A Randomized Controlled Study: Impact of 32 Week Nasal Douching Techniqueand Pranayama On Symptoms Of Allergic Rhinitis.

ABSTRACT:

Background and Objective- Asthma has been the subject of numerous studies, while allergic rhinitis has not. In order to cure allergic rhinorrhea without incurring excessive costs, the current article will give comprehensive information about the condition as well as an adjuvant therapy.Therefore, the main aim of this study isto evaluate the impact of nasal douche and pranayama on symptoms of allergic rhinitis in the patients of allergic rhinitis with asthma.

Methods- It was a randomized controlled study carried out from January 2024 to September2025. Asthma patients aged between 18 to 60 years were recruited from the Department of Respiratory Medicine, King George's Medical University, U.P., Lucknow, India. They were randomly divided into two groups: 'the case group and 'the control group'. Their assessment was done at baseline, at 4^{th}months and 8^{th} months.

Results- The assessments for "nasal discharge, nasal obstruction, sneezing, and nasal itching" before and after treatment differed statistically significantly ($p<0.001$).

Conclusion- 'The yoga group' got significantly better improvement in all the variables than 'the control group'. The improvement was achieved relatively earlier by 'the yoga group' in comparison to 'the control group'. Result shows that yoga can be used as an adjuvant therapy with standard medical treatment for the better management of asthma.

Key words- Adjuvant; asthma; nasal douche; obstructions; variables;

INTRODUCTION

Allergic respiratory conditions are major public health challenge worldwide. According to the World Health Organization (WHO) estimates, about 400 million people around the world suffer from asthma and about 2,50,000 people died from the disease each year.[1]Allergic Rhinitis is a global health problem that affects patients of all ages and ethnic groups, with an estimated prevalence of 30% in the general population.[2]AR has been categorized as seasonal (occurs during a specific season) or perennial.[3] It is not a fatal condition; it is associated with impaired quality of life, absenteeism from work, and substantial financial costs. AR and asthma are both chronic heterogeneous disorders, both are inflammatory disorders with a similar pathophysiology.[4]

Rhinitis is an inflammation of the nasal mucosa that manifests as nasal irritation, sneezing, discharge, or blockage that last for more than an hour on most days. Because the lining of the nose and paranasal sinuses is continuous with the lower respiratory tract, diseases of the upper and lower respiratory tract frequently coexist.[5]

Yoga is originated from ancient India and remains an important aspect of India's diverse culture. A yoga method for clearing the sinuses is called JalNeti (nasal douche). [6] In Hath yoga, neti is one of the six purifying techniques. Nasal hygiene is addressed by Neti. Since many ailments, including sinusitis, rhinitis, migraines, headaches, allergies, and asthma, are associated with nasal cleanliness, it is crucial. It relieves a lot of sinus and nasal cavity issues and only takes a few minutes. [7]There is none of the study associated with nasal douche (jalneti) impact in AR. The present study is based on the findings of the larger study done on the patients of allergic rhinitis

OBJECTIVE-Role of nasal douche and pranayama on symptoms of Allergic Rhinitis**.**

MATERIALS AND METHODS

STUDY DESIGN AND SETTING-This studywas a randomized controlled trial, conducted from January 2024 to September 2025in the Department of Respiratory Medicine, King George's Medical University, U.P., Lucknow, India. Diagnosed cases of allergic rhinitis with asthma were recruited from the Out Patient Department (OPD) of the Department of Respiratory Medicine and screened by a consultant for the participation in the study on the basis of inclusion and exclusion criteria.

Inclusion Criteria-

1. Patients diagnosed to have symptoms of allergic rhinitis with asthma such as nasal congestion, rhinorrhea, constant sneezing, and itchy nose for a minimum of four days per week and for a period of at least four consecutive weeks based on the ARIA guidelines.

2. Patients diagnosed to have mild asthma with allergic rhinitis.

3. Patients are required to be non-smokers (or ex-smokers with <10 pack per-year history).

4. The age of patients should be 18-60 years.

Exclusion Criteria-

1. Those who will have allergic rhinitis but will not satisfy the diagnostic criteria.

2. A history of cerebro-vascular events, or ischemic cardiac events.

3. Pregnant or lactating mothers and

4. History of recurrent or chronic respiratory infection

STUDY PARTICIPANTS-In this randomized controlled trial, 200 subjects who satisfied the inclusion criteria were allocated into two groups. They were divided into two groups, case group who received yogic intervention for 8 months along with standard medical treatment and control

group who received only standard medical treatment. Out of 200 subjects (85 cases and 88 controls), 15 subjects from the yoga group and 12 subjects from the control group dropped out during the study period. 85 cases from the yoga group and 88 cases from the control group completed the study.

DATA COLLECTION-Participants recorded their nasal symptoms on diary cards that included symptoms of runny nose, nasal congestion, sneezing and nasal itching. Each symptom was scored from 0–3, 0 indicating the absence of the symptom and 3 describing the symptom as severe and intolerable. 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.

Yogic Intervention- Subjects in the yoga group received **y**ogic intervention (Table: 1-pranayama &jalneti) for 30 min per day, five days in a week for a period of 8 months.

Analysis of Data - Paired *t*-test was used to test the mean difference score of the subjects at baseline, after four months and eight months in both groups i.e., yoga and control groups. Student's independent sample *t*-test was used to compare the differences in scores between cases (yoga) andcontrols (non- yoga group). Differences were considered significant if $p<0.05$. The Statistical analysis was done by using GraphPadinStat version 3.1 software Inc, , California.

RESULTS-Variables of the symptom scores at baseline in between group comparison are given in Table 2. Both groups are comparable in every respect and there was no significant difference found in any variable. The values of outcome measures are given in Table 3, 4, 5 and 6.

Between groups comparisonsare given in Table 3 and 4 after 4th month and 8th month respectively the intervention of yoga to the yoga group. There was significant difference found in all the variables (Nasal Itching, Sneeze, Nasal Discharge and Nasal Obstruction at 4th month and 8thmonth in between group comparison [Table 3 and 4]. At post- intervention, between group differences were found highly significant with better improvementin yoga group in comparison to controls [Table 4].Comparison of pre and post changes occurred in yoga group and control group at 4th month and 8thmonth respectively after the intervention of yoga to the yoga group are given in Table 5 and 6. It has been observed in pre- post comparison after 4 month that 25.5% improvement was found in 1st variable (nasal itching),22.2% improvement was found in sneezing and there was significant improvement of 35.3% found in nasal dischargein the yoga group in comparison to control group. There was no significant change found in nasal itching, sneezing and nasal discharge in the patients ofcontrol group.

As seen in Table 6, both groups have significant improvement at 8th month. In the yoga group, nasal itchingsignificantly improved by 61.8%, sneezeand nasal dischargesignificantly improved by 52.9% and55.2% respectively in the yoga group and nasal obstruction improved by46.2 %.. There was a significant improvement of 47.4% found in nasal itching,sneeze and nasal discharge also improved significantly by 49.3% and 40.1% respectivelyin the control group.

DISCUSSION-The results of this study suggests that both groups got significant improvement in 8 month study period compared to baselinescores, but the improvement was achieved relatively earlier by the yoga group in comparison to control group.

One of the study concluded that jalneti and yogic proceduresexplained the high efficacy in the treatment and prevention of allergic rhinitis. Duration of jalneti and yogic exercises should be done for atleast 6 weeks.[8]

In a prospective study researchers investigated the efficacy of seawater gel in the patients with mild allergic rhinitis and found that a four times daily regimen of seawater gel can be an adjunctive therapy in the patient with allergic rhinitis.[9]

A study done on the 15 patients (short- term study of 7 days) not only confirm the efficacy of intranasal corticosteroid therapy in moderate-to-severe allergic rhinitis, they also suggested that the dead sea saline solution can be an effective alternative in mild-to-moderate allergic rhinitis, particularly with respect to nasal and eye symptoms. The hypertonicity of the dead sea solution may have a positive effect on the physiology of the nasal mucosa by improving mucociliary clearance.[10]

The findings of a cross sectional studies highlighted the need for standardized guidelines to ensure safety and efficacy, especially concerning water quality and salt concentration.[11]

CONCLUSION- The current study shows that regular practice of jalneti and pranayama significantlydecreased symptom scores in the yoga group in comparison to control group. The improvement was achieved relatively earlier by the yoga group (cases) in comparison to control group. Overall, this study shows that yogais an effective tool to improve the symptom scores in the patients of allergic rhinitis and it can be practiced as an adjuvant therapy with standard medical treatment of allergic rhinitis.

SUGGESTIONS FOR FUTURE WORK-There is lack of controlled trials on allergic rhinitis to make firm judgment. Therefore, it is suggested to go for long term study based on large number of subjects enrolled in the study.

Financial support and sponsorship

The study was supported by Department of Health Research, New Delhi.

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Table 1: Yogic Techniques done by yoga group

Yogic Techniques	Duration (min)
Jalneti (nasal duche)	**10**
Pranayama	**20**
Nadishodhan	5
Bhastrika	5
Bhramari	5
Kapalbhati	5
Total Duration	**30 min.**

Table: 2 Baseline Score of Cases and Controls (between group)

Symptoms	Cases N= 85 mean±SD	Controls N= 82 mean±SD	Effect Size	t- value	p- value
Nasal Itching	2.75 ± 0.38	2.85 ± 0.46	0.065	0.402	0.006
Sneeze	2.25 ± 0.31	2.80 ± 0.39	1.45	0.638	0.52
Nasal Discharge	2.86 ± 0.20	2.74 ± 0.25	0.061	0.528	0.29
Nasal Obstruction	2.64 ± 0.42	2.92 ± 0.52	0.125	0.231	0.005**
Total Nasal Symptom Score	2.62 ± 0.32	2.82 ± 0.41	0152	0.170	0.007

*P< 0.05, **P< 0.01, ***P< 0.001 based on *post hoc* pair-wise comparison with baseline values.
P-value not significant (>0.05) for any of the parameter.

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Table: 4 Symptom Score of Cases and Controls at 8th month (between group)					
	Cases	**Controls**			
Symptoms	**N= 85 mean ±SD**	**N= 82 mean ±SD**	**Effect Size**	**t- value**	**p- value**
Nasal Itching	1.05 ± 0.45	1.50 ± 0.64	0.75	0.231	0.006**
Sneeze	1.16 ± 0.18	1.42 ± 0.42	1.96	0.245	0.41
Nasal Discharge	1.28 ± 0.45	1.64 ± 0.20	1.66	0.098	0.003**
Nasal Obstruction	1.42 ± 0.32	2.05 ± 0.62	0.98	0.075	0.32
Total Nasal Symptom Score	1.22 ± 0.47	1.65 ± 0.93	1.34	0.182	0.01*
*P< 0.05, **P< 0.01, ***P< 0.001 based on *post hoc* pair-wise comparison with baseline values. *P*-value not significant (>0.05) for any of the parameter.					

Table: 3 Score of Cases and Controls at 4th month (between group)					
	Cases	**Controls**			
Symptoms	**N= 85 mean±SD**	**N= 82 mean±SD**	**Effect Size**	**t- value**	**p- value**
Nasal Itching	2.05 ± 0.30	2.50 ± 0.96	1.05	0.342	0.006**
Sneeze	1.75 ± 0.31	2.28 ± 0.25	1.52	0.420	0.41
Nasal Discharge	1.85 ± 0.20	2.04 ± 0.25	0.66	0.374	0.003**
Nasal Obstruction	2.12 ± 0.42	2.29 ± 0.18	0.34	0.145	0.32
Total Nasal Symptom Score	1.94 ± 0.82	2.27± 0.82	1.015	0.238	0.007
*P< 0.05, **P< 0.01, ***P< 0.001 based on *post hoc* pair-wise comparison with baseline values. *P*-value not significant (>0.05) for any of the parameter.					

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Table: 5 Comparison of pre-post changes occurred in cases and controls after 4th month								
	Cases				Controls			
Symptoms	**At baseline**	**After 4 month**	**% change**	**p-value**	**At baseline**	**After 4 month**	**% change**	**p-value**
Nasal Itching	2.75 ± 0.38	2.05 ± 0.30	25.5	0.002**	2.85 ± 0.46	2.50 ± 0.96	12.5	0.01
Sneeze	2.25 ± 0.31	1.75 ± 0.31	22.2	0.005**	2.80 ± 0.39	2.28 ± 0.25	18.6	0.02
Nasal Discharge	2.86 ± 0.20	1.85 ± 0.20	35.3	<0.0001	2.74 ± 0.25	2.04 ± 0.25	25.6	0.04
Nasal Obstruction	2.64 ± 0.42	2.12 ± 0.42	19.7	0.04	2.92 ± 0.52	2.29 ± 0.18	21.6	<0.001***
Total Nasal Symptom Score	2.62 ± 0.32	1.94 ± 0.82	25.9	0..03*	2.82 ± 0.41	2.27± 0.82	19.5	0.25

*P< 0.05, **P< 0.01, ***P< 0.001 based on *post hoc* pair-wise comparison with baseline values.
P-value not significant (>0.05) for any of the parameter.

Table: 6 Comparison of pre-post changes occurred in cases and controls after 8 month								
	Cases				Controls			
Symptoms	**At baseline**	**After 8 month**	**% change**	**p-value**	**At baseline**	**After 8 month**	**% change**	**p-value**
Nasal Itching	2.75 ± 0.38	1.05 ± 0.45	61.8	<0.0001	2.85 ± 0.46	1.50 ± 0.64	47.4	0.003*
Sneeze	2.25 ± 0.31	1.06 ± 0.18	52.9	<0.0001	2.80 ± 0.39	1.42 ± 0.42	49.3	<0.0001
Nasal Discharge	2.86 ± 0.20	1.28 ± 0.45	55.2	<0.0001	2.74 ± 0.25	1.64 ± 0.20	40.1	0.01**
Nasal Obstruction	2.64 ± 0.42	1.42 ± 0.32	46.2	0.0050.0	2.92 ± 0.52	2.05 ± 0.62	29.8	0.02*
Total Nasal Symptom Score	2.62 ± 0.32	1.22 ± 0.47	53.4	0.001**	2.82 ± 0.41	1.65 ± 0.93	41.8	0.003**

*P< 0.05, **P< 0.01, ***P< 0.001 based on *post hoc* pair-wise comparison with baseline values.
P-value not significant (>0.05) for any of the parameter.