

*Original Article*

## Comparing the treatment effectiveness of body acupuncture and auricular acupuncture in preoperative anxiety treatment

Shengjun Wu<sup>a</sup>, Jie Liang<sup>b</sup>, Xia Zhu<sup>a</sup>, Xufeng Liu<sup>a</sup>, Danmin Miao<sup>\*a</sup>

### Abstract

**BACKGROUND:** Preoperative anxiety has become more frequent in preoperative patients and can bring negative impact on operation outcomes. Many studies have reported the effect of body acupuncture in reducing anxiety syndromes. The aim of this study is to compare the treatment effect of body acupuncture and auricular acupuncture in preoperative patients with preoperative anxiety.

**METHODS:** Thirty five elective ambulatory surgery patients were selected in the randomized and blinded trial. Subjects were randomly categorized in two intervention groups, the body acupuncture group who received acupuncture in the special points of body, and the auricular acupuncture group who received ear acupuncture. Zung Self-Rating Anxiety Scale (SAS) was used before and after the study.

**RESULTS:** For the auricular acupuncture group, the mean score of SAS was  $57.57 \pm 8.22$  before the intervention and  $46.32 \pm 6.37$  afterward. For the body acupuncture group, the SAS score was  $55.39 \pm 5.41$  and  $44.82 \pm 6.76$  before and after the intervention, respectively. For both groups, the difference between pre- and post-treatment scores reached the significant level ( $p = 0.00$ ).

**CONCLUSIONS:** Both auricular and body acupuncture treatment methods were effective in decreasing anxiety in preoperative patients.

**KEYWORDS:** Acupuncture, Anxiety, Patients, Surgery.

JRMS 2010; 16(1): 39-42

Preoperative anxiety is a common phenomenon among surgical patients, and high preoperative anxiety can lead to adverse postoperative outcomes. Studies reported that the incidence of preoperative anxiety in adults is nearly 80%.<sup>1,2</sup> Thus, it's very important to take effective medical intervention for the mood preparation of patients before surgery. Both pharmacologic and alternative interventions have been used in the literature as means of decreasing preoperative anxiety.<sup>3-9</sup> As one of the alternative medical treatments, acupuncture has a long history in Chinese medicine development and many medical experiences have been accumulated about it after years. The World Health Organization has recognized its benefit for some medical

conditions.<sup>10</sup> Theory of Chinese acupuncture is based on metaphysical concepts of "ch'i" (Qi) which is a supposed body energy that runs through hypothesized channels called "meridians". In terms of the treatment position, acupuncture can be categorized as body acupuncture and auricular acupuncture. Compared to body acupuncture, the auricular acupuncture is less painful and more convenient to patients. Many studies have reported the effect of body acupuncture in reducing anxiety syndromes.<sup>11,12</sup> Other researches also indicated that auricular acupuncture also could relieve anxiety.<sup>13,14</sup> However, few studies have ever been conducted to compare the effect of the two kinds of treatment.

Therefore, the objective of the present study

<sup>a</sup> Department of Psychology, School of Aerospace Medicine, Fourth Military Medical University, Xi'an, China.

<sup>b</sup> State Key Laboratory of Cancer Biology and Xijing Hospital of Digestive Diseases, Fourth Military Medical University, Xi'an, China.

\* Corresponding Author  
E-mail: xlxyjs@126.com

is to compare the treatment effect of body acupuncture and auricular acupuncture in preoperative patients with preoperative anxiety by follow-up study design.

**Methods**

*Patients*

Eligible patients were those who referred to the Xi Jing Hospital (Xi'an, China) between October 2005 and February 2006. Patients taking anxiolytic herbs, having history of psychiatric illness or prior acupuncture experience were excluded. Thirty five elective ambulatory surgery patients were selected randomly and double-blindly. All patients participating in this trial were asked to sign a Committee-approved consent form confirming that they understood the goals, risks, and potential benefits of the study and their rights to withdraw from the study at any time. Patients could discontinue at any time without having any reason.

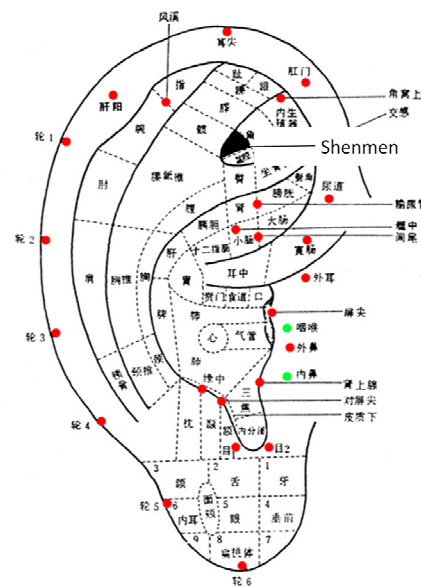
Subjects were randomly categorized in two intervention groups.

Group one was auricular acupuncture group with 18 patients. Subjects in this group received ear acupuncture in the point named Shenmen, which is at the superior aspect to the bifurcating point between superior antihelix crus and inferior antihelix crus. This point is based on Chinese ear chart (Figure 1). Group two was body acupuncture group with 17 patients. Subjects in this group received acupuncture in the points of Baihui, Four God's Cleverness, Great Rush and Zu San Li. Baihui is located in the midpoint of connecting line between top of two ears on the head. Four God's Cleverness has four points and each one is one inch apart from Baihui. Great Rush is located in the back of foot and the valley of first metatarsal, and Ophryon is located in the middle of two eyebrows (Figure 2).

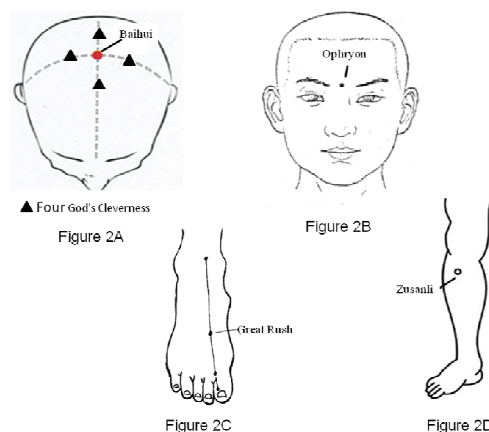
*Measurements*

Anxiety symptoms were assessed using a translated and validated version of the Zung Self-Rating Anxiety Scale (SAS). The scale is a well-known self-rating scale used worldwide

for the measurement of anxiety. Higher scores on the scale are indicative of more severe anxiety. SAS consists of 20 items covering affective, psychological, and somatic symptoms. A subject with a SAS score below 50 is considered normal, while a score of 50 or more is considered to be indicative of existence of anxiety. The scale has been verified as valid and sensitive measurement for clinical severity and research instrument.



**Figure 1.** Shenmen point of auricular acupuncture



**Figure 2.** Body points of body acupuncture. 2A is Baihui point and Four God's Cleverness (marked by black triangle), 2B is Ophryon point, 2C is Great Rush point, and 2 D is Zu San Li point.

### Treatment Process

Before recruitment, all patients completed SAS and those who scored above 50 were selected for being acupunctured. Of the ear acupuncture group, 11 were women and seven were men, and the mean age was  $41.2 \pm 10.1$  years; of the body acupuncture group, nine were women and eight were men, and the mean age was  $47.3 \pm 8.9$  years. In auricular acupuncture treatment, three patients quitted treatment without finishing it. Thus after the acupuncture treatment and before surgery, 32 patients of the two groups completed the SAS for a second time. In the acupuncture treatment, patients were needled with 25-40 mm long needles which were 0.25-0.30 mm in diameter. For each subject of the two groups, duration of acupuncture therapy was four weeks (two sessions per week, eight sessions in total). During treatment, among the auricular acupuncture subjects, the needles were inserted into the Shenmen point, which is located in superior lateral wall of the triangular fossa, and the depth of insertion was about 0.2 cm. For the body acupuncture group, the needles were inserted into above mentioned points and the insertion depth was nearly 0.5 cm. Each acupuncture session lasted approximately half hour. The acupuncture treatment was conducted by four professional acupuncturists of Xi Jing Hospital. All of them had more than ten years experience in acupuncture therapy.

### Statistics Analysis

The matched pair t-test was used to assess the statistical significance differences in the pre- and post-treatment scores. These comparisons were carried out using SPSS version 11.5. Comparisons were considered significant if  $p < 0.05$ .

### Results

The SAS score changes before and after acupuncture treatment of two groups are showed in table 1. For the auricular acupuncture group, the mean score of SAS was  $57.57 \pm 8.22$  before the intervention and  $46.32 \pm 6.37$  afterward. For the body acupuncture group, the SAS score was  $55.39 \pm 5.41$  and  $44.82 \pm 6.76$  before and after the intervention, respectively. For both groups, the difference between pre- and post-treatment scores reached the significant level ( $p = 0.00$ ). However, the reduction of scores of the two groups was not significant ( $p = 0.24$ ).

### Discussion

Acupuncture is one of the effective Chinese medical treatments and has been used widely for treating anxiety disorder; in some studies preoperative patients reported significantly lower levels of anxiety after receiving acupuncture.<sup>15-17</sup>

Although the mechanism of treating anxiety with acupuncture is not clear till now, more and more evidences have suggested the effect of acupuncture in anxiety treatment. From Chinese medicine view of body acupuncture, Bihui is also named "three yang and five gather", and using the acupuncture on this point is for increasing lucid yang qing and tranquilizing by nourishing the heart; Hegu is meridian of Hand-YANG MING and using acupuncture on this is useful for waking up a patient from unconsciousness. Inner Pass and Four God's Cleverness are useful for calming the nerves, and Food Three Li is effective in brooding chest and regulating Qi. So acupuncture on these points can relieve the anxiety and reduce the syndrome to some extent.

**Table 1.** SAS score of pre- and post-acupuncture treatment in the two groups

Group	Pre-acupuncture	Post-acupuncture	p*	p**
Auricular acupuncture group (n = 15)	$57.57 \pm 8.22$	$46.32 \pm 6.37$	0.00	0.24
Body acupuncture group (n = 17)	$55.39 \pm 5.41$	$44.82 \pm 6.76$	0.00	

\* The significant level of SAS scores between pre- and post-acupuncture treatment

\*\* The significant level of SAS scores difference between the two groups

## Conclusions

Results showed that both of the acupuncture treatment methods had effect on decreasing anxiety in preoperative patients. At the same time, the difference of reducing anxiety level in the two position acupuncture did not reach statistically significant level. Such results

might suggest that both of the acupuncture treatments can be chosen equally when needed. However, compared with the body acupuncture, the auricular acupuncture can be mastered easily by acupuncturists and may be more acceptable for patients. So, auricular acupuncture seems to have more wide usage in future anxiety treatments.

## Conflict of Interests

Authors have no conflict of interests.

## Authors' Contributions

SW and JL carried out the design, coordinated the study, and wrote the manuscript. XL provided assistance in the design of the study. XZ provided assistance in writing the paper. DM provided suggestions for the design and writing of the article. All authors have read and approved the content of the manuscript.

## References

1. Ramsay MA. A survey of pre-operative fear. *Anesthesia* 1972;27(4):396-402.
2. Corman HH, Hornick EJ, Kritchman M, Terestman N. Emotional reactions of surgical patients to hospitalization, anesthesia and surgery. *Am J Surg* 1958;96(5):646-53.
3. Movafegh A, Alizadeh R, Hajimohamadi F, Esfehiani F, Nejatfar M. Preoperative oral *Passiflora incarnata* reduces anxiety in ambulatory surgery patients: a double-blind, placebo-controlled study. *Anesth Analg* 2008;106(6):1728-32.
4. Kazak Z, Meltem Mortimer N, Sekerci S. Single dose of preoperative analgesia with gabapentin (600 mg) is safe and effective in monitored anesthesia care for nasal surgery. *Eur Arch Otorhinolaryngol* 2010;267(5):731-6.
5. Arthur HM, Daniels C, McKelvie R, Hirsh J, Rush B. Effect of a preoperative intervention on preoperative and postoperative outcomes in low-risk patients awaiting elective coronary artery bypass graft surgery. A randomized, controlled trial. *Ann Intern Med* 2000;133(4):253-62.
6. Braden R, Reichow S, Halm MA. The use of the essential oil lavender to reduce preoperative anxiety in surgical patients. *J Perianesth Nurs* 2009;24(6):348-55.
7. Wright KD, Stewart SH, Finley GA, Buffett-Jerrott SE. Prevention and intervention strategies to alleviate preoperative anxiety in children: a critical review. *Behav Modif* 2007;31(1):52-79.
8. Cooke M, Chaboyer W, Schluter P, Hiratos M. The effect of music on preoperative anxiety in day surgery. *J Adv Nurs* 2005;52(1):47-55.
9. Nilsson U. The anxiety- and pain-reducing effects of music interventions: a systematic review. *AORN J* 2008;87(4):780-807.
10. NIH Consensus Conference. Acupuncture. *JAMA* 1998;280(17):1518-24.
11. Akiyoshi J. Neuropharmacological and genetic study of panic disorder. *Nihon Shinkei Seishin Yakurigaku Zasshi* 1999;19(3):93-9. (Japanese)
12. McCarty MF. High-dose pyridoxine as an 'anti-stress' strategy. *Med Hypotheses* 2000;54(5):803-7.
13. Wang SM, Kain ZN. Auricular acupuncture: a potential treatment for anxiety. *Anesth Analg* 2001;92(2):548-53.
14. Wang SM, Peloquin C, Kain ZN. The use of auricular acupuncture to reduce preoperative anxiety. *Anesth Analg* 2001;93(5):1178-80.
15. Eich H, Agelink MW, Lehmann E, Lemmer W, Klieser E. Acupuncture in patients with minor depressive episodes and generalized anxiety. Results of an experimental study. *Fortschr Neurol Psychiatr* 2000;68(3):137-44. (German)
16. Ulett GA, Han S, Han JS. Electroacupuncture: mechanisms and clinical application. *Biol Psychiatry* 1998;44(2):129-38.
17. Qiao Y. Thirty cases of anxiety symptom treated with Shenmen through Shaohai point. *Chinese Acupuncture & Moxibustion* 2001;21:81-2.