

A manual acupuncture treatment attenuates common cold and its symptoms: a case series report from South Korea

Je-Sin Heo, Su-Young Yang, Sung-Ah Lim, Jong-Moo Lee, Ji-Young Kang, Seung-Ho Sun, Hyeong-Geug Kim, Weechang Kang, Jung-Hyo Cho

Je-Sin Heo, Su-Young Yang, Jong-Moo Lee, Department of Acupuncture Therapy, Association of Sang Su Medicine, Daejeon 301-805, South Korea

Sung-Ah Lim, Department of Beauty and Health Care, College of Sports and Health Public, Daejeon University, Daejeon 300-716, South Korea

Ji-Young Kang, Hyeong-Geug Kim, Jung-Hyo Cho, Department of Internal Immune Center, Daejeon Oriental Hospital of Daejeon University, Daejeon 301-724, South Korea

Seung-Ho Sun, Department of Internal Medicine, Sangji University Korean Medicine Hospital, Kangwon 220-955, South Korea

Weechang Kang, Department of Business Information Statistics, College of Business Administration, Daejeon University, Daejeon 300-716, South Korea

Supported by Educational Research in 2014 (the Project of Intramural Research Supporting Program, No. 201400950001) from Daejeon University; Study of Acupuncture Therapy in Traditional Korean Medicine (Theory of the Acupuncture Lecture in South Korea, No. 2014-001A)

Correspondence to: Prof. Jung-Hyo Cho, Department of Internal Immunology Center, Daejeon Oriental Hospital of Daejeon University, Daejeon 301-724, South Korea. choa-joa@dju.kr

Telephone: +82-42-229-6806

Accepted: April 13, 2015

cold who were treated with only manual acupuncture with fulfilling Jackson scales and satisfaction at the end of each treatment were collected *via* multi-centers of Oriental hospitals, Oriental medicine clinics and covalent hospital in South Korea. Totally 187 patients were divided into two groups, Group I (115 patients, within 36 h) and Group II (72 patients, onset time of cold over than 36 h). Finally 120 patients were observed until entire resolution of cold symptoms.

RESULTS: Group I showed significant decreases the median durations of completely recovery (3 days; 95% CI 3.0-4.0) as compared with Group II (6 days; 95% CI 4.0-7.0, $P < 0.001$). The manual acupuncture beneficially worked for reduction rate of common cold symptoms by 50% after initial treatment, decreased cold symptoms, and reduced cold duration.

CONCLUSION: Manual acupuncture beneficially affected common cold and its symptoms. Moreover it is more susceptibility on the early time of onset cold.

© 2016 JTCM. All rights reserved.

Key words: Common cold; Hand acupuncture; Traditional Chinese Medicine therapy; Case reports

INTRODUCTION

A common cold is mainly induced by numerous viral infections (rhino virus, picorna virus, corona virus, influenza virus, and adenovirus) to the upper respiratory tract.¹ Although the common cold is not a

Abstract

OBJECTIVE: To investigate beneficial effects of manual acupuncture on common cold periods and its symptoms depended on the difference onset time of common cold, within 36 h or over than that. To prove effects of manual acupuncture on common cold, a retrospective chart review was conducted.

METHODS: Chart data for patients with common

seriously medical issue, it can lead to social inconvenience such as absence from work or school during infections. Adults who were healthy people are approximately 2 to 4 times a year on average, it takes a common cold.² The common cold symptoms are various, subjective, and self-limited, however it spontaneously recovers after several days of infection. Therefore, most of medical doctors don't serve medicines to patients for curing common cold. Nevertheless it has been come to critically social issues due to its relatively high medical costs.^{2,3} Previous study well documented that the medical costs for the common cold in the US are estimated approximately 40 billion dollars per year.⁴ In spite of the above concerns, it can hardly treat this disease owing to diversities of cold virus infection as well as development of cold symptoms. Thus it is almost impossible to entirely treat to common cold and its symptoms.⁵

On the other hand, the ways for treating common cold are mainly focused on alleviation of symptoms or preventing from secondary infections, however these ways are very limited and confined.⁶ The typical treatments including antipyretic-analgesics, anti-virus drugs or anti-inflammatory drugs were partially used to treat cold symptoms; they are no conclusive ways for entire resolution of the common cold.⁶⁻⁸ Due to deficiency of effective ways to treat common cold, many people access to the Traditional Chinese Medicine. As a one of most popular Traditional Chinese Medicine, the acupuncture has been clinically used to treat diverse types of diseases including for caring various types of cancer and its related adverse effects or pain during treatments,⁹⁻¹¹ skeletal muscle pain,¹² digestive tract disorder,¹³ chronic fatigue, and depression or anxiety.¹⁴ In the case of treating common cold, however it is still lack of evidences to prove its efficacies.

In the present study, thus we aimed to investigate the beneficial effects of acupuncture alone treatment to the patients with common cold through case series study for reducing the illness duration, relieving symptoms, diminishing medical cost, and satisfying with the acupuncture treatment through the chart review.

MATERIALS AND METHODS

Subjects

We completed a retrospective study through chart review with total 187 cases of the common cold cases. Patients, who were suffered from the common cold, and visited to treat manual acupuncture to care of the common cold. This study was approved the Daejeon Oriental Hospital Institutional Review Board approved the protocol (authorization number: DJOMC-104). All patients were received manual acupuncture treatment from November 1st 2012 to March 15th

2013 in the South Korea. The data have been collected after patients agreed to written informed consents in 23 of multicenter Korean Oriental Medicine Clinics, 3 of Oriental Medicine Hospitals and one of convalescent hospital.

Inclusion and exclusion criteria

The patients, who were enrolled on the current study, were required to answer "yes" to either, "Do you think that you have a cold?" or "Do you think you are coming down with a cold?" Symptoms had to start within 36 h before enrollment. Using Jackson and colleagues' criteria, participants had to report at least 1 of nasal discharge, nasal obstruction, sneezing, or sore throat (the other 4 Jackson criteria symptoms are headache, malaise, chilliness, and cough).¹⁵ Subjects were needed a total Jackson score of 2 or higher, after summing the scores for each symptom on a scale of 0 (absent), 1 (mild), 2 (moderate), or 3 (severe). The prospective participants had to be 15 years or older; those aged 15 to 19 years required parental permission. Participants who were taken antibiotics, antivirals, nasal steroids, decongestants, antihistamines, combination cold formulas, echinacea, zinc, or vitamin C were excluded. Among the participants, who were with a history of allergic rhinitis (sneezing or itching of the nose or eyes) as well as current cough, wheezing, or shortness of breath (to avoid confounding from allergy or asthma symptoms were excluded from the present study. Patients who were self-reported having autoimmune or immune deficiency disease or being pregnant were also excluded. Moreover, patients with thrombocytopenia (less than 50 000), asthma, chronic obstructive pulmonary disease (COPD), and high body temperature of more than 38 °C were excluded from the present study. Of the above inclusion criteria conditions were met, total 187 of cases (55 for men and 132 for women, ages for 15.0 to 82.0; median age: 41.0 years) were selected in the present study (Figure 1).

Manual acupuncture

Disposable stainless steel needles (0.2 mm × 30 mm; Dong-Bang Acupuncture Instruments Co., Ltd., Daejeon, South Korea) are used. The needles are inserted into the sub cutis of the acupuncture points vertically using the tube-guide method. The inserted needles are manually manipulated until the patient feels numbness or other acupuncture sensation (known as 'De Qi'), and the needles will be retained in the points for 20 min once a day.

Following this tradition acupuncture therapy, various acupoints were selected randomly by the Oriental Medicine doctor's diagnosis. The points were summarized as follows; Kongzui (LU 6), Lieque (LU 7), Pianli (LI 6), Wenliu (LI 7), Fenglong (ST 40), Chongyang (ST 42), Dadu (SP 2), Dijie (SP 8), Tongli (HT 5), Shenmen (HT 7), Yanglao (SI 6), Feiyang (BL 58), Jinmen (BL 63), Taixi (KI 3), Dazhong (KI 4),

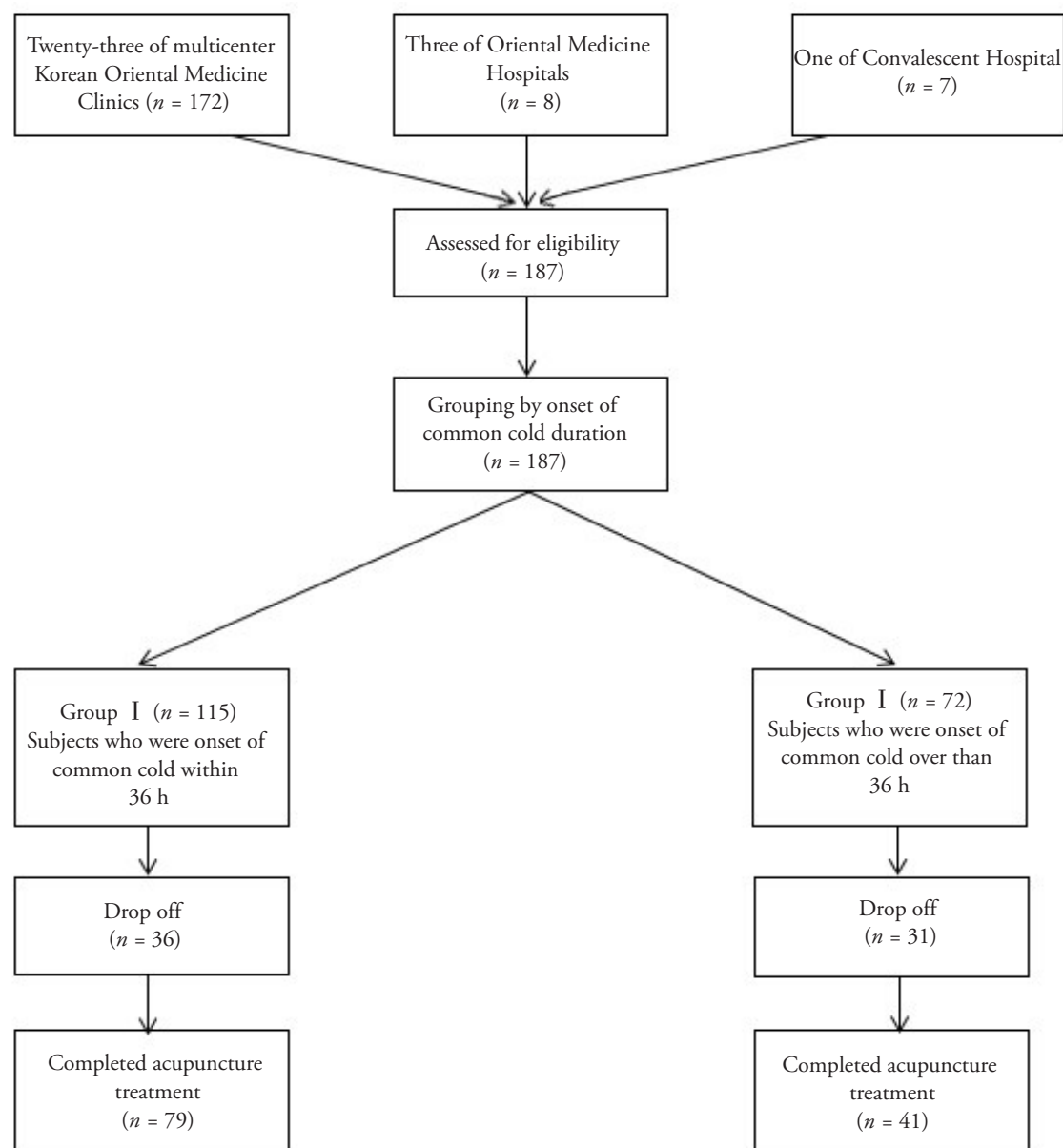


Figure 1 Flow diagram of subject progress through the phases of serial case report

Neiguan (PC 6), Daling (PC 7), Waiguan (TE 5), Huizong (TE 7), Guangming (GB 37), and Taichong (LR 3).

Data collections and measurement of outcomes

Through the information on the chart at the first visit, the study inclusion and exclusion criteria were reviewed; informed consent was obtained; a brief medical history was collected; and medical examinations, including patient's height, weight, blood pressure, temperature, pulse, respiration. Participants were asked to complete the Jackson scale daily from the first day until the total Jackson score is less than 1.¹⁵⁻¹⁷

The primary outcome variable was the duration of illness, which was determined by the period that the total score of Jackson score is less than 1.^{17,18} All item of Jackson scale were answered in 4 point Likert type severity scales, where a higher score meant higher severity.

The secondary outcome variable was the change of subjective symptoms after first treated with acupuncture and satisfaction of patients at the end of treatment. The levels of satisfaction were classified into five contents: very dissatisfied, dissatisfied, unsure, satisfied, very satisfied. Obviously we wanted to verify the effectiveness of acupuncture treatments, the patients were divided into two groups. The patients with common cold who visited within 36 h onset of common cold was Group I (total 115 people, 33 for men and 82 for women, ages for 15.0 to 82.0 years; median age for 43.0 years), on the other hand the Group II (total 72 people, 22 for men and 50 for women, ages for 17.0 to 77.0 years; median age for 42.0 years) is composed of the patients who visited after 36 h or more than that time onset of the common cold.

Statistical analysis

The value of continuous data was represented as mean

\pm standard deviation ($\bar{x} \pm s$). In comparison of the two groups during the initial screening, Pearson's χ^2 test was performed for categorical variables, and the independent t -test was carried out for continuous variables. The time to cold resolution was calculated as the number of days from study entry and summarized as median using inter quartile range (IQR) for each treatment group. Resolution rates were estimated using the Kaplan-Meier method, and resolution profiles were compared between groups using the log-rank test. The changes of the efficiency variables between two groups on the changes were carried out with the analysis of covariance adjusting the corresponding baseline values. All statistical analyses were performed with SAS 9.2[®] (SAS Institute Inc., Cary, NC, USA) for windows and $P < 0.05$ was considered statistically significant.

RESULTS

Effects on cold period

Totally 187 of subjects were registered and divided into two groups as Group I ($n = 115$, 33 males, 82 females; who were onset common cold within 36 h) and Group II ($n = 72$, 22 males, 50 females; who were onset common cold over than 36 h). There were no significant differences between the groups by age and sex. The initial scores of common cold incidences regarding the Jackson scores of the Group I was 7 ± 4 , and the Group II was for 7 ± 3 , respectively.

As shown in Figure 2, it appears the Kaplan-Meier survival functions to the subjects who replied 'no symptoms to common cold' on questionnaire surveys. Half of subjects were completely recovered from common cold symptoms after approximate 3 days of manual acupuncture treatment in Group I (95% CI values for 3.0-4.0 days). In Group II, the durations for completely recover was about 6 days after manual

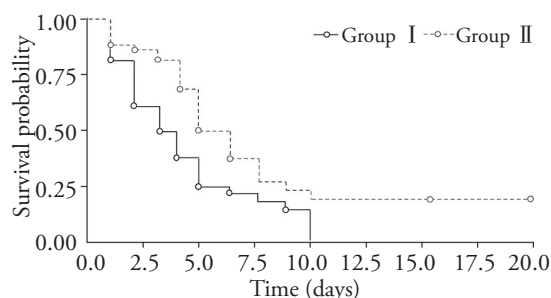


Figure 2 Survival curves in Kaplan-Meier survival analysis. The subjects who entered 'yes' in the after each treatment and dropped out of the present study were deleted from the survivals. All of subjects were treated to the acupuncture which was depended on the each symptom of common cold. Among the all of subjects who were replied to 'no symptoms to common cold' on questionnaire surveys were collected. Total acupuncture treatments were performed 5 or less than 5 times. Group I: solid line (blue color), onset of cold within 36 h. Group II: dotted line (red color). A vertical solid bar indicates the period of intervention.

acupuncture treatments (95% CI values for 4.0-7.0 days). It also demonstrated that the duration of disappearance of total Jackson score was delayed for about 3 days in the Group II as compared with the Group I and the duration of cold in the Group II was significantly assumed as higher approximately 1.9-fold than Group II (95% CI values; 1.3-2.9 folds).

Satisfaction of acupuncture treatment

A total of 182 patients had responded to the satisfaction survey after completion of acupuncture treatment. To verify the satisfaction of the acupuncture treatment we assessed the rates of satisfaction through questionnaire survey by subjective opinions. The subjects in Group I were more satisfied with the manual acupuncture treatment as compare with Group II (the satisfaction rate was 87.5 for Group I vs 75.7 for Group II, $P < 0.01$, Table 1).

Incidence of adverse events and rates of drop off

Among the 187 of participants, 67 of participants dropped out (Group I for 36 and Group II for 31). The main reasons of these incompleteness in the present study caused by 'dissatisfaction ($n = 13$)', 'non-improvement ($n = 8$)' and 'complication with other diseases (acute otitis media and tonsillitis, $n = 3$)'. The other reasons of the halt were 'pain and threaten ($n = 3$)', 'costly medical fee ($n = 3$)' and people were stopped with 'no reasons or troublesome for revisiting' were for 37 (Table 2). However, there were no severe adverse effects in present study.

DISCUSSION

In the present study, we wondered whether the manual acupuncture treatment will be beneficially and properly affected to the common cold and symptoms. Thus, we focused on perspectives regarding both degree of benefit such as reduction of cold period and severity of illness in common cold. This study was performed by 23 of multicenter of Korean Oriental Medicine Clinics, 3 of Oriental Medicine Hospitals and one of convalescent hospital. We selected the medical chart of total 187 participants who were patients with common cold, and then we intentionally divided into two groups as regarding the onset time of common cold within and over than 36 h.²⁰ Because the present study was not a clinical trial, we intentionally divided into two groups to verify the effectiveness of acupuncture treatments which was designated as single-arm study *via* case reports in multi centers. As seen no significant differences of basement for body characters such as age and sex between the both groups. The initial scores of common cold incidences were m as high values (Group I was 7 ± 4 , and the Group II was for 7 ± 3 , respectively).

Table 1 Satisfaction for completed manual acupuncture treatment

Group		Grade of satisfaction					SUM
		Very dissatisfied	Dissatisfied	Unsure	Satisfied	Very satisfied	
Group I	Absolute (n)	0	5	9	62	36	112
	Relative (%)	0	5	8	55	32	100
Group II	Absolute (n)	0	7	10	43	10	70
	Relative (%)	0	10	14	62	14	100
SUM	Absolute (n)	0	12	19	105	46	182
	Relative (%)	0	7	10	58	25	100

Notes: all of subjects were divided into two groups by durations of common cold. Group I is consisted of patients with common cold who visited within 36 h onset of common cold, and Group II is composed of patients who were over than on set of common cold over than 36 h. After complement of acupuncture therapy, all of the subjects answered the satisfaction of acupuncture treatment through questionnaire survey by subjective opinions.

Table 2 Reasons of dropped out from the present study (n)

Contents of reasons	Group I	Group II
Non-improvement	2	6
Dissatisfaction	3	10
Complication with other diseases	-	3
Pain or threaten	-	3
Costly medical fee	2	1
Busy	3	-
No reasons or troublesome for re visiting	26	8
Total	36	31

Notes: all of subjects were divided into two groups by durations of common cold. Group I is consisted of patients with common cold who visited within 36 h onset of common cold, and Group II is composed of patients who were over than on set of common cold over than 36 h. A total 67 of participants dropped out (Group I for 36 and Group II for 31) from the current study.

As our expectation, the manual acupuncture treatment remarkably reduced cold period approximately 3 days in the Group I. The previous studies showed that the validity of cold treatments would be required the shortening the duration of illness at least 26 h or more severity of cold symptoms will be reduced by average 25% to 57%.^{1,21,22} The cold period is commonly lasted for at least 7 days, but our result showed manual acupuncture treatment might be efficiently worked on the reducing the cold period.⁸ At the point of view, especially onset time of common cold, the acupuncture treatment was more efficiently and significantly affected on the Group I as compared with Group II. The results might be implied that manual acupuncture is more susceptibility on the early time of onset common cold.

It is difficult to prove the beneficial effects of manual acupuncture treatment for relieving cold treatments periods. Furthermore, due to lack of the therapeutic treatments or agents for completed caring common cold, it is critical issue to reduce the subject symptoms

of common cold which were depended on the patients.⁸ Thus we investigated that the possibility of acupuncture improving cold related symptoms via questionnaire survey. In the current study, the cold related symptoms were drastically perished by manual acupuncture treatment in both Group I and Group II approximately 50% after initial acupuncture treatment (data not shown). Especially in the common cold therapies, the subjective satisfactions of each patient are most critical factor.^{21,22} Thus, we further assessed the satisfaction with acupuncture treatment. After completion of the manual acupuncture treatment, approximately 83% of subjects were responded satisfaction of manual acupuncture treatment.

We gathered the chart data for 187 patients, however among them only 120 patients were completely finished. The reasons for the drop out were 'no reasons' or 'dissatisfaction with acupuncture' was mostly; however there were no subjects who suffered with the adverse effects or worsened cold symptoms caused acupuncture treatment.

Some of previous studies already showed that the acupuncture treatment beneficially affected common cold and its symptoms.^{23,24} Those studies were taken a huge size of clinical trials and they collected the symptoms related reports via subjective opinions by participants, and estimated the treatment period for completed recover from the symptoms. As view of the relieving symptoms of common cold, the regression of period for the survival curves in Kaplan-Meier survival analysis (which meant less than score '1' of Jackson score) was taken for 2 weeks. The above studies well correspond and support the results of current study.

In the present study was performed by chart review study with small size of subjects in South Korea, therefore it will be appeared methodological limitations as follows: (a) the results are out of place as for being generalized because the sample size is too small, and results might apply only to South Korea; (b)

patients with cold in current study represent a heterogeneous group; (c) present study was performed with a small size of retrospective case series, thus making comparison with other studies will be remained difficult; (d) we didn't serve any of biological markers such as blood analysis data; (e) current study didn't explain the mechanisms of the acupuncture. Therefore, it will be need to consider those of limitations for next study. Despite to the lack of the above limitations, the values of the estimation for acupuncture as cold treatment cannot be discounted, since it has certain validity by itself.

Taken together, therefore, our findings suggest that manual acupuncture treatments efficiently and beneficially worked on the patients with common cold.

REFERENCES

- 1 **Eccles R**. Understanding the symptoms of the common cold and influenza. *Lancet Infect Dis* 2005; 5(11): 718-725.
- 2 **Shah CP**, Chipman ML, Pizzarello LD. The cost of upper respiratory tract infections in Canadian children. *J Otolaryngol* 1976; 5(6): 505-512.
- 3 **Zapka J**, Averill BW. Self care for colds: a cost-effective alternative to upper respiratory infection management. *Am J Public Health* 1979; 69(8): 814-816.
- 4 **Fendrick AM**, Monto AS, Nightengale B, Sarnes M. The economic burden of non-influenza-related viral respiratory tract infection in the United States. *Arch Intern Med* 2003; 163(4): 487-494.
- 5 **Arroll B**, Kenealy T. Antibiotics for the common cold and acute purulent rhinitis. *Cochrane Database Syst Rev* 2005; 6(3): CD000247.
- 6 **Heikkinen T**, Jarvinen A. The common cold. *Lancet* 2003; 361(9351): 51-59.
- 7 **Simasek M**, Blandino DA. Treatment of the common cold. *Am Fam Physician* 2007; 75(4): 515-520.
- 8 **Barrett B**, Endrizzi S, Andreoli P, Barlow S, Zhang Z. Clinical significance of common cold treatment: professionals' opinions. *WMJ* 2007; 106(8): 473-480.
- 9 **Silva JG**, Santana CG, Inocencio KR, Orsini M, Machado S, Bergmann A. Electrocardiogram analysis of patients with intercostobrachial pain treated with TENS after breast cancer surgery. *J Phys Ther Sci* 2014; 26(3): 349-353.
- 10 **Tas D**, Uncu D, Sendur MA, Koca N, Zengin N. Acupuncture as a complementary treatment for cancer patients receiving chemotherapy. *Asian Pac J Cancer Prev* 2014; 15(7): 3139-3144.
- 11 **Zeng K**, Dong HJ, Chen HY, Chen Z, Li B, Zhou QH. Wrist-ankle acupuncture for pain after transcatheter arterial chemoembolization in patients with liver cancer: a randomized controlled trial. *Am J Chin Med* 2014; 42(2): 289-302.
- 12 **Plaster R**, Vieira WB, Alencar FA, Nakano EY, Liebano RE. Immediate effects of electroacupuncture and manual acupuncture on pain, mobility and muscle strength in patients with knee osteoarthritis: a randomised controlled trial. *Acupunct Med* 2014; 32(3): 236-241.
- 13 **Sung JJ**. Acupuncture for gastrointestinal disorders: myth or magic. *Gut* 2002; 51(5): 617-619.
- 14 **Han JS**. Acupuncture and endorphins. *Neurosci Lett* 2004; 361(1-3): 258-261.
- 15 **Jackson GG**, Dowling HF, Spiesman IG, Boand AV. Transmission of the common cold to volunteers under controlled conditions. I. The common cold as a clinical entity. *AMA Arch Intern Med* 1958; 101(2): 267-278.
- 16 **Barrett B**, Brown R, Rakel D, et al. Placebo effects and the common cold: a randomized controlled trial. *Ann Fam Med* 2011; 9(4): 312-322.
- 17 **Jackson GG**, Dowling HF, Muldoon RL. Acute respiratory diseases of viral etiology. VII. Present concepts of the common cold. *Am J Public Health Nations Health* 1962; 52: 940-945.
- 18 **Prasad AS**, Beck FW, Bao B, Snell D, Fitzgerald JT. Duration and severity of symptoms and levels of plasma interleukin-1 receptor antagonist, soluble tumor necrosis factor receptor, and adhesion molecules in patients with common cold treated with zinc acetate. *J Infect Dis* 2008; 197(6): 795-802.
- 19 **Yakoot M**, Salem A. Efficacy and safety of a multih herbal formula with vitamin C and zinc (Immumax) in the management of the common cold. *Int J Gen* 2011; 4: 45-51.
- 20 **Barrett B**, Brown R, Rakel D, et al. Echinacea for treating the common cold: a randomized trial. *Ann Intern Med* 2010; 153(12): 769-777.
- 21 **Barrett B**, Brown R, Mundt M, et al. Using benefit harm tradeoffs to estimate sufficiently important difference: the case of the common cold. *Med Decis Making* 2005; 25(1): 47-55.
- 22 **Barrett B**, Harahan B, Brown D, Brown D, Zhang Z, Brown R. Sufficiently important difference for common cold: severity reduction. *Ann Fam Med* 2007; 5(3): 216-223.
- 23 **Kawakita K**, Shichidou T, Inoue E, et al. Do Japanese style acupuncture and moxibustion reduce symptoms of the common cold? *Evid Based Complement Alternat Med* 2008; 5(4): 481-489.
- 24 **Kawakita K**, Shichidou T, Inoue E, et al. Preventive and curative effects of acupuncture on the common cold: a multicentre randomized controlled trial in Japan. *Complement Ther Med* 2004; 12(4): 181-188.