Evaluation of The Role of Acupuncture in Treatment of Allergic Rhinitis: Egyptian Trial

Original Article

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ABSTRACT

Aim: This study was designed to evaluate the role of acupuncture in treatment of allergic rhinitis.

Patients and Methods: Sixty patients with Allergic rhinitis were selected randomly from the ENT outpatient clinic of Benha University Hospital. Patients underwent an initial total nasal symptom score (TNSS). These patients were divided into three groups: Group A: treated with real acupuncture (20 patients). Group B: treated with sham acupuncture (20 patients). Group C: treated with conventional methods for treatment of allergic rhinitis (20 patients). Participants received real or sham acupuncture twice weekly for 4 weeks (number of sessions 8). Each session lasted 20-25 minutes.

Results: Out of 60 patients, 20 patients received real acupuncture. Also 20 patients received sham acupuncture. Another 20 patients received medical treatment. We have shown that there was no effect of the age, sex on the outcome of acupuncture treatment, but it is evident that the total nasal symptom score is an important factor in determination of the success rate gained by acupuncture. We have shown that acupuncture succeeded in treating allergic rhinitis patients. The success rate after real acupuncture was (75%) in comparison to sham acupuncture (30%) and medical treatment (85%). Finally there were no considerable side effects recorded during or after treatment with acupuncture.

Conclusion: Acupuncture seems to be effective method for treatment of allergic rhinitis without any considerable side effects.

Key Words: Acupuncture, allergic rhinitis, real, sham, TNSS.

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INTRODUCTION

Allergic rhinitis is a common condition among general populations in western countries, for example, the reported prevalence of allergic rhinitis in Australia includes 16% of the Australian population and in the United Kingdom about 10-15% and in the United States 20%. Allergic rhinitis has been reported to affect quality of life and results in significant direct and indirect health care cost according to Australian Bureau of Statistics, 2006.

The main symptoms are sneezing, rhinorrhea, nasal obstruction and itching. Recently, Allergic rhinitis is classified as intermittent or persistent. Persistent allergic rhinitis refers to nasal symptoms that are present for > 4 days per week and > 4 weeks per year. In addition, patients with allergic rhinitis may present with headaches, postnasal drip, decreased taste and smell, earache, impaired hearing and symptoms of sleep apnea. Also Allergic rhinitis is associated with a higher incidence of asthma. In spite of allergic rhinitis is not life-threatening, it affects quality of life and has substantial economic and social impact[1].

Acupuncture was used effectively for treatment of adult patients with allergic rhinitis. According to the world health organization (WHO) acupuncture is regarded as effective method for allergic rhinitis[2].

Acupuncture produces an anti-nociceptive (no pain) effect, also it has anti-inflammatory or immunomodulatory effects against chronic inflammatory conditions in humans. The anti-inflammatory action is thought to be mediated by neural immune reflexes, i.e., the cholinergic anti-inflammatory pathway of the central nervous system[3].

The risks of acupuncture are low if you have a competent, certified acupuncture practitioner using sterile needles. Common side effects include soreness and minor bleeding or bruising where the needles were inserted. Single use, disposable needles are now the practice standard, so the risk of infection is minimal. Not everyone is a good candidate for acupuncture. Patient may be at risk of complications if he has a bleeding disorder. So the chances of bleeding or bruising from the needles increase. Also if

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he has a pacemaker; Acupuncture that involves applying mild electrical pulses to the needles can interfere with a pacemaker's operation. Also some types of acupuncture are thought to stimulate labor, which could result in a premature delivery so it contraindicated in pregnancy.

The aim of the work is to evaluate the role of acupuncture in treatment of allergic rhinitis.

PATIENTS AND METHODS:

Sixty patients with Allergic rhinitis were selected randomly from the ENT outpatient clinic of Benha University Hospital. These patients were divided into three groups: Group A treated with real acupuncture (20 patients). Group B treated with sham acupuncture (20 patients). Group C treated with conventional methods for treatment of allergic rhinitis (20 patients).

In our studies we choose a selection inclusion criteria such as age between 16 and 70 years, total nasal symptom score >6, history of persistent allergic rhinitis (PAR) (nasal obstruction, rhinorrhoea, sneezing and nasal itch) more than one year. To decrease causes of failure of acupuncture, we exclude nasal polyposis, treatment with specific immunotherapy or previous acupuncture, current pregnancy, HIV, hepatitis B or C patients.

Patients underwent an initial total nasal symptom score (TNSS): four nasal symptoms (nasal obstruction, sneezing, rhinorrhoea and nasal itching) were assessed using Four - Point Scale (FPS) pre-treatment and post-treatment. The Total Nasal Symptom Score (TNSS) is the sum of scores for each of nasal congestion, sneezing, nasal itching, and rhinorrhea at each time point, using a four point scale (0–3), where 0 indicates no symptoms, a score of 1 for mild symptoms that are easily tolerated, 2 for awareness of symptoms which are bothersome but tolerable and 3 is reserved for severe symptoms that are hard to tolerate and interfere with daily activity. TNSS is calculated by adding the score for each of the symptoms to a total out of 12 (Table 1). Participants received real or sham acupunc¬ture twice weekly for 4 weeks (number of sessions 8). Each session lasted 20-25 minutes.

For Real Acupuncture, Acupuncture points include three key acupoints and one supplemen¬tary acupoint were used for each participant. The key acupoints were Yingxiang (LI 20), Yintang (Extra point), and Fengchi (GB 20). The supplementary acupoint was determined individually on the basis of Chinese medicine syndrome differentiation, being. Hegu (LI 4) Zusanli (ST36). So we used nine points for acupuncture (Table 2) and (Figure 1-5).

Stainless steel 0, 3 - 30mm disposable needle were used. The administration of real or sham acupuncture was performed according to the standard techniques as described in the literature. Needles were inserted to a depth of 10-15 mm transversely, obliquely, or perpendicularly, depending on the acupoint. Once needling sensation (known as de-qi) was obtained, the needles were manipulated using a rotating technique to either reduce or notify. Needle manipulation was repeated at 10 minute intervals and immediately before needle withdrawal. Needling was earned out with partici¬pants in the supine position. Needling sites were swabbed with 70% isopropyl alcohol before insertion. On needle withdrawal, dry sterilized cotton balls were firmly applied to insertion points (Table 3).

For sham acupuncture, the insertion sites were 1-1.5cm from the acupoints used for real treatment.

Medical treatment used in group C include using drugs such as antihistamines (loratadine) only (once daily for two weeks) or in combination with decongestants (pseudoephedrine) (twice daily for two weeks) and topical corticosteroids (twice daily for four weeks), provides symptomatic relief of allergic rhinitis. However, most medications have side effects and need to be taken for prolonged periods.

Table 1: Total Nasal Symptom Scores (TNSS) Each symptom (sneezing, congestion, itching, and rhinorrhea) is graded from 0-3 by the participants[4].

Score	
0 = Non	No symptoms evident
1 = Mild	Symptom present but easily tolerated
2 = Moderate	Definite awareness of symptom; bothersome but tolerable
3 = Sever	Symptom hard to tolerate; interferes with daily activity

Table 2: Real acupuncture points[1].

Point	Site
Yingxiang (LI 20)	In the nasolabial groove, at the level of Mid point of lateral border of ala nasi, Figure (6a,b)
Yintang (Extra point)	Mid way between the medial end of The two eye brows (the glabella), Figure (7a,b)
Fengchi (GB 20)	In the posterior aspect of neck in a depression between Upper portion of sternomastoid muscle and trapezius muscle, Figure (8a,b)
Hegu (LI 4)	Between the 1St & 2nd metacarpal bone, approximately in middle of 2nd metacarpal bone on radial side, Figure (9a,b)
Zusanli (ST36)	One finger-breadth from anterior crest of the tibia, Figure (10a,b)

Table 3: Needling procedure for real acupuncture[1].

Point	Direction	Depth (mm)
Yingxiang (LI 20)	Transversely, upward and medially to the bridge of the nose	20
Yintang (Ex 1)	Transversely, downward towards the root of the nose	15
Fengchi (GB 20)	Obliquely, downward and centrally to the tip of the nose	15
Zusanli (ST 36)	Obliquely between the tibia and the fibula	20
Hegu (LI 4)	Perpendicularly in middle of 2nd metacarpal bone on radial side	20

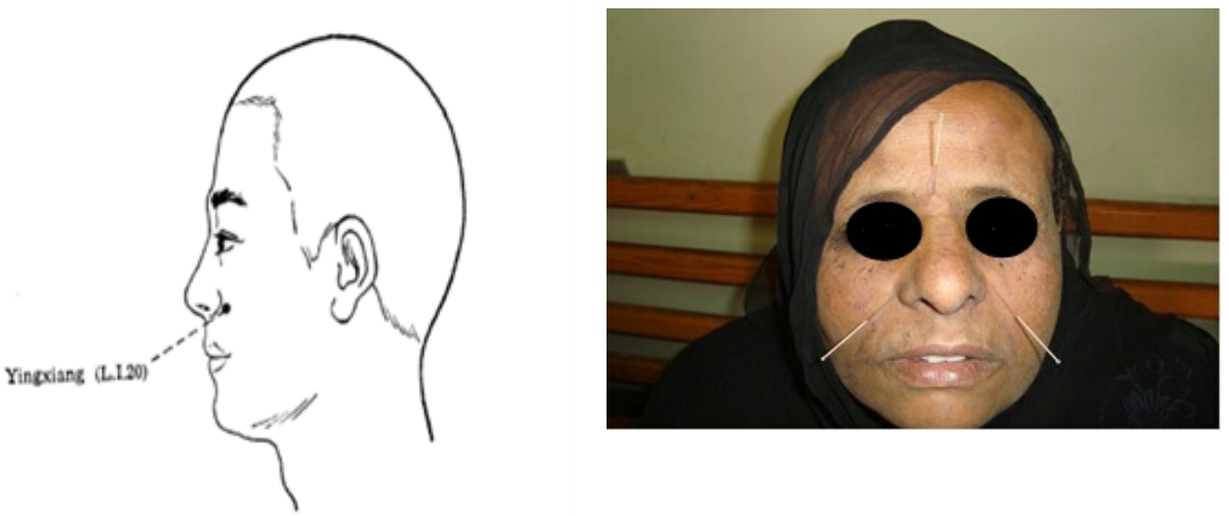

Fig. 1: Yingxiang (LI 20)

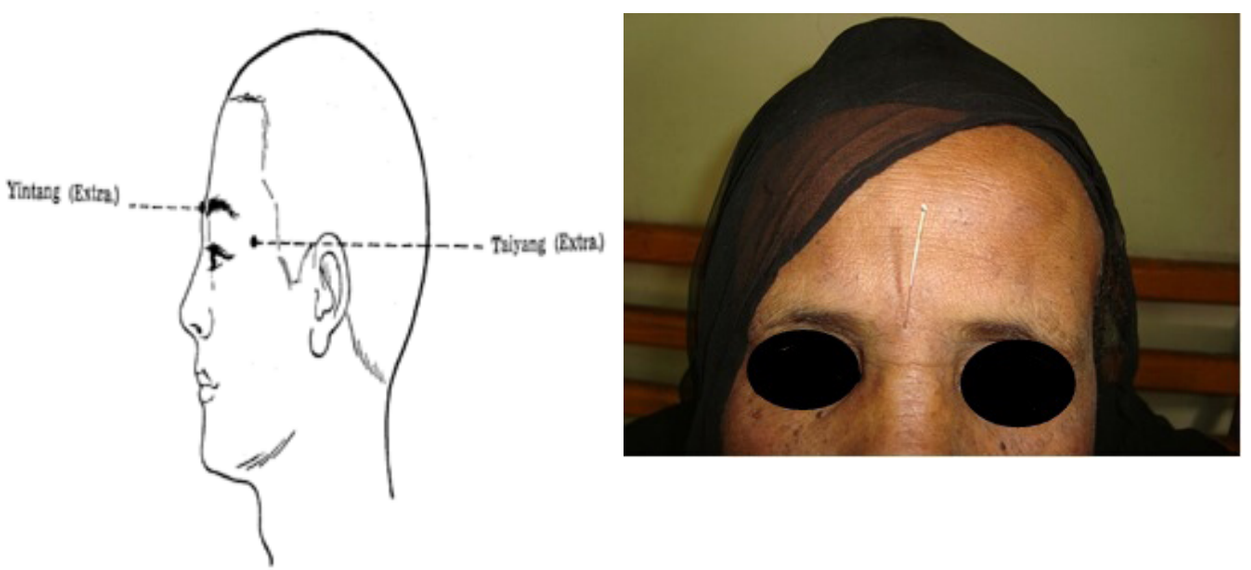

Fig. 2: Yintang (Ex 1)

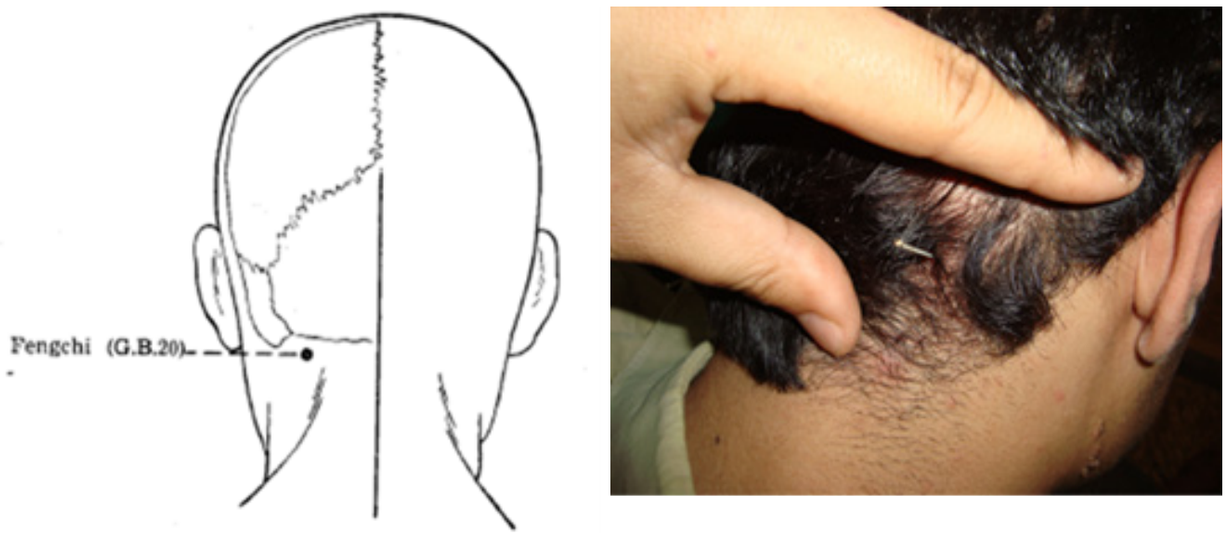

Fig. 3: Fengchi (GB 20)

Fig. 4: Hegu (LI 4)

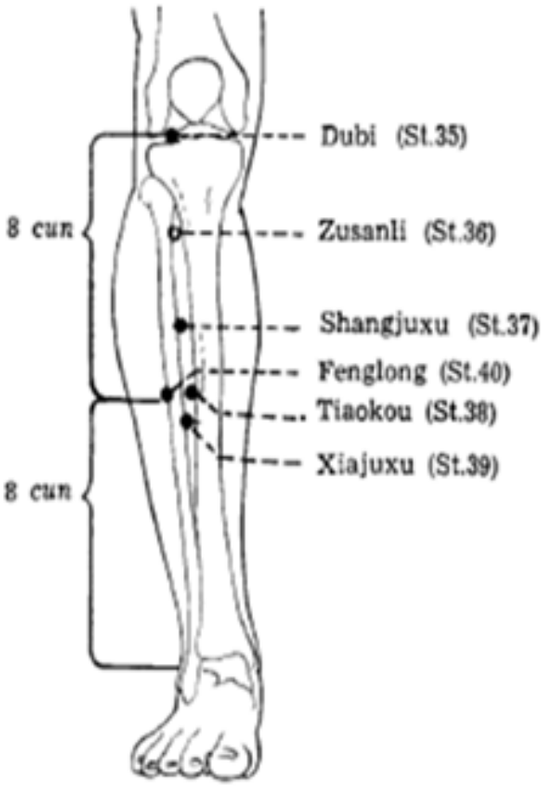

Fig. 5: Zusanli (ST 36)

DataAnalysis:

The data collected were tabulated & analyzed by SPSS (statistical package for the social science software) statistical package version 20 on IBM compatible computer.

Descriptive statistics were calculated in the form of mean ± SD for quantitative data and frequency and distribution for qualitative data. A *P value <0.05* was considered statistically significant while *>0.05* statistically insignificant.

RESULTS:

A total of 60 patients had accepted randomization and were allocated to three groups, group A includes 20 patients received real acupuncture (10 patients were male and 10 patients were female. 12 patients were below 30 years and 8 patients were above 30 years. About 75% of cases had improved after real acupuncture (Table 4).

Group B includes 20 patients received sham acupuncture (7 patients were male and 13 patients were female. 11patients were below 30 years and 9 patients were above 30 years. About 30% of cases only had improved after sham acupuncture (Table 5).

Group C includes 20 patients received medical treatment (9 patients was male and 11 patients were female. 10 patients were below 30 years and 10 patients were above 30 years. About 85% of cases had improved after medical treatment (Table 6).

Table 7 shows that there is non-significant difference between real, sham acupuncture& medically treated groups regarding demographic data (*P > 0.05*).

Table 8 shows that the mean value of TNSS after real acupuncture group is significantly lower than sham acupuncture group (*P1 < 0.05*) and the mean value of TNSS after among medically treated group is lower than real acupuncture group (*P2 > 0.05*) and Also the mean value of TNSS after among medically treated group is significantly lower than sham acupuncture group (*P3 < 0.05*).

The mean value of TNSS (In three groups) after is significantly lower than TNSS before (*P < 0.05*) (Table 9).

The prevalence of those who not improved among sham puncture group is significantly higher than real acupuncture &medically treated groups (*P < 0.05*) (Table 10).

Table 4: Number (NO.)&percentage (%) distribution of parameters among studied patients for Real acupuncture group:

Parameter	NO.	%
Sex:		
Male	10	50%
female	10	50%
Age (years):		
≤ 30	12	60%
>30	8	40%
improvement:		
-not improved	5	25%
-improved	15	75%

Table 5: Number (NO.)&percentage (%) distribution of parameters among studied patients for Sham acupuncture group:

Parameter	NO.	%
Sex:		
Male	7	35%
female	13	65%
Age (years):		
≤ 30	11	55%
>30	9	45%
improvement:		
-not improved	14	70%
-improved	6	30%

Table 6: Number (NO.) & percentage (%) distribution of parameter among studied patients for medically treated group:

Parameter	NO.	%
Sex:		
Male	9	45%
female	11	55%
Age (years):		
≤ 30	10	50%
>30	10	50%
improvement:		
-not improved	3	15%
-improved	17	85%

Table 7: Comparison between3 studied groups regarding demographic data.

variable	Real acupuncture Group (1) (n=20) NO.	%	Sham acupuncture Group (2) (n=20) NO.	%	medically treated Group (3) (n=20) NO.	%	Chi square test	*P value*
Age (years):								
≤ 30	12	60.0	11	55.0	10	50.0	0.404	0.81
>30	8	40.0	9	45.0	10	50.0		
Sex:								
Male	10	50.0	7	35.0	9	45.0	0.95	0.62
female	10	50.0	13	65.0	11	55.0		

Table 8: Comparison between 3 studied groups regarding mean TNSS after acupuncture course and treatment:

TNSS after	Real acupuncture Group (1) (n=20)	Sham acupuncture Group(2) (n=20)	medically treated Group (3) (n=20)	Kruskal-Wallis Test	*P value*	Post Hoc test
(mean±SD)	4.20 ± 4.85	9.25 ± 3.72	3.15 ± 3.82	17.62	0.00	P1 0.00 P2 0.42 P3 0.00

P1: between Real acupuncture, Sham acupuncture.
P2: between Real acupuncture, medically treated.
P3: between Sham acupuncture, medically treated.

Table 9: Comparison between mean TNSS before and mean TNSS post treatment in three groups:

	TNSS before (n=20)	TNSS after (n=20)	Wilcoxon signed test	*P value*
Real acupuncture (mean±SD)	12.60 ± 2.03	4.20 ± 4.85	3.41	0.001
Sham acupuncture (mean±SD)	11.80 ±1.36	9.25 ± 3.72	2.21	0.027
medically treated (mean±SD)	12.50 ± 1.87	3.15 ± 3.82	3.63	0.000

Table 10: Comparison between 3 studied groups regarding outcome:

outcome	Real acupuncture Group (1) (n=20) NO.	%	Sham acupuncture Group(2) (n=20) NO.	%	medically treated Group (3) (n=20) NO.	%	Chi square test	*P value*
improvement:								
-not improved	5	25.0	14	70.0	3	15.0	18.00	0.001
improved	15	75.0	6	30.0	17	85.0		

DISCUSSION

Allergic rhinitis is the most common cause of rhinitis. It is an extremely common condition, affecting approximately 20% of the population. While allergic rhinitis is not a life-threatening condition, complications can occur and the condition can significantly impair quality of life[5].

Acupuncture is a relatively safe treatment and many theories explain its mechanisms of effect in AR. A few basic studies have investigated the effect of acupuncture on itching which is the main symptom of AR and all suggest point-specific effects. Some of these studies evaluated the effect of acupuncture on allergen induced and clinically relevant itching and showed point specific effects[6]. Other studies have shown that acupuncture has a potential effect on atopic diseases by different mechanisms, including changes of the endogenous opioid peptides in the central nervous system; reduction of prostaglandin E2 levels in the brain and serum; inhibition of IgE production and modulation of Th1/Th2 cell response. Also acupuncture stimulation has central influence by specific activation of brain regions, including the influence of neuronal structures containing encephalin or endorphin and reduction of allergen-induced basophil activation[7].

A morphological substrate of the meridians has not been found to date. However, the acupuncture point as such has in the meantime been studied and characterized anatomically and physiologically. Anatomically, the majority of the acupuncture points (up to 80 %) represent perforations in the superficial body fascia, through which blood vessel and nerve bundles reach the skin embedded in loose connective tissue. It has been shown that these points have a higher density of receptors and to a great extent (up to 71 %) represent myofascial trigger points. From a physiologic viewpoint a higher electric conductivity and ion exchange capacity of the connective tissue can be demonstrated at the acupuncture point. On the skin surface these points display a 10- to 100-fold lower skin resistance and a higher electric capacity. On the basis of this knowledge the method of electro acupuncture could be developed[8].

In our study, the treatment by real acupuncture achieved a success rate of 75% in comparison to sham acupuncture group which had 30% and medically treated group which had 85%.

Our results agreed with Xiao-ping, of the 76 cases treated with acupuncture, cure was observed in 38 cases (50%), marked effect in 26 (34%) and improvement in 12 (16%), for a total effective rate of 100% and marked effective rate of 84%[9]. Also, Abd El Aziz *et al* revealed a statistically significant improvement in the clinical picture of the acupuncture groups than the medical and placebo groups[10].

We got TNSS before starting the acupuncture course for the three groups and we got TNSS after. By comparing both we found that: In real acupuncture group: 8 patients cured (from symptoms) (40%), 7 patients improved (35%), 5 patients not improved (25%). In sham acupuncture group: No patient was cured (from symptoms) (0%), 6 patients improved (30%), 14 patients not improved (70%). In medically treated group: 8 patients cured (from symptoms) (40%), 9 patients improved (45%), 3 patients not improved (15%).

There were no reports of complications such as considerable pain, bleeding, infection or hematomas.

We suggested that this statistical significant relation was due to the small sample size and in turn further studies are required to establish other possible effects of acupuncture on allergic rhinitis.

Although our results demonstrated that medical treatment had a success rate of 85% in relation to real acupuncture which had 75%, we prefer to use acupuncture as a method of treatment of allergic rhinitis due to the following benefits: high success rate (75%), absence of hazards or side effects, absence of contraindications, not expensive and simple application.

CONCLUSION

Acupuncture seems to be effective method for treatment of allergic rhinitis without any considerable side effects. We recommend the acupuncture as a method of treatment due to High success rate, Absence of hazards or side effects, Absence of contraindications, not expensive and simple application.

Also we recommend Further larger controlled prospective studies to exactly evaluate the factors affecting the response of patient to acupuncture and to follow up the patient for a longer period after acupuncture treatment.

CONFLICT OF INTEREST

There are no conflicts of interest.

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