

Japanese Acupuncture - Current Research

Acupuncture for Respiratory Disease in Japan: A Review

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Abstract

Background: In Japan, studies on acupuncture and moxibustion therapy for respiratory disease have rarely been reported. Additionally, most of the reports are difficult for overseas researchers to access because they are written in Japanese and cannot be located using Medline.

Purpose: To review studies on acupuncture and moxibustion therapy for respiratory disease conducted in Japan.

Data Sources: The results of a literature search using 'Igakyo Chuo Zasshi Web' (Japan Central Revue Medicina) and the Medical Online Library, both of which are Japanese databases, covering the period between 1983 and 2008.

Study Selection: We reviewed references cited in retrieved documents and selected original articles and case reports on acupuncture and moxibustion therapy for respiratory disease.

Data Excluded: Animal studies, surveys, excerpts and news articles were excluded.

Data Extraction: The search terms used were "acupuncture" and "respiratory disease", along with "respiratory", "asthma", "COPD", "bronchitis" and "common cold".

Result: We retrieved 38 papers on acupuncture treatment for respiratory disease written in Japanese (9 full papers, 22 case reports and 7 case series). The papers dealt with such conditions as asthma (14 trials), cough variant asthma (CVA; 3 trial), chronic cough (2 trials), chronic obstructive pulmonary disease (COPD; 7 trials), chronic bronchitis (1 trial), diffuse pan bronchitis (DBP; 1 trials), usual/idiopathic interstitial pneumonia (UIP; 1 trial), and the common cold (2 trials). We also found 8 trials dealing with cold prevention. The effects of acupuncture treatment on respiratory

disease were reported in 33 papers.

Conclusions: A small number of reports on acupuncture and moxibustion treatment for respiratory disease were found in the Japanese databases. Some reported that acupuncture treatment was conducted for refractory respiratory disease, such as COPD, for which modern medicine has, to date, found no remedy. However, we found only inadequate evidence for its effectiveness. Future studies must use more rigorous evaluation methods, such as RCT, to measure the effectiveness of acupuncture and moxibustion therapy for treating respiratory diseases.

Key words: respiratory disease, acupuncture, moxibustion, asthma, COPD.

Introduction

Acupuncture, a non-invasive therapy based on traditional Chinese Medicine (TCM), may be a valuable modality in managing symptoms (1). Moreover, the World Health Organization has recognised that acupuncture may be effective in treating chronic pulmonary disorders (2), and it is widely used in Japan for the treatment of chronic disease. The theory behind the use of acupuncture is to restore the balance of "vital flows" by inserting needles at particular points on the body surface where the "meridians" of these flows lie. The specific points can also be stimulated with pressure or laser application (3).

In many patients, particularly those with advanced pulmonary disease, symptomatic measures are required in addition to other therapies, and may even be the mainstay of treatment (4).

Acupuncture is one of the most popular alternative therapies. Needle acupuncture has been used to treat various complaints for hundreds of years in Japan and has been reported to be of therapeutic benefit in controlling pain. However, in Japan, reports on respiratory disease patients who have received acupuncture and moxibustion therapy are rare and clinical trials intended to assess the effectiveness of the therapy for

respiratory disease are even rarer. Moreover, most of the papers on acupuncture published in Japan are written in Japanese and cannot be retrieved using major English-language medical databases. Thus, the purpose of this review was to evaluate and introduce the current status of clinical trials conducted in Japan on acupuncture in treating respiratory disease.

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Methods

Accessing the literature

A computer-assisted search was used to examine the Igaku Chuo Zasshi (Japana Centra Revuo Medicina) and Medical Online Library (Meteointergate, Inc.) databases. The period covered was from January 1983 to December 2008. We also investigated the references that were cited in each retrieved document and selected relevant papers. The keywords used in the database searches were "respiratory disease", "acupuncture", "asthma", "chronic obstructive pulmonary disease", "bronchitis", "common cold", "pulmonary disease" and "clinical trial". The search was limited to original papers and case reports.

Study selection criteria

Clinical trials (case reports, parallel- or crossover-designed trials and controlled clinical trials (CCTs)) that assessed the efficacy of needle acupuncture were included. Experimental studies, animal studies and duplications of published papers were excluded.

Data extraction

For each study, the following items were reviewed: trial design, randomization, blinding, handling of dropouts, publication year, health condition examined, treatment and control procedures, number of participants, main result, number of treatments, type of control used, main outcome measure, descriptions of informed consent, affiliations of authors and publication types.

Results

We found a total of 38 Japanese papers on acupuncture that was applied to respiratory disease (22 case reports, 7 case series and 9 full papers).

(1) Case reports and case series

1. Diagnosis

A list of 29 case reports and case series is shown in Table 1. The conditions examined in these types of papers were asthma (13 trials) (5–17), cough variant asthma (CVA) (2 trials) (18-19), chronic cough (2 trials) (20,21), COPD (5 trials) (22–26), chronic bronchitis (1 trial) (27), diffuse pan bronchitis (1 trial) (28), UIP (1 trial) (29) and the common cold (2 trials) (30,31). We also found studies dealing with cold prevention (2 trials) (32,33).

2. Intervention

Twenty-one of 29 case reports used TCM as the standard method of acupuncture treatment. Of the rest, some applied special acupuncture treatments, such as electric acupuncture treatment (7,14), roller acupuncture (30), skin implant needles (15), *Doushi* (17) and *ryoudouraku* (8).

3. Duration of treatment

The duration of treatment observation for respective research was over 1 month for 13 reports, but only 1 day in 4 reports (13,15,17,21). The rest did not report the period of treatment observation (5,8,9,16,20,31,33).

4. Outcome measures

The main outcome was not measured by commonly validated methods in 16 papers. These papers measured their outcomes by conducting unstructured individual interviews of the patients. The rest carried out reliable examinations, such as testing improvement in respiratory function, keeping asthma diaries or measuring exercise tolerance (6,7,12,14,18,19,22-26,28).

5. Results

All trials but one indicated positive results (24), although unusual techniques of acupuncture were used in some case reports. In one study, the common cold was treated with roller acupuncture (30). In another study, the Acupoint (*suitotsu*; ST10) was

applied to the frontal cervix to treat bronchial asthma (Japanese: Doushi) (17).

(2) Full papers: Controlled clinical trials

1. Diagnosis

We found a total of nine papers regarding CCTs on acupuncture in treating respiratory disease and in cold prevention. One of the first CCT papers on acupuncture was published in 1996 (34). A list of these CCTs is shown in Table 2. The conditions examined in these CCTs were asthma (1 trial) (35) and COPD (2 trials) (36,37). We also found 6 trials on cold prevention (34,38-42).

2. Study design

Of them, three were regarded as genuine RCTs (38-40). No subjects were blinded. Dropouts or withdrawals from the studies were indicated in three trials (35,38,39).

3. Intervention

The method of acupuncture used was TCM (3 trials) (35-37), specific acupoint needles (4 trials) (34,39,40,42) and moxibustion (2 trials) (38,401).

4. Control

Regarding controls, no trial used sham or placebo procedures, six trials employed drugs or vaccine injections (34,37,41,42) and three trials employed no treatment (38-40) (Table 2).

5. Duration and frequency of treatments

The duration of all trials was over 1 month. The mean frequency of treatments was 16.8 times (range 8–32).

6. Outcome measures

Of six papers that intended to measure the effects of acupuncture and moxibustion therapy on cold prevention, two required research participants to maintain diaries to record changes in cold symptoms and three conducted blood tests that revealed relationships between particular biomarkers (CD4, CD8 and CD53) and patients' cold symptoms. However, one paper measured the effects based solely on self-reports by participating patients.

Two papers measured the effects of acupuncture and moxibustion therapy for COPD using validated

tests, such as respiratory function inspection and exercise tolerance. Similarly, one measuring the effects on bronchial asthma used validated measurements, such as requiring patients to keep asthma diaries and conducting respiratory function inspections.

7. Results

The results were positive in five trials (55.6%) (35-37,39,40). In these trials, it was suggested that acupuncture treatment for COPD (36,37) and asthma (35) was very effective. TCM acupuncture was used in all these positive trials for COPD and asthma.

Discussion

<Design>

We examined the methodological quality, acupuncture treatment characteristics and respiratory outcome of nine CCTs on acupuncture for respiratory disease in Japan. For most, the research methods used were inadequate or inappropriate (i.e., not randomized, controlled and/or blinded, and without any quantitative measurement). Furthermore, even the CCTs that a third person had assessed them, and thus the validity of their results cannot be guaranteed to be high.

<Duration and frequency of treatment>

Most case reports and case series dealt with chronic disease, such as bronchial asthma, COPD and UIP. Chronic diseases require relatively long periods of acupuncture treatment and monitoring. However, several these case reports and case series conducted treatment and monitoring for only short periods of time. Thus, we cannot know the long-term effects, beyond the periods covered by the respective studies. The validity of acupuncture treatment in these studies must be gauged in this light. Nevertheless, a few studies have carried out relatively long periods of acupuncture treatment and monitoring. These studies are of great importance in assessing the realistic effects of acupuncture treatment on these chronic diseases.

<Results>

Because only 3 complete RCTs were found out of 38 papers, we cannot strongly argue that acupuncture was effective in treating respiratory disease. As Martin *et al.* argued, the effect of a treatment can be systematically assessed only by improving study quality (43). In this review, the result was positive in 28 papers (case reports and case series). However, in 15 of these 28 papers, the assessment was based solely on patients' complaints, indicating that these results are weak in terms of validity and reliability. This result suggests the publication bias was present, in the sense that only positive outcomes tended to be published.

Our review clarified that weaker study designs may bias study results and overestimate positive effects of the treatment consistent with the findings of Martin *et al.* (43). Despite the weaknesses observed, some studies demonstrated the potential of acupuncture in the sense that it may be effective in treating certain diseases, such as COPD and UIP, which are currently incurable by modern medicine. Likewise, some papers suggested a possibility of using acupuncture in health promotion, such as cold prevention. These cold prevention studies, along with the RCT study of 326 subjects reported by Kawakita *et al.* (44) showing significant improvements in preventing colds in the treatment group, are seminal in that they examined the possibility of applying acupuncture and moxibustion therapy as preventive medicine.

<Comparison between situations in Japan and overseas>

The Japanese CCTs that measured the effects of acupuncture in treating respiratory diseases lag far behind in quality compared to those conducted in the West. Whilst studies in the West began to apply RCTs in the 1980s (45), the Japanese counterparts did not do so until 2000 (40).

The overall scarcity of reports on acupuncture and moxibustion therapies for respiratory disease in Japan is probably due to the medical insurance system. The system enables practically every

Japanese citizen to seek mainstream modern (Western) medicine treatments offered by medical institutions at relatively low cost. Because most CAM treatments are not covered by insurance, it is unlikely that Japanese patients with respiratory disease would choose acupuncture or moxibustion therapy as their first choice of treatment. In some Western countries, however, acupuncture treatments for respiratory diseases have been reported to be more effective and less costly than treatments by modern medicine (46-48).

It is, of course, true that acupuncture has been practiced much more widely in Japan than in the West. Of 2,000 respondents, 6.5% had received acupuncture treatment in Japan (49), whilst the number was only 2% in Australia (50) and 1% in the United States (51). However, acupuncture treatment has been used primarily for relieving pains, such as back pains and stiff shoulders in Japan, whilst in Britain and the former Czechoslovakia, the treatment has been used more for bronchial asthma, allergy or mental disorders, than for pain relief (52,53). Particularly interesting is that whilst 3.1% of respondents had received acupuncture treatment for respiratory diseases in the United States, none had done so in Japan.

Another difference is that in Euro-American countries, doctors practice acupuncture treatment at hospitals, whilst in Japan doing so is illegal. That is, when patients seek acupuncture treatment for respiratory diseases in the West, they actually have easier access than their Japanese counterparts who must seek treatment from acupuncturists who largely do not work at hospitals, but at CAM clinics. Moreover, as stated previously, most CAM treatments in Japan are not covered by the universal health insurance, which does cover most modern medicine, making it relatively harder for Japanese patients to seek acupuncture treatment.

Japanese acupuncture has developed some culturally unique methods whilst being practiced for hundreds of years. Some papers reviewed here dealt with such unique methods as roller acupuncture

(*Roller-shin* in Japanese). For roller acupuncture treatment, practitioners apply a roller with a warty surface across a patient's skin, which stimulates cutaneous vessels and results in their dilation. Because no needle penetrates the skin, roller acupuncture is considered to be easier to practice than the orthodox method. Yamashita reported that roller acupuncture was a safe and effective method for cold prevention (30).

〈Conclusion〉

In conclusion, future trials should have larger sample sizes, more rigorous methods and reflect principles and practices of acupuncture as applied in practice today. Furthermore, to complete systematic reviews on acupuncture, we encourage researchers in Japan and elsewhere to publish relevant results of RCTs in English, so that they will be listed in major English-language databases. We believe that conducting English reviews of Japanese papers on RCTs in a collaborative effort amongst researchers from different countries would promote a more thorough scientific evaluation of acupuncture treatments.

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Table 1 Summary of case reports on acupuncture and moxibustion in the Japanese literature.

COPD, chronic obstructive pulmonary disease; CVA, cough variant asthma; DBP, diffuse pan bronchitis; UIP, usual interstitial pneumonia; +, positive; -, negative.

Author	years	Diagnosis	n	Study design	Intervention	Duration	No. of treatment	Outcome Measures	Result	References No.
Suzuki M	2007	DPB	1	Case report	acupuncture (TCM)	50 weeks	50 times	symptom, Respiratory function, blood test	+	28
Tokuchi J	2006	Chronic cough	2	Case report	acupuncture (TCM)	unenrolled	unenrolled	symptom	+	20
Egawa M	2006	CVA	1	Case report	acupuncture (TCM)	12 weeks	12 times	categorical scale	+	18
Murai K	2006	Chronic cough	4	Case series	medication add on acupuncture(TCM)	1 to 20 days	1 to 40 times	symptom	+	21
Yamashita Y	2006	Common cold	1	Case report	Roller acupuncture	104 weeks	160 times	symptom	+	30
Suzuki M	2005	COPD	1	Case report	acupuncture (TCM)	10 weeks	10 times	exercise tolerance test, Respiratory function, attack	+	22
Suzuki M	2005	COPD	1	Case report	acupuncture (TCM)	10 weeks	10 times	exercise tolerance test, Respiratory function	+	23
Tsuru K	2005	COPD	1	Case report	acupuncture (TCM)	20 weeks	33 times	exercise tolerance test, Respiratory function	-	24
Katayama Y	2004	COPD	1	Case report	acupuncture (TCM)	7 weeks	33 times	nutrition, symptom	+	25
Uematsu Y	2004	CVA	1	Case report	acupuncture (TCM)	9 weeks	10 times	Asthma diary, PEFR	+	19
Oyagi T	2004	Asthma	1	Case report	acupuncture (TCM)	no description	no description	symptom	+	5
Uematsu Y	2003	UIP	1	Case report	acupuncture (TCM)	50 weeks	50 times	exercise tolerance, Respiratory function, symptom	+	29
Egawa M	2003	Asthma	1	Case report	acupuncture (TCM)	72 weeks	60 times	attack diary, PEFR	+	6
Nakano T	2002	Asthma	10	Case series	Electroacupuncture, acupuncture	10 weeks	10 times	attack diary, Medicine	+	7
Tokuchi J	2000	Cold prevention	1	Case report	acupuncture (TCM)	4 weeks	8 times	symptom	+	31
Suzuki M	2000	COPD	1	Case report	acupuncture (TCM)	61 weeks	60 times	attack diary, PEFR, symptom	+	26
Gotou K	2000	Asthma	17	Case series	acupuncture (ryoudouraku)	no description	13 times	ryoudouraku, symptom	+(availability: 9, nvariability:7)	8
Tanioka K	1998	Cold prevention	2	Case report	child acupuncture	no description	no description	symptom	+	33
Matsuzawa M	1995	Asthma	30	Case series	acupuncture, Kampo (TCM)	no description	no description	scanning Classification effective: 90%	+	9
Yu S	1995	Asthma	2	Case report	acupuncture (TCM)	12 weeks	26 times	symptom	+	10
Hashimoto K	1994	Asthma	1	Case report	acupuncture (TCM)	28 weeks	47 times	symptom	+	11
Rin S	1993	chronic bronchitis	1	Case report	acupuncture, Kanpo (TCM)	8 weeks	8 times	symptom	+	27
Seki Y	1992	Common cold	3	Case report	acupuncture (TCM)	no description	no description	symptom	+	32
Shinohara M	1990	Asthma	1	Case report	acupuncture (TCM)	84 weeks	30 times	Category scale, Emergency outpatient, medication, ABG	Category scale(+), Emergency outpatient(+), medication(+), ABG(-)	12
Hayasaki Y	1989	Asthma	3	Case report	acupuncture (TCM)	1 day	Once	symptom	+	13
Tsukada Y	1987	Asthma	12	Case series	Electroacupuncture, acupuncture	56 weeks	28 times	symptom, PEFR, blood test	symptom(+), PEFR(10% improvement), blood test (-)	14
Fu Y	1987	Asthma	21	Case series	acupuncture (implant a needle)	1 day	Once	symptom	+(Effective: 90%)	15
Sugiura R	1982	Asthma	1	Case report	acupuncture (TCM)	no description	no description	symptom	+	16
Takishima T	1979	Asthma	10	Case series	acupuncture (Japanese: Doushi)	1 day	Once	symptom	+	17

Table 2 Summary of controlled clinical trials on acupuncture and moxibustion in the Japanese literature. COPD, chronic obstructive pulmonary disease; RCT, randomized controlled trials;

No	Author	years	Diagnosis	Study design	n	Intervention	Control	Duration	No.of treatment	Outcome Measures	Result	References No.
1	Suzuki M	2006	Asthma	N-of-1	6	A: acupuncture	B: iv (drugs)	40 weeks	20 times	Asthma diary, Respiratory function	A>B	35
2	Egawa M	2005	COPD	N-of-1	1	A: acupuncture	B: iv (drugs)	64 weeks	32 times	exercise tolerance, Respiratory function	A>B	36
3	Takahashi N	2006	Cold prevention	RCT, N-of-1	2	A: moxibustion	B: i (waiting lists)	16 weeks	24 times	symptom	A=B	38
4	Suzuki M	2004	COPD	Parallel	37	A: acupuncture	B: iv (drugs)	10 weeks	10 times	exercise tolerance test, Respiratory function	A>B	37
5	Shichidou T	2001	Cold prevention	RCT	24	A: acupuncture	B: i (waiting lists)	4 weeks	9 times	symptom diary	A>B	39
6	Isobe Y	2000	Cold prevention	RCT	24	A: acupuncture	B: i (waiting lists)	4 weeks	8 times	symptom diary	A>B	40
7	Tanaka J	2000	Cold prevention	parallel	60	A: moxibustion	B: iv(wacchin + moxibustion), C: iv(wacchin)	4 weeks	16 times	symptom, CD4+, CD8+, CD53	A=B>C	41
8	Kaneko I	1998	Cold prevention	parallel	60	A: acupuncture	B: iv(wacchin + acupuncture), C: iv(wacchin)	4 weeks	16 times	symptom, CD4+, CD8+, CD53	A=B>C	42
9	Kobayashi Y	1996	Cold prevention	parallel	40	A: acupuncture	B: iv(wacchin + acupuncture), C: iv(wacchin)	48 weeks	16 times	virus serum antibody titer	A=B=C	34