medial surface of the leg, right below the medial condyle of the tibia.
	Depth of the needle insertion	1-2cm
	Muscles: Blood supply	M. gastrocnemius.; medial inferior genicular a..
	Nerves	saphenous n..
	Symptoms	Knee joint arthritis, paralysis of the lower extremities, dysuria, nocturnal emission, nephritis, beri-beri, ischuria, lumbago, dyspepsia.

III. Results

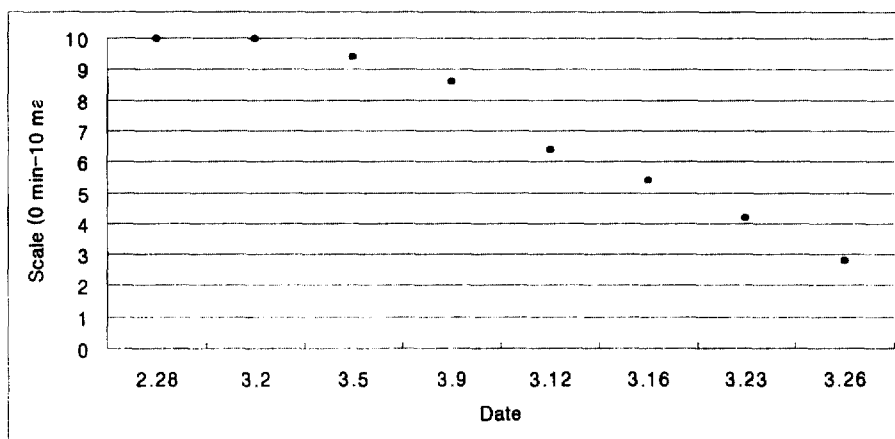
1. Changes in subjective parameters

Figure 3 shows the pelvic pain and urinary urgency scores acupuncture. Acupuncture significantly decreased pelvic pain and urinary urg-

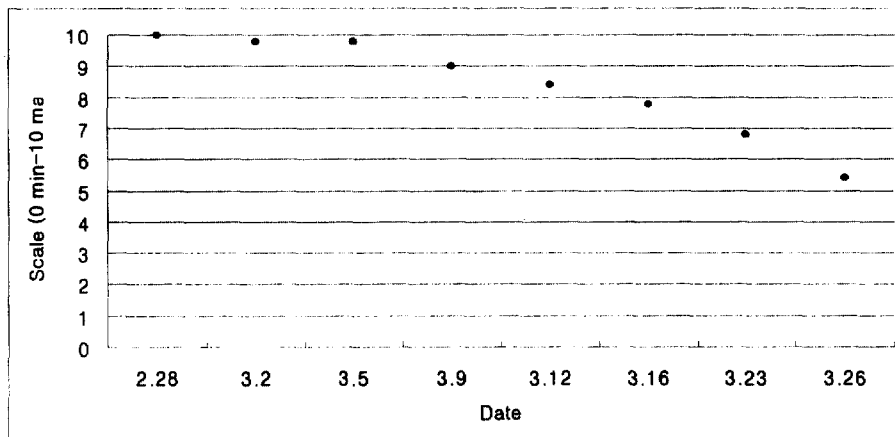
ency scores 10 and 10 to 2.8 and 5.2, respectively.

2. Changes in objective parameter

The objective change that was measured during acupuncture is given in Figure 4. Voiding frequency decreased significantly during acupuncture treatment.



A



B

FIGURE 3. Improvement in subjective symptoms. (A) Changes in pain scores as a result of acupuncture. (B) Changes in urgency scores as a result of acupuncture.

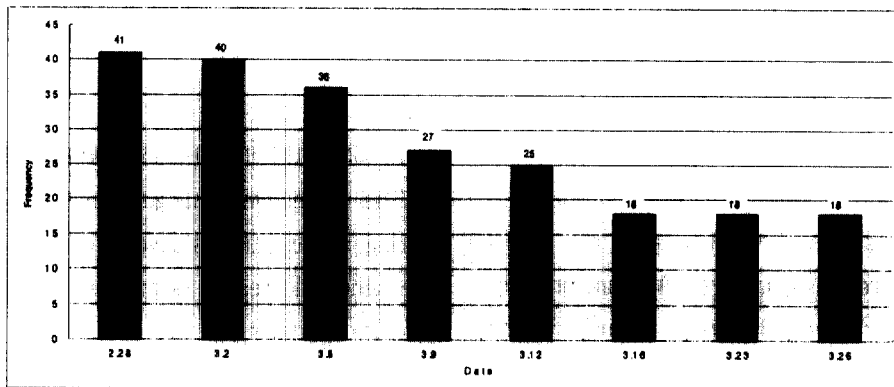


FIGURE 4. Improvement in objective parameter during acupuncture.

IV. Comment

Interstitial cystitis (IC) is a chronic syndrome characterized by a constellation of lower urinary tract irritative symptoms and pain. A broad clinical definition of IC includes any patient who complains of urinary urgency, frequency, and/or pelvic/perineal pain in the absence of any identifiable cause, such as bacterial infection or carcinoma⁴⁻⁵. IC, which predominately afflicts women, is a serious health problem that leaves many patients unable to cope with basic daily functions. Although the true prevalence of IC in the United States is unknown, estimates range from 37 to 67 per 100,000⁶⁻⁷. Nevertheless, the disease is poorly characterized, and the underlying etiology of IC remains unknown.

In the view of oriental medicine, IC's symptoms and pain are thought that heat and dampness invade the bladder. They interfere bladder's functional activity and stay lower-energizer to injure its Qi and blood flow. They make pain and heat sensation. We select table 1

and table 2 points for treatment. We choose table 1 points as local acupuncture. The CV3 point tonifies bladder's function and CV6, S28 points control lower-energizer's discharging urine. Also we choose table 2 (Sp6, Sp7, Sp9) points as distal points because they are usually used for treating urinary disease.

In western medicine, sacral third nerve root (S3) neurostimulation has only recently gained wider acceptance with the approval of its use for idiopathic urinary frequency/urgency, urge incontinence, and retention⁸⁻¹⁰. The mechanisms by which S3 percutaneous neurostimulation (PNS) works to alleviate apparently contrasting problems (urinary incontinence and urinary retention) are not known. For frequency/urgency and urge incontinence, S3 PNS may alter the afferent limb of the micturition reflex. Also electrical stimulation of the pelvic floor, termed neuromodulation, has been used extensively to reduce symptoms of urinary urgency or frequency or pelvic pain. The mechanism involves decreasing bladder overactivity by stimulating peripheral nerves, which represent the same spinal sacral S3 area as the bladder. Success

rates have been reported to range from 37% to 90%¹¹⁻¹²⁾, dependent on the definition of success.

In the view of oriental medicine, sacral third nerve root (S3) neurostimulation is compared to direct stimulation of bladder meridian point B33 and stimulating peripheral nerves, which represent the same spinal sacral S3 area as the bladder is compare to using table 2 points.

This study showed that acupuncture was highly efficacious in alleviating IC symptoms of urinary frequency, urgency, and pelvic pain in a patient.

V. Conclusions

Acupuncture appears to be an effective form of treatment for the symptoms of IC. It significantly reduced pelvic pain, urinary urgency, and voiding frequency. Use of acupuncture in a patient with IC resulted in cure or significant improvement and achieved a reduction in pelvic pain in a patient. The technique is safe, resulting in no side effects. Further data from larger patient groups are warranted to support these promising initial results.

VI. References

1. Thompson A.C. and Christmas T.J. Interstitial cystitis an update. *Br J Urol.* 1996;78:813-820.
2. Messing E.M. The diagnosis of interstitial cystitis. *Urology.* 1987;29(suppl):4-7.
3. Toby C. Chai, Chen-Ou Zhang, John W. Warren, Susan Keay. Percutaneous sacral third nerve root neurostimulation improves symptoms and normalizes urinary HB-EGF levels and antiproliferative activity in patients with interstitial cystitis. *J Urol.* 2000;55(5): 643-6.
4. Hanno P.M., Levin R.M. and Monson F.C. et al. Diagnosis of interstitial cystitis. *J Urol.* 1990;143:278-81.
5. Parsons CL: Interstitial cystitis: clinical manifestations and diagnostic criteria in over 200 cases. *Neurourol Urodyn.* 1990;9:241-50.
6. Held PJ, Hanno PM, Wein AJ, et al. Epidemiology of interstitial cystitis, in Hanno PM (Ed): *Interstitial Cystitis.* London, Springer-Verlag. 1990:29-48.
7. Curhan G.C., Speizer F.E. and Hunter D.J. et al. Epidemiology of interstitial cystitis: a population based study. *J Urol.* 1999;161:549-52.
8. Shaker H.S. and Hassouna M. Sacral nerve root neuromodulation: an effective treatment for refractory urge incontinence. *J Urol.* 1998; 159:1516-9.
9. Bosch J.L. and Groen J. Neuromodulation: urodynamic effects of sacral (S3) spinal nerve stimulation in patients with detrusor instability or detrusor hyperflexia. *Behav Brain Res.* 1998;92:141-50.
10. Hohenfellner M., Schultz-Lampel D. and Dahms S. et al. Bilateral chronic sacral neuromodulation for treatment of lower urinary tract dysfunction. *J Urol.* 199

- 8;160:821-4.
11. Jiang C.H., Lindstrom S. and Mazieres I. Segmental inhibitory control of ascending sensory information from bladder mechanoreceptors in CAT. *Neurourol Urodyn.* 1992;10:286-8.
 12. Lindstrom S., Fall M. and Carlsson C.A. et al. The neurophysiological basis of bladder inhibition in the response to intravaginal electrical stimulation. *J Urol.* 1984;129:405-10.