

Research Article

Comparison of Effectiveness of Acupuncture at Different Patterns of Fixed Points by Only Tapping Technique

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Abstract

Background: In Japan, individual acupuncturists place needles at acupoints of their own choice. Therefore, the same patient may have different treatment outcomes, depending on the acupuncturist.

Subjects and Methods: The study included 2174 patients (620 for stiff shoulder, 1554 for others) examined by the author from May 2011 to December 2022. The conditions studied were stiff shoulders. In principle, patients were treated once a week for six consecutive sessions in one round of acupuncture. The patients were asked to return 1 weeks later. Then, the level of satisfaction with treatment were determined. Effective rate was defined as the ratio of patients whose level of satisfaction with the treatment of each condition >60%. Similarly, a level of satisfaction of >80% was designated as the highly effective rate. The patient with satisfaction > 60% is defined as a responder. The average level of satisfaction among responders was defined as efficacy. Acupuncture was performed by only tapping the needle handle with a guide tube at fixed acupoints. Patterns of fixed acupoints were modified by adding some important acupoints mainly. Effectiveness of acupuncture treatments at different patterns of fixed acupoints was compared.

Results: The modification of acupoints patterns increased both the effective rate/highly effective rate and efficacy of treatments for stiff shoulder.

Conclusion: It can be that the addition of some important acupoints improves effectiveness for many conditions in the acupuncture at fixed points by only tapping.

Keywords: Acupuncture; Stiff shoulder

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Introduction

Acupuncture is considered to have originated in ancient China, but it was subsequently introduced to neighboring countries, and its form has changed in each of those countries. Needles are typically inserted to some extent, however in Japan needles are often inserted slightly. The thicker the needles, the greater the pain felt during their insertion. Waichi Sugiyama began using needles with a guide tube during the Edo period [1], which allowed the use of thinner needles. Acupuncture using very thin needles with a guide tube results in almost no pain for the patient. Numerous studies have reported that acupuncture is effective in treating various conditions not only in China, but also in Japan [2-26].

Currently, in Japan, individual acupuncturists place needles at acupoints, and needle placement is their own choice. Therefore, the same patient may have different treatment outcomes, depending on the acupuncturist. Recently, as a Japanese acupuncture technique, slight needle insertion by tapping only the needle handle using a guide tube at previously determined fixed points has been proposed. This technique has also been reported to be highly effective [27-37]. However, different combination patterns of acupuncture at fixed points may have different effectiveness in treating the same condition. A study reported that adding a pair of acupoints called "Zigong" to fixed points used to treat menstrual cramps increases the effectiveness of acupuncture [38]. Modification by adding vital points to the acupuncture fixed points could increase the effectiveness of acupuncture.

This study aimed to compare the effectiveness of acupuncture at fixed points by only tapping with a guide tube in treating patients with stiff shoulder which is most frequent condition before and after the acupoints were modified by the same needle insertion technique.

Subjects and Methods

A total of 2174 patients (620 for stiff shoulder, 1554 for others) were seen by the Women Health Department of Oriental Medicine in this facility from May 2011 to December 2022. Since outpatient services began in May 2011, acupuncture treatment was started at fixed acupoints for stiff shoulder. Acupuncture sites were disinfected beforehand, and acupuncture needles were only slightly inserted by only tapping the needle handle with a guide tube (no more insertion). Disposable needles of 0.18 thickness and 40mm length were used (Seirin Corporation No2, Tokyo). Needle is fixed with glue at one point inside of a guide tube in the state of the needle handle is protruding a little (2-3mm). and guide tube (including needle) is imposed on acupoint, then needle handle is hammered by one finger with one tap. As a result, protruded portion was inserted completely at 2-3mm.

The patients were treated with acupuncture in the prone position for stiff shoulder the needles were left in place for 15 min after insertion. In principle, patients were treated once a week for six consecutive sessions in one round of acupuncture. Patients were asked to return 1weeks later, the extent to which the level of stiff shoulder were alleviated was determined, and the patients were asked about their level of satisfaction with treatment. The level of patient

satisfaction was rated from 100%, the maximum level, to 0%, indicating that symptoms had not been alleviated at all. If improvement of symptoms was not sufficient and the patient requested, two sessions of acupuncture were added. The extent of alleviation and the level of satisfaction after treatment were then determined. Methods of assessment of patients' satisfaction for treatment have been reported [39,40].

The patterns of the acupoints were modified at certain times. Mainly, some specific important acupoints were added into fixed acupoints. Starting in April 2017, the acupoints for stiff shoulder were modified as shown in "after" of table 1. The effective rate was defined as the proportion $\times 100$ of patients whose level of satisfaction with the treatment was $>60\%$. Similarly, a level of satisfaction of $>80\%$ was designated as the "highly effective rate". The patient with satisfaction $> 60\%$ is defined as a responder. The average level of satisfaction among responders was defined as efficacy. The reason of such a definition is as follows. Patients were chosen at random, and asked about painful symptom after treatment showing the paper written as follows. ①Relieved completely ②Relieved mostly ③Ameliorated fully ④Ameliorated ⑤Ameliorated slightly ⑥Feel starting improvement.

It was proved in this study that above choice was related to satisfaction rate as follows. ① or ② corresponded to satisfaction rate 90-100 at 81.9% (77/94). ② or ③ corresponded to satisfaction rate 80-90 at 83.3% (55/66). ③ or ④ corresponded to satisfaction rate 70-80 at 96.0% (24/25). ④ or ⑤ corresponded to satisfaction rate 60-70 at 94.6% (53/56). ⑤ or ⑥ corresponded to satisfaction rate 50-60 at 85.7% (12/14).

Patients who received acupuncture before the points were modified were designated as the "before group", and patients who received acupuncture after the points were modified were designated as the "after group". The effective rate (%), highly effective rate (%), and efficacy were compared between after group and before group.

The patients who received both acupuncture and the other treatment at the same time were eliminated from the subject in this study. Patients who did not stay at end of the study were also eliminated from the subject in this study. The ratio test was used to compare the effective rates and highly effective rates between before group and after group, and the student's t-test was used to compare efficacy and patients' age between before group and after group. A significance level of 0.05 was used in the testing. Patient's data were stored securely at this facility, and patients were designated according to their initials so that they could not be identified individually. Informed consent was obtained from the patients before acupuncture was performed in this study. This study was approved by the ethics review board of our facility (approval no.2022-004). This study was done by no funding. There are no conflicts of interests in this study.

before	after
GV4	+ GV14
GV20	+ GV12
	+ GV9
	+ LU7
LI4	
LI11	
	+ ST36
	+ ST40

SP6	+ SP10
	+ HT7
SI15	+ SI3
	+ SI11
BL10	+ BL23
BL11	+ BL40
BL42	\Leftrightarrow BL43
	+ BL52
	+ KI7
TE2	+ TE15
TE5	
GB20	
GB21	

Table 1: Patterns of fixed acupoints before/after modification for stiff shoulder.

Results

The results of the comparison test between before/after group are shown in table 2. Both the effective rate/highly effective rate (%), and efficacy increased in the after group than before group with significant difference especially in highly effective rate.

The number of sessions when a benefit became evident, total number of sessions, and average age in each group are shown in table 3. No significant differences in the average age of patients, number of total sessions, and number of sessions in which a benefit became evident were observed between before group and after group. On average, the number of total sessions, and number of sessions in which a benefit became evident were 6.1, and 2.5, respectively.

The only adverse reaction to acupuncture in this study was slight internal bleeding at the puncture site. Transient malaise/lethargy was observed day after acupuncture in some cases, but its incidence was $\leq 1\%$ in each group. This phenomenon is considered a positive response to acupuncture. The results in this study is outcome obtained by efforts for patients suffered from painful symptom to be relieved, not experiment.

	Before	After	P value
Effective rate	86.4% (273/316)	92.1% (280/304)	0.011
Highly effective rate	58.9% (186/316)	76.6% (233/304)	<0.00001
Efficacy	83.1	85.8	0.0078

Table 2: Effective rate/highly effective rate and efficacy before/after modification of acupoints for stiff shoulder.

	Before	After
Number of sessions when a benefit became evident	2.4	2.6
Total number of sessions	5.9	6.2
Average age	43.6	45.6

Table 3: The number of sessions when a benefit became evident, total number of sessions, and average age in before/after group.

Discussion

The incidence of headaches caused by stiff shoulders was 44.5% (276/620) in all patients with stiff shoulders. In the after group, the effective rate / highly effective rate for headaches caused by stiff

shoulders increased to 93.6% (117/125) /76.8% (96/125) from 82.8% (125/151) /64.2% (97/151) significantly (P=0.0033, P=0.012).

Most of the acupoints that were modified in this study were added, although some were replaced. Some important acupoints were added to the choice of acupoints that have been used daily before now by acupuncture professionals. In the current study, one acupoints were replaced between before and after. Reason why BL42 was replaced to BL43 is that both BL42 and BL43 are adjacent on Bladder meridian, and BL43 is more important than BL42 because BL43 is origin of vital energy.

Some important points based on the theories of traditional Chinese medicine were added to encompass all of Zheng (the patterns of disharmony in traditional Chinese medicine), such as retained fluid, blood stasis, stagnation of *qi*, dampness-heat, or yang or yin deficiency in the five visceral and six abdominal organs. Some extra meridian points should be chosen because they are highly effective under specific conditions. Too many fixed acupoints will increase the time needed to treat each patient, and incorporating too much acupoints into routine practice is impractical. The effectiveness of acupuncture by only tapping with a guide tube at fixed points in the current study can be easily evaluated using modern scientific methods of data analysis since fixed acupoint pattern is the same for the same condition (symptom), which is effective other than stiff shoulder as shown in table 4 as an example (population numbers > 50). Acupuncture at fixed points by only tapping is an adaptable treatment which is safe for patients with no more insertion after tapping and can be easily performed in a short amount of time by medical personnels, without the need to learn difficult traditional Chinese logic [41], or the practice of acupuncture techniques [42]. This treatment should have instantaneous benefits shown in table 3. Identifying more effective acupoints and the optimal number of points required are topics for the future worldwide.

	Effective rate	Highly effective rate	Efficacy
stodginess	96.6% (56/58)	86.2% (50/58)	91.9
PMS (depression)	94.8% (55/58)	75.9% (44/58)	85.8
kneel pain	94.2% (49/52)	71.2% (37/52)	85.3
headache	92.3% (204/221)	73.8% (163/221)	87.6
PMS (irritability)	91.5% (183/200)	66.0% (132/200)	84.4
dizziness	91.0% (152/167)	73.1% (122/167)	89.4
PMS (lethargy)	90.5% (67/74)	75.7% (56/74)	90.4
frozen shoulder	89.3% (92/103)	64.1% (66/103)	84.1
low back pain	88.8% (231/260)	69.2% (180/260)	87
menstrual crump	82.9% (199/240)	51.3% (123/240)	81.9
tinnitus	66.1% (80/121)	47.9% (58/121)	84.1

Table 4: Effectiveness of acupuncture at fixed points by only tapping for other conditions.

Conclusion

The acupuncture at fixed points by only tapping is the treatment effective for many conditions which is safe for the patients and is easily performed for the medical personnels. The difference of modification of acupoint patterns gave birth to different effectiveness of treatments for stiff shoulder in the acupuncture by only tapping with guide tube at fixed points. It can be that the addition of some important acupoints improves effectiveness in the acupuncture treatment.

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