

# A Study to Evaluate the Efficacy of Acupuncture for Treating Allergic Rhinitis

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## ABSTRACT

**Introduction:** Allergic Rhinitis is a common inflammatory disease of the nasal mucosa. It is a symptomatic disorder of the nose induced after allergen exposure due to an IgE-mediated inflammation of membranes lining the nose. Usual treatment of Allergic rhinitis includes allergen avoidance, effective symptomatic treatment, antihistamines or steroids, standardized immunotherapy, and patient health education. There are also recommended complementary and alternative medicine (CAM) therapies including, Ayurvedic medicine, herbal medicines, Acupuncture, Homeopathy, and several other modalities.

**Material and methods:** This study was conducted on 80 patients diagnosed positive for Allergic Rhinitis attending the Outdoor Patient Department (OPD) of Dr. D.N. Kotnis Health & Education Centre, Ludhiana, Punjab. The severity of the patient's problem was taken on Likert's scale at their first visit and the last visit of the treatment. The acupuncture points were punctured until the needling sensation/ Qi was achieved. The points were connected with an electrical stimulator for 30-40 minutes followed by a moxibustion application with stick moxa for 15-20 minutes. The collected data were subjected to multinomial logistic regression using ROCR package of the R programming environment.

**Results:** It is noted that, statistically after treatment, the results for pre and post-treatment varied significantly with  $p=0.0039$ ,  $df=15$ . There was maximum improvement seen for nasal symptoms and insomnia treatment.

**Conclusion:** Acupuncture provides an effective and safe treatment modality for allergic rhinitis. It provides a significant reduction in major symptoms of allergic rhinitis improving the Quality of life of the patient.

**Keywords:** Acupuncture, Allergic Rhinitis

## INTRODUCTION

Allergic diseases are of a major health concern worldwide. In India, more than 25% of the total population of is sensitized with different types of allergens.<sup>1</sup> A substance that leads to a reaction is known as an allergen. These allergic diseases comprise of Asthma, Rhinitis, Anaphylaxis, Drug, Food and Insect allergy and Urticaria. It is estimated that some form of the allergic disease will affect one out of every five people during their lifetime.

Allergic rhinitis is one of the most common allergic diseases worldwide. It affects around 10-25% of the population. The incidence of allergic rhinitis in India ranges between 20 – 30%.<sup>2</sup> Various reports based on hospitalization data from different parts of India have shown a sharp increase in the prevalence rate of IgE-mediated atopic disease in the last

few decades.<sup>3</sup>

Allergic Rhinitis is a common inflammatory disease of the nasal mucosa. It is a symptomatic disorder of the nose induced after allergen exposure due to an IgE-mediated inflammation of membranes lining the nose. IgE-mediated type 1 hypersensitivity reactions are the hallmark of allergic rhinitis. Clinically, it is defined as a symptomatic condition with four major symptoms presenting as rhinorrhoea, sneezing, nasal itching and nasal congestion. It could also be named, Persistent Allergic Rhinitis (PAR) if it has an onset duration of more than 4 weeks per year and more than 4 days per week.

It is often viewed, as a trivial disease but can significantly affect the Quality of life (QOL) by causing fatigue, headache, sleep disturbances and cognitive impairment.<sup>4</sup> Major sources of allergen in this subcontinent are the pollen grains, fungal spores, foods, insects, and dust mites.<sup>5</sup> Allergic Rhinitis symptoms result in sleep disturbance, fatigue, depressed mood and disturbed cognitive function impairing the quality of life and productivity. Manifestations are nasal obstruction, purulent nasal discharge, loss or weakened sense of smell, headache, insomnia, hypomnesia, etc.

The diagnosis of allergic rhinitis can be made clinically on the basis of signs and symptoms as well as response of symptoms towards the empirical treatment with antihistamines or nasal glucocorticoids. Usual treatment of Allergic rhinitis includes allergen avoidance, effective symptomatic treatment, antihistamines or steroids, standardized immunotherapy, and

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patient health education.<sup>4</sup>

Despite above mentioned treatments it is well known that Allergic Rhinitis cannot be completely cured. The medicines are well associated with side effects and life time application and dependence. There are also recommended other forms treatment modalities for allergic rhinitis, i.e. some forms of complementary and alternative medicine (CAM) therapies including, Ayurvedic medicine, herbal medicines, Acupuncture, Homeopathy, and several other modalities.

Acupuncture, traditional Chinese medicine is a treatment modality known for thousands of years. In Acupuncture/ Traditional Chinese Medicine (TCM) Health and diseases, diagnosis and treatment are viewed as a duality and because of the interaction of two related forces, Yin and Yang. It aims to maintain the energy flow Qi in the body, by impacting special skin points known as acupuncture points. The Points are connected to each other and to the organs via conducting pathways known as Meridians.

According to TCM, the body's immunity is the function of defensive Qi. The main meridians providing defensive Qi are the lung, colon, stomach and spleen meridian. Particularly their meridians are also known as "TCM immunotherapy". Several studies on allergic rhinitis prove the modulating effect of the acupuncture on immune system and improvement in signs and symptoms.<sup>6,7</sup>

Moxibustion on acupuncture points during the treatment also plays a vital role in the prevention and treatment of numerous diseases. Moxibustion is a form of TCM suitable and beneficial for many chronic and severe diseases. It works by stimulating acupuncture points with thermal energy from ignited moxa. Research has suggested that moxibustion exerts its effects by regulating the body's immune function via immunoglobulin, cytokines and the immune organs.<sup>8</sup>

However, this study was an attempt to find the efficacy of acupuncture treatment for treating allergic rhinitis.

## MATERIAL AND METHODS

**Experimental Samples:** This study was conducted on 80 patients diagnosed positive for Allergic Rhinitis attending the Outdoor Patient Department (OPD) of Dr. D.N. Kotnis Health & Education Centre, Ludhiana, Punjab. All patients attending the OPD from 1st March 2016 to 30<sup>th</sup> October 2019 have been included in this study. A predesigned and pretested proforma was used to collect the socio-demographic data from the patients.

The severity of the patient's problem was taken on Likert's scale<sup>9</sup> at their first visit and the last visit of the treatment.

All patients were treated by Acupuncture Specialists using filiform single-use sterile needle. The position of the patient during the treatment varied according to the prescribed acupuncture points. The majority of the points were selected from the nose region and were combined with the distal points. Stainless acupuncture needles were inserted under strict sterile conditions.

### Treatment

Prescription of Acupuncture points for the treatment of Allergic rhinitis (table-1):

1. Yingxiang (LI 20) -
2. Shangxing (DU 23)
3. Hegu (LI 4)
4. Yintang (Extra)
5. Lieque (LU 7)
6. Fengchi (GB 20)
7. SanYinJiao (SP 6)
8. Taiyang (Extra)

Prescription of Acupuncture Points to prevent re-occurrence:

1. Quchi (LI 11)
2. Fengchi (GB 20)
3. Yanglingquan (GB 34)
4. Zusanli (ST 36)

The acupuncture points were punctured until the needling sensation/ Qi was achieved. The points were then connected with an electrical stimulator for 30-40 minutes followed by a moxibustion application with moxa stick for 15-20 minutes. The strong moxibustion application was done for nose blockage especially at Yingxiang point.

Treatment was given once a day daily followed by a rest for 7 days after continuous duration for 15 days. The duration of treatment varied according to the severity of the condition. Patients were not prescribed any medication during the treatment period.

## STATISTICAL ANALYSIS

The data were subjected to multinomial logistic regression using ROCR package<sup>10</sup> of the R programming environment. Venn diagram was drawn using online tool Interactivenn.<sup>11</sup> The counts of patients in different groups have been depicted using heatmap which was generated in the R programming environment (v.3.5.3)<sup>12</sup>

## RESULTS

Sums of 80 patients were included in the study visiting OPD of Acupuncture department during the specified period, out of which 48 (60%) were males and 32 (40%) were females (Figure1). Study participants were in the age group from less than 20 years to greater than 40 years. All patients were the diagnosed cases of Allergic Rhinitis.

Majority of the patients 47 (59%) were between the age group of 21-30 years followed by 15 (19%) patients above 40 years, 11 (14%) patients between 31 to 40 years and 7 (9%) patients below 20 years of age group (Figure 2)

The severity of complaints was taken on a Likert Scale for both pre-treatment and post-treatment. The Likert scale was ranging from 0-10 where 0 denotes no problem, 1-3 denotes mild problem, 4-6 denotes moderate problem, 7-9 denotes severe problem and 10 denotes the worst problem affecting day to day activity.

Among males, the majority 19 (40%) of patients were suffering from severe problem followed by 15 (31%) and 14(29%) patients having moderate and worst symptoms of allergic rhinitis respectively while none of them was having mild complaint. Whereas among females majority 19 (54%) were suffering from severe problem followed by 7(22%), 5(3%), 1(3%) of patients experiencing worst, moderate and

No.	Acupuncture Points	Indications (specifically in Allergic Rhinitis)	Anatomical Location	Insertion
1	YingXiang (LI20)	Nasal congestion	Nasolabial groove, on the level of midpoint of lateral border of ala nasi.	0.3-0.5 cun Oblique insertion
2	ShangXing (DU23)	Rhinorrhea, Headache, Rhino-conjunctivitis	On the midline, 1 cun posterior to the anterior hairline.	0.3-0.5 cun Transverse insertion
3	Hegu (LI 4)	All kinds of diseases of head and face (Headache, Congestion, Swelling, Lacrimation, Sinusitis) Also called as pain point in the body (recommended for pain disorders)	On dorsum of hand between 1 <sup>st</sup> and 2 <sup>nd</sup> metacarpal bone, at a midpoint of the second metacarpal bone and close to radial border.	0.5-1 cun Perpendicular insertion.  Contraindicated in Pregnancy
4	YinTang (Extra)	Insomnia, Anxiety, Frontal headache, sinusitis,	Midway between medial ends of the eyebrows at "third eye"	0.3-0.5 cun Subcutaneous insertion
5	Lieque (LU7)	Breathing difficulties, headache, nasal problems, cough	On radial margin of forearm, superior to the styloid process of the radius, 1.5 cun above the transverse crease	0.3-0.5 cun Oblique insertion
6	Fengchi (GB20)	Common cold, Nasal congestion, Headache, Redness, Swelling and Pain in eyes, Rhinorrhea	On the nape of neck, below occiput, in the depression between upper portion of sternocleidomastoid and trapezius muscle	0.8-1.2 cun Oblique insertion, towards the tip of nose
7	SanYinJiao (SP6)	Insomnia, Headache	On medial aspect of lower leg, 3 cun above the medial malleolus	1-1.5 cun perpendicular insertion Contraindicated in pregnancy
8	Taiyang	Headache, Redness, Swelling and Pain in eyes	At the temple, in the depression approximately 1 cun posterior to the midpoint between lateral end of eyebrow and outer canthus	0.3-0.5 cun oblique insertion
9	Quchi (LI 11)	Anti-allergic point Regulates Qi	In flexed elbow, point is located in the depression at the lateral end of the transverse cubital crease.	1-1.5 cun perpendicular insertion
10	Yanglingquan (GB 34)	Anti-allergic point (Experience point)	On lateral aspect of lower leg, in the depression anterior and inferior to the head of fibula	1-1.5 cun Perpendicular insertion
11	Zusanli (ST 36)	To improve general weakness and strengthen the body with Qi	On anterior aspect on lower leg, one finger breadth from anterior crest of tibia	1-2 cun Perpendicular insertion

**Table-1:** Detail about the prescribed acupuncture points used for the treatment of Allergic Rhinitis.

Sex	Severity of symptoms				Total	
	Mild	Moderate	Severe	Worst	N	%
Male	0	15	19	14	48	60
Female	1	5	19	7	32	40
Total	1	20	38	21	80	100

**Table-2:** Distribution of the severity of symptoms among gender.

Age group	Duration of treatment in days						Total	
	15	30	45	60	75	90	N	%
<20	2	1	3	0	1	0	7	8.75
21-30	19	8	7	6	6	1	47	58.75
31-40	2	3	4	1	1	0	11	13.75
>40	0	5	3	1	3	3	15	18.75
Total	23	17	17	8	11	4	80	100

**Table-3:** Distribution of study participants according to age group and duration of treatment

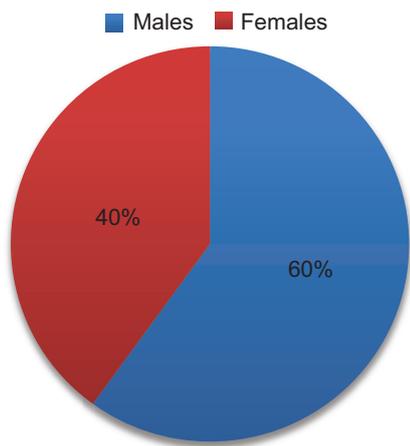


Figure-1: Distribution of the Study subjects according to gender

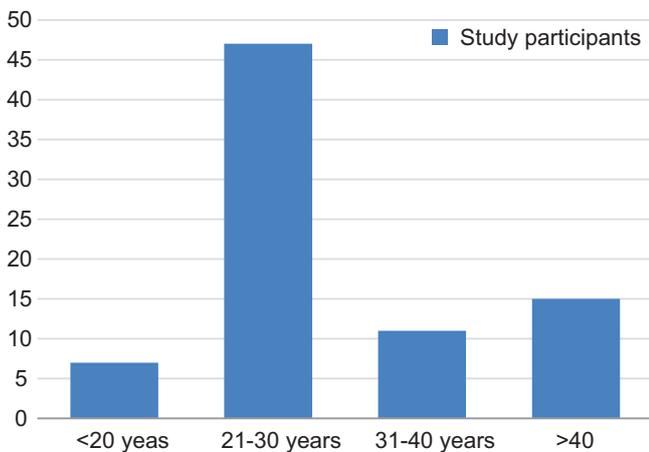


Figure-2: Distribution of study subjects according to age group.

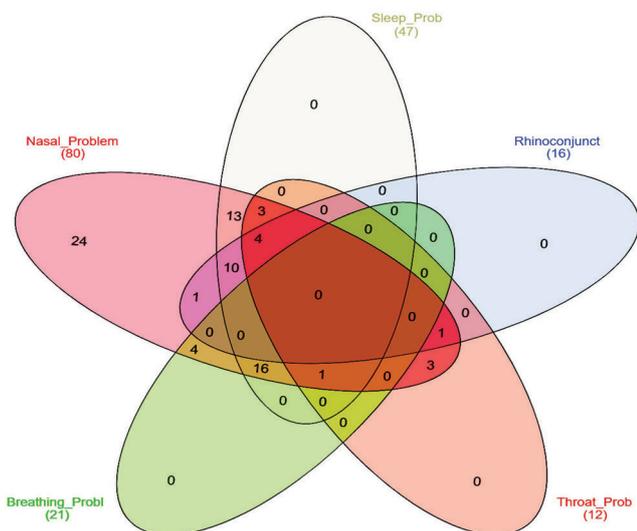


Figure-3: Venn diagram showing pre-treatment distribution of symptoms of Allergic Rhinitis among Patients.

mild symptoms of allergic rhinitis respectively. (Table 2) It has been observed that the duration of treatment showed borderline significant trend with the age groups of the patient (df = 15; p = 0.09). Maximum number of patients 23 (29%) were recovered after 15 days of treatment followed by 17 (21%) patients given 30 and 45 days of treatment followed by 11 (14%) patients given 75 days of treatment followed by

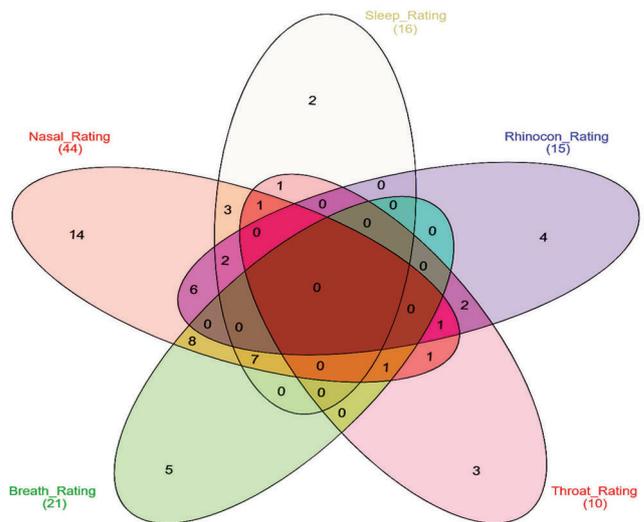


Figure-4: Venn diagram showing post-treatment distribution of symptoms of Allergic Rhinitis among Patients.

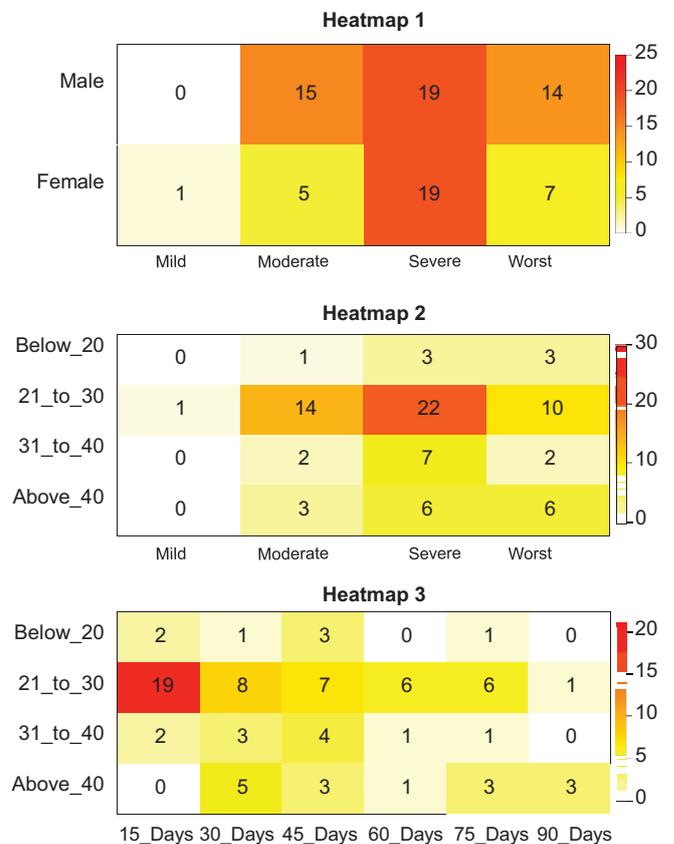


Figure-5: (Heatmap1) - Severity of allergic rhinitis among male and female patients; (Heatmap 2) - Severity of allergic rhinitis among age-groups; (Heatmap 3) - Duration of the treatment of allergic rhinitis among age-groups

8 (10%) patients requiring 60 days of treatment and 4 (5%) patients recovering after 90 days of treatment. The majority of patients 19 recovering within minimum 15 days were between the age group of 21-30 years. (Table 2) The symptoms of allergic rhinitis also varied among patients. Each patient was suffering from one or more major symptoms of allergic rhinitis. All patients 80 (100%) were having nasal complaints, 47 (59%) patients were having

associated sleep disturbance, 16 (20%) patients were having Rhinoconjunctivitis, 21(26%) patients were having breathing difficulty, 12 (15%) patients were having throat irritation (Figure 3).

It is noted that, statistically after treatment, the results for pre and post-treatment varied significantly with  $p=0.0039$ ,  $df=15$ . The maximum improvement was seen for the symptoms of nasal problem and insomnia. (Figure 4).

Figure 5 shows the series of heat map (1,2,3), depicting the distribution of study participants according to the severity of symptoms and variation with duration of treatment.

## DISCUSSION

Allergic rhinitis affects the quality of life and work efficacy of the affected patients. At present, the mainstay of treatment for allergic rhinitis includes the avoidance of allergens and in clinical practice is the use of antihistamines and intranasal topical glucocorticoids, decongestants, anti-leukotrienes.<sup>4,13</sup> These treatment modalities may provide symptomatic relief but are associated with undesirable side effects such as dryness in the nasal cavity, drowsiness, altered smell sensation and many more. There have been various complementary and alternative interventions which can provide long lasting and cured treatment for allergic rhinitis. Such modalities also provide the results with reduced risk of various side effects. Among non drug interventions Acupuncture provides a quick, long-lasting with cured results. Acupuncture modulates the immune system and is a recommended treatment modality for Allergic rhinitis.<sup>14</sup> It has a long history in the management of Allergic Rhinitis.

Due to an insufficient number of relevant studies done on acupuncture treatment for allergic rhinitis the search was limited. Despite, in recent years, much of the research in foreign has proved that acupuncture can regulate the function of the neuroendocrine – immune system. This works by stimulation the body's own self regulating system.<sup>15,16</sup> In a systematic review done by Myeong et al<sup>17</sup> on 12 studies concluded that the evidence for the effectiveness of acupuncture for the treatment and prevention of Allergic rhinitis is mixed.

In a research study done by Hauswald et al<sup>6</sup>, Petti et al<sup>18</sup>, Brinkhaus et al<sup>19</sup> reported that acupuncture was effective in treating allergic rhinitis particularly in the reduction of nasal and conjunctival signs and symptoms.

It is also stated that complementary and alternative medicine for treating Allergic rhinitis is becoming more popular.<sup>20,21</sup> Another systematic review has shown that acupuncture for the treatment of Allergic Rhinitis is effective and safe and may have some advantages over routine medical treatment.<sup>22</sup>

### Limitations

1. Small sample size.
2. The severity of the problem experienced by the patient is on the Likert scale, which is on a subjective basis.

## CONCLUSION

It can be stated that Acupuncture provides an effective and safe treatment modality for allergic rhinitis. It provides

maximum and significant improvement for nasal and sleep disturbance problems. It is also seen that there was a significant reduction in major symptoms of allergic rhinitis post-treatment.

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