Can Acupressure Reduce Symptom Severity and Drug Usage in Patients with Allergic Rhinitis?

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Abstract

Background Patients with allergic rhinitis are increasing worldwide. Though treatment guidelines have been provided, many patients remain with uncontrolled symptoms and search for add-on or alternative treatments.

Objective: To explore the effect of add-on acupressure on the nasal symptoms of allergic rhinitis.

Methods: We performed pre- and post-treatment study in patients with allergic rhinitis. The patients were instructed to apply pressure on five acupuncture points: 1 Yin tang, 2 Ying xiang, 2 He gu acupoints, as an add-on treatment. The acupressure was applied for ten seconds, followed by massaging for ten seconds. The procedure was repeated five times for each point. The nasal symptom scores, visual analog scale (VAS) scores, and peak nasal inspiratory flow (PNIF) were measured before acupressure and two weeks after acupressure. At the last visit, they were asked whether acupressure helped reduce their symptoms or drug usage.

Results: This study enrolled eight patients. The median age was 37.5 years (range: 19–74 years). Further, seven (87.5 %) patients presented moderately severe persistent symptoms. There was a significant improvement in the total nasal symptom scores (p-value = 0.012), VAS scores (p-value = 0.0018), and PNIF (p-value = 0.0287). At the end of the study, 75% and 25% of the patients reported that acupressure reduced their symptoms and drug usage, respectively.

Conclusion: Through both subjective and objective assessments, two-week add-on acupressure can reduce symptom severity in patients with allergic rhinitis.

Keywords: acupressure, complementary therapies, allergic rhinitis

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การกดจุดช่วยลดความรุนแรงของอาการและการใช้ยาในผู้ป่วยจมูกอักเสบภูมิแพ้ได้หรือไม่

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บทคัดย่อ

ที่มาของปัญหาการวิจัย ผู้ป่วยโรคจมูกอักเสบภูมิแพ้มีจำนวนเพิ่มขึ้นทั่วโลก แม้จะมีแนวทางการรักษา ผู้ป่วยส่วนหนึ่งยังคงไม่สามารถควบคุมอาการได้หรือต้องการการรักษาทางเลือกอื่น

วัตถุประสงค์

เพื่อศึกษาผลการกดจุดต่ออาการทางจมูก เมื่อเพิ่มการกดจุดในการรักษาจมูกอักเสบภูมิแพ้

วิธีการศึกษา

ศึกษาเปรียบเทียบก่อนและหลังการรักษา ในผู้ป่วยที่มีภาวะจมูกอักเสบภูมิแพ้ โดยผู้ป่วยจะได้รับการสอนกดจุด 5 ตำแหน่ง ได้แก่ จุดอิ้นถัง(1) จุดอิ๋งเซี้ยง(2) และจุดเหอกู่(2) โดยกดจุดละ 10 วินาที จากนั้นนวดคลึงอีก 10 วินาที ทำซ้ำจุดละ 5 รอบ เป็นการรักษาเพิ่มขึ้นจากการใช้ยาที่ได้รับ ประเมินผลโดยดูจากอาการทางจมูก (visual analogue score; VAS) และ อัตราการไหลของอากาศในช่วงหายใจเข้าสูงสุดทางจมูก เปรียบเทียบก่อนและหลังการกดจุด 2 สัปดาห์ และในครั้งสุดท้ายจะสอบถามว่าการกดจุดช่วยลดอาการและการใช้ยาหรือไม่

ผลการศึกษา

การศึกษานี้มีผู้เข้าร่วมวิจัยทั้งหมด 8 คน ค่ามัธยฐานอายุ 37.5 ปี (ตั้งแต่19-74 ปี) ผู้ป่วย 7 คน (87.5%) อยู่ในกลุ่มที่มีอาการปานกลางถึงรุนแรงเป็นต่อเนื่องหลังการกดจุด 2 สัปดาห์พบว่า คะแนนอาการทางจมูกโดยรวม (p=0.012) ความรุนแรงของอาการโดยรวม (p=0.012) ลดลงอย่างมีนัยสำคัญ และอัตราการไหลของอากาศในช่วงหายใจเข้าสูงสุดทางจมูก เพิ่มขึ้นอย่างมีนัยสำคัญ (p=0.039) เมื่อสิ้นสุดการศึกษาร้อยละ 75 ของผู้ป่วยตอบว่า การกดจุดสามารถลดอาการทางจมูกได้ และร้อยละ 25 ของผู้ป่วยตอบว่า การกดจุดสามารถช่วยลดการใช้ยาได้

สรุปผลการวิจัย

จากการประเมินด้วยตัวผู้ป่วยเอง และการจากตรวจ พบว่าการเพิ่มการกดจุดในการรักษา 2 สัปดาห์สามารถลดอาการทางจมูกของผู้ป่วยจมูกอักเสบภูมิแพ้

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INTRODUCTION

Allergic rhinitis is an IgE-mediated inflammatory condition characterized by nasal symptoms (itching, sneezing, rhinorrhea, obstruction) and symptoms in other organs, e.g. eyes. It affects the health and quality of life; moreover, it is resource-intensive. Treatment guidelines have been provided; however, many patients remain with uncontrolled symptoms and search for add-on or alternative treatments.[1-8]

Acupuncture, which is a traditional Chinese medicine technique, can be used to treat allergic rhinitis. Up to 80% of acupuncture points perforate the superficial body fascia, which has a rich neurovascular supply, and may serve as trigger points for balancing the body's energy.[9] The underlying complex mechanisms remain unclear; however, suggested mechanisms include cytokine modulation, anti-inflammatory effects, and neural pathway adjustment.[10] Affected mediators include IL-10, IL-2, and IFN-γ.[9] The acupuncture effect can be physiological and psychosomatic.[11] A systematic review and other studies have reported that acupuncture reduces the nasal symptom score, medical score, and serum IgE levels with no serious side effects.[11-15] The treatment effect has been observed in 2 weeks.[16] Acupuncture is recommended as an optional or alternative treatment for allergic rhinitis.[8, 12, 17]

Acupressure, which involves pressure application and massaging over an acupuncture point, is not well studied in both mechanisms and outcome of treatment. Heatley et al.[18] compared nasal irrigation with pressure application on fingers and toes in patients with chronic rhinosinusitis. They observed symptom improvement and reduction of medication usage in 65% and 30% of the patients, respectively. Takeuchi et al.[19] assessed the nasal massage of the Ying xiang acupoints in acute respiratory tract infection and observed a significant improvement in nasal symptoms within two minutes of treatment. However, there was a non-significant reduction in the nasal airway resistance compared with the control. There were various studied acupoints but the three most common used were Ying xiang, Yin tang, He gu.[11, 17, 19-21] Patients can self-administer acupressure without added direct expenses and adverse effects. This study aimed to explore the effect of add-on acupressure on nasal symptoms in patients with allergic rhinitis and whether it could reduce drug usage.

METHODS

This preliminary prospective pre- post treatment study included patients with allergic rhinitis at the outpatient otolaryngology clinic, Chiang Mai University Hospital, between March to December 2018. The inclusion criteria were as follows: age more than 18 years, skin prick test positive with aeroallergen[22], regularly used of antiallergic medications e. g. antihistamine, intranasal steroid for more than a month. The exclusion criteria were surgery of the nose and paranasal sinuses in 3 months, presence of signs and symptoms of sinusitis, usage of systemic corticosteroids, skin diseases over the area of acupoints, coagulopathy and asthma. Estimated sample size for a one-sample proportion test of 30% medication usage reduction were 18 patients.

Volunteers were requested to rate their nasal symptom scores of nasal obstructions, rhinorrhea, sneezing, itching, and postnasal drip ranging from 0 (no symptoms) to 3 (severe symptoms); moreover, the overall symptom score was determined using a 10-cm visual analog scale (VAS, 0–100 mm, 0=no symptoms 100=worst symptoms). The total nasal symptom score-4 (TNS-4) was obtained as the sum of the obstruction, rhinorrhea, sneezing, and itching scores. The peak nasal inspiratory flow (PNIF) was measured thrice using In-Check® with the maximum value being recorded.[23, 24] Subsequently, the patients were instructed and observed to apply strong pressure (until they felt numbness or pain) on five acupuncture points[11]: 1 Yin tang acupoint, 2 Ying xiang acupoints, and 2 He gu acupoints. Brochure and VDO clip linked to procedure were given to each patient. The acupressure was applied using the index finger(s) or thumb(s) for ten seconds, followed by massaging for ten seconds. Figure 1.

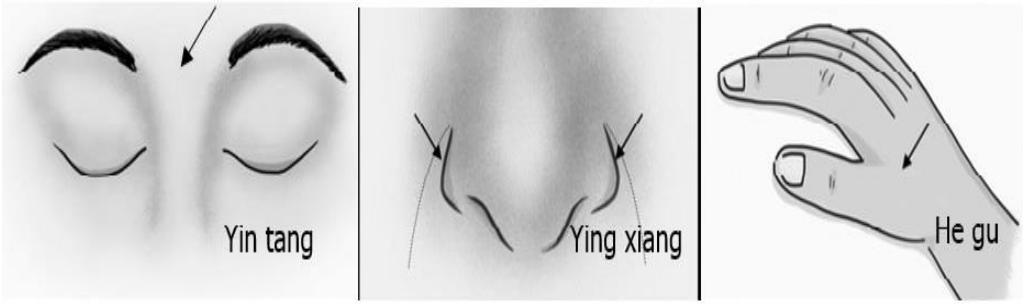


Figure 1. Acupressure points

The procedure was repeated five times for each point (twice a day for two weeks) with a twice-daily group notification from a mobile application. The nasal symptom scores, VAS, and PNIF were measured before acupressure and two weeks after acupressure during the outpatient department visit. Moreover, patients were asked to daily record their nasal symptoms score and medication usage. At the final visit, patients were asked whether acupressure helped reduce their symptoms or anti-allergic drug usage. This study was approved by the Research Ethics Committee of the Faculty of Medicine, Chiang Mai University. The study was registered in the Thai Clinical Trials Registry (TCTR20200617005). All statistical analyses were performed using STATA version 14.0 (Stata Corporation, Texas, USA). A paired t-test was used to compare VAS scores, while the Wilcoxon sign-rank test was used for other non-parametric data.

RESULTS

This study enrolled 8 patients with an equal sex proportion. The median age was 37.5 (range: 19–74 years). Seven (87.5 %) patients presented moderately severe persistent symptoms. All patients were skin-test positive for *Dermatophagoides farinae* and had at least two indoor allergen sensitivities (Table I). Medication usage and self-care were intranasal corticosteroids (INS), oral antihistamines, and nasal saline irrigation.

Table I. Patient Characteristics

Sex	
Men	4 (50%)
Women	4 (50%)
Age (Year)	
Median (range)	37.5 (19-74)
Underlying diseases	2 (25%)[1]

Duration of previous treatment (year)	
Median (range)	1.5 (0.2-5)
Allergen skin test positive	
D. farinae	8 (100%)
D. pteronyssinus	1 (12.5%)
Cockroach	6 (75%)
Bermuda grass	4 (50%)
Cotton	1 (12.5%)
Kapok	2 (25%)
Feather	1 (12.5%)
Allergic classification	
Mild persistent	1 (12.5%)
Moderate to severe persistent	7 (87.5%)

[1]1 dyslipidemia, 2 hypertension, dyslipidemia, coronary artery disease

The median total nasal symptom score was 4.5 (range: 2–8). The most common symptoms were nasal obstruction rhinorrhea and post-nasal drip (87.5%). Moreover, 37.5% and 25% of the patients presented sneezing and nasal itching, respectively. There were significant improvements in the total nasal symptom scores (p = 0.012), VAS scores (p = 0.0189), and PNIF (p = 0.0287) after 2 weeks of acupressure (Table 2, Figure 2). Regarding symptoms, rhinorrhea showed a significant reduction (p = 0.0285).

Assessment	Baseline	Post Acupressure	p-value[1]
Total nasal symptom score			
median (IQR)	4.5 (3, 5)	2 (2, 3)	0.0189
range	2-8	1-4	
Nasal obstruction	1.5 (1, 2)	0.5 (0, 1.5)	0.1441
Rhinorrhea	1 (1, 2)	0 (0, 0.5)	0.0285
Sneezing	0 (0, 1)	0 (0, 0.5)	0.6547
Itching	0 (0, 0.5)	0 (0, 0)	0.3173
Postnasal drip	1 (1, 1)	1 (0.5, 1)	0.1573
TNS-4			
median (IQR)	3.5 (2, 4)	1.5 (1, 2.5)	0.0209
TNS-4 change: median (IQR)		-2 (-3, 0)	
VAS			
mean ± SD	4.7 ± 2.1	3.5 ± 1.7	0.0018[2]
range	1.2-7.0	0.8-6.0	
PNIF (L/min)			
median (IQR)	72.5 (70, 105)	82.5 (75, 160)	0.0287
range	50 -200	50-250	
PNIF change: median (IQR)		10 (0, 25)	

Table 2. Subjective and objective assessment before acupuncture and two weeks after acupressure

IQR: interquartile range; TNS-4: total nasal symptom (obstruction, rhinorrhea, sneezing, itching); SD: standard deviation; CI: confidence interval; VAS: visual analog scale; PNIF: peak nasal inspiratory flow

[1] Wilcoxon sign-rank test,[2] paired t-test

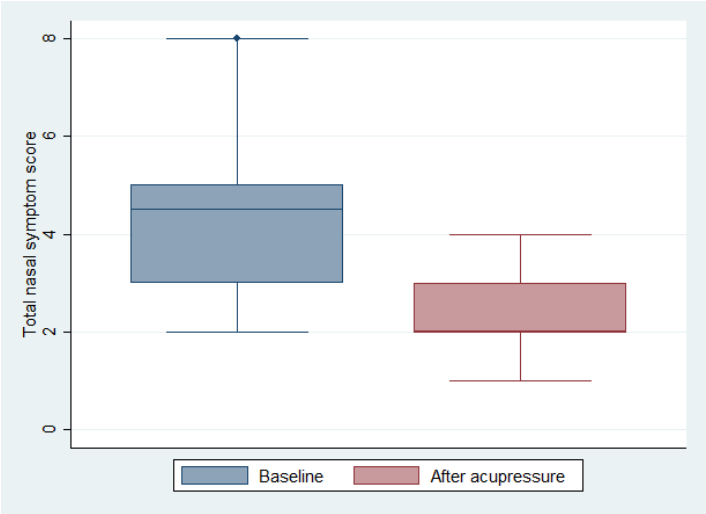


Figure 2: Total nasal symptom score at baseline and after 2-week acupressure

Seventy-five percent of the patients stated that the acupressure relieved their symptoms; among them, half were markedly relieved. Additionally, 25 % of the patients reported a reduction in drug usage (antihistamines and INS). All patients indicated that they would suggest acupressure to other patients with allergic rhinitis.

DISCUSSION

Acupressure is a complementary treatment modified from acupuncture in traditional Chinese medicine. Takeuchi et al.[19] conducted an open randomized controlled parallel study of the short-term effect of pressure application on the Ying xiang acupoint in patients with a common cold. They reported an improvement in both VAS scores and nasal airway resistance; however, the latter was not statistically significant. Using more acupoints, Albrecht et al.[11] studied the acupuncture effect on patients with nasal obstruction compared with sham acupuncture. Compared with sham acupuncture, acupuncture caused a significantly greater reduction in the VAS and nasal congestion scores at 10 and 20 minutes.

The present study found a significant reduction in the nasal symptom and VAS scores, as well as an increase in the PNIF. Regarding nasal symptoms, rhinorrhea showed a significant improvement. Based on the minimal clinically important difference, a TNS-4 change of -2 showed a significant clinical improvement (reference: 0.55) and PNIF of 10 (reference 6 L/min)[25]; however, there was no improvement in PNIF across all patients. This could be attributed to the different evaluation timing since previous studies evaluated the symptoms within 20 post-acupuncture minutes. Liang et al.[21] studied acupressure in a single blinded randomized controlled trial of fourteen patients. They used LI-4 Hegu, GV-23 Shangxing, BL-2 Zanzhu, LI-20 Yingxiang and GB-20 Fengchi as acupoints and found no significant difference in symptom severity scores, quality of life scores or medication usage. Our acupoints were Yin tang, Ying xiang and He gu as Albrecht et al.[11] suggested. Israel et al.[20] used 5 acupoints; LI-4 Hegu , LI-11, LI-20 Yingxiang, Gb-20 and Ex-HN 3 Yintang, in randomized controlled trial of patients with seasonal allergic rhinitis and found significant improvement in VAS score, Rhinitis Quality of Life Questionnaire scores and rescued medication usage in the acupressure group. Seventy-five percent of our patients experienced symptom relief, however, the majority of the patients could not reduce medication usage. This could be attributed to a true acupuncture effect, Hawthorne effect, or the effect of small sample size. This requires further research in a longer period of treatment, a larger number of patients and a suitable blinded randomized controlled study. In this exploratory study, we conducted a single-arm pre- and post-study to evaluate the add-on effect of concurrent medication. Both subjective and objective assessments revealed a positive effect. However, this study had a small sample size study. There is a need for larger randomized controlled trials to confirm the benefit of acupressure, as well as to elucidate the underlying mechanism.

CONCLUSIONS

Through subjective and objective assessments, our findings indicate that two weeks of add-on acupressure can reduce symptom severity in patients with allergic rhinitis.

Authors contribution

Pathra Chaiyanam: methodology, investigations, data collection, writing first draft
Nutthiya Hanprasertpong: methodology, investigations

Supanimit Teekachunhatean: conceptualization, methodology
Saisawat Chaiyasate: conceptualization, data analysis, writing manuscript
All authors reviewed and approved the submitted manuscript.

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Declaration of Competing Interests

None.

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References

1. Bousquet J, Khaltaev N, Cruz AA, et al. Allergic Rhinitis and its Impact on Asthma (ARIA) 2008 update (in collaboration with the World Health Organization, GA(2)LEN and AllerGen). Allergy 2008; 63 Suppl 86: 8-160.

2. Bousquet J, Schunemann HJ, Hellings PW, et al. MACVIA clinical decision algorithm in adolescents and adults with allergic rhinitis. J Allergy Clin Immunol 2016; 138: 367-74.

3. Bousquet J, Schunemann HJ, Samolinski B, et al. Allergic Rhinitis and its Impact on Asthma (ARIA): achievements in 10 years and future needs. J Allergy Clin Immunol 2012; 130: 1049-62.

4. Brozek JL, Bousquet J, Agache I, et al. Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines-2016 revision. J Allergy Clin Immunol 2017; 140: 950-8.

5. Brozek JL, Bousquet J, Baena-Cagnani CE, et al. Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines: 2010 revision. J Allergy Clin Immunol 2010; 126: 466-76.

6. Pawankar R, Bunnag C, Khaltaev N, et al. Allergic Rhinitis and Its Impact on Asthma in Asia Pacific and the ARIA Update 2008. World Allergy Organ J 2012; 5: S212-7.

7. Scadding GK, Durham SR, Mirakian R, et al. BSACI guidelines for the management of rhinosinusitis and nasal polyposis. Clin Exp Allergy 2008; 38: 260-75.

8. Seidman MD, Gurgel RK, Lin SY, et al. Clinical practice guideline: Allergic rhinitis. Otolaryngol Head Neck Surg 2015; 152: S1-43.

9. Hauswald B and Yarin YM. Acupuncture in allergic rhinitis: A Mini-Review. Allergo J Int 2014; 23: 115-9.

10. McDonald JL, Cripps AW and Smith PK. Mediators, Receptors, and Signalling Pathways in the Anti-Inflammatory and Antihyperalgesic Effects of Acupuncture. Evid Based Complement Alternat Med 2015; 2015: 975632.

11. Albrecht T, Wu S, Baumann I, et al. Measurable impact of acupuncture on mucosal swelling of inferior turbinates: a prospective, randomized, controlled study. Acta Otolaryngol 2015; 135: 169-76.

12. Acupuncture: Review and Analysis of Reports on Controlled Clinical Trial By World Health Organization 2002 ISBN: 9789241545433, 9241545437

13. Brinkhaus B, Ortiz M, Witt CM, et al. Acupuncture in patients with seasonal allergic rhinitis: a randomized trial. Ann Intern Med 2013; 158: 225-34.

14. Feng S, Han M, Fan Y, et al. Acupuncture for the treatment of allergic rhinitis: a systematic review and meta-analysis. Am J Rhinol Allergy 2015; 29: 57-62.

15. Xue CC, Zhang AL, Zhang CS, et al. Acupuncture for seasonal allergic rhinitis: a randomized controlled trial. Ann Allergy Asthma Immunol 2015; 115: 317-24.

16. Yin Z, Geng G, Xu G, et al. Acupuncture methods for allergic rhinitis: a systematic review and bayesian meta-analysis of randomized controlled trials. Chin Med 2020; 15: 109.

17. สมาคมแพทย์โรคจมูก. แนวทางเวชปฏิบัติสำหรับโรคจมูกอักเสบภูมิแพ้ในคนไทย (ฉบับปรับปรุง พ.ศ.2565). Thai Journal of Otolaryngology Head and Neck Surgery 2022; 23.

18. Heatley DG, McConnell KE, Kille TL, et al. Nasal irrigation for the alleviation of sinonasal symptoms. Otolaryngol Head Neck Surg 2001; 125: 44-8.

19. Takeuchi H, Jawad MS and Eccles R. The effects of nasal massage of the "yingxiang" acupuncture point on nasal airway resistance and sensation of nasal airflow in patients with nasal congestion associated with acute upper respiratory tract infection. Am J Rhinol 1999; 13: 77-9.

20. Israel L, Rotter G, Förster-Ruhrmann U, et al. Acupressure in patients with seasonal allergic rhinitis: a randomized controlled exploratory trial. Chin Med 2021; 16: 137.

21. Liang Y, Lenon GB, Li M, et al. Feasibility of self-administered acupressure for allergic

rhinitis: a pilot randomized controlled trial and lessons learnt for future studies. Acupunct Med 2022; 40: 142-51.

22. Ansotegui IJ, Melioli G, Canonica GW, et al. IgE allergy diagnostics and other relevant tests in allergy, a World Allergy Organization position paper. World Allergy Organ J 2020; 13: 100080.

23. Holmstrom M, Scadding GK, Lund VJ, et al. Assessment of nasal obstruction. A comparison between rhinomanometry and nasal inspiratory peak flow. Rhinology 1990; 28: 191-6.

24. Nathan RA, Eccles R, Howarth PH, et al. Objective monitoring of nasal patency and nasal physiology in rhinitis. J Allergy Clin Immunol 2005; 115: S442-59.

25. Barnes ML, Vaidyanathan S, Williamson PA, et al. The minimal clinically important difference in allergic rhinitis. Clin Exp Allergy 2010; 40: 242-50.