



## EFFECT OF YOGA INTERVENTION IN CHRONIC RHINOSINUSITIS

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**Abstract:** Chronic rhinosinusitis is a common disease affecting peoples of all ages, especially those with allergies; inflammation leads impaired drainage and poor ventilation from the sinuses. Diagnosis is made by clinical symptoms, nasal endoscopy and CT scan and if not treated can be life threatening due to proximity of brain. The main aim of study was to observe the effect of 8 weeks of yogic interventions techniques in patients suffering from chronic rhinosinusitis. The study methods involved thirty six patients diagnosed with idiopathic chronic rhinosinusitis aged 15 to 45 years was studied. All patients were evaluated by two clinical scores (cough and nasal discharge) and radiological score at the beginning of the study. Then under supervision of yoga experts they were made to practice yogic techniques (Bhramari pranayamas and Jala Neti) for a period of 8 weeks. The clinical and radiological score were measured again 2 weeks after the end of study. In the present study results of all data are expressed as mean and SD differences in the measurement variables within the group were assessed by differences of scores between group -I(study group) and group- II (control group) as measured before and at the end of the study were calculated by Mann- Whitney U Test. Probability (p) values of 0.05 or less were considered significant. In the present study the difference of score before and after interventions of yoga techniques in the study group, improved significantly in both clinical score ( $P < 0.05$ ) and CT scores ( $P < 0.05$ ). In conclusion the results of the present study showed that regular practice of jala Neti which cause cleansing of nasopharynx with lukewarm saline improves muco-ciliary clearance, chanting in Nada pranayamas improves ventilation in sinuses both helps in decreasing inflammation. Thus decreases symptoms and medication use in patients of chronic rhinosinusitis. Thus yogic techniques can be used as adjuvant therapy in management of chronic rhinosinusitis.

**Keywords:** Chronic Sinusitis, Jala Neti, Bhramari Pranayamas

### INTRODUCTION

Chronic rhinosinusitis is a Chronic Inflammation of nasal mucosa and Paranasalsinuses usually result of incomplete resolved acute sinusitis. It is common in all age group<sup>1,2</sup>. Nasal & sinus mucosa shows inflammatory changes, mucosa becomes thick and swollen and also the infection damage the cilia, results in impaired drainage of sinuses Retained secretion leads to re-infection of the sinuses<sup>2,3</sup>. The common presenting features are Chronic cough, Headache, Rhinitis, Nasal obstruction, Post Nasal discharge and sometimes paraosmia (Abnormalities of smell) and Epistaxis<sup>4,5</sup>. The close proximity of brain to sinuses leads to intracranial and orbital complications<sup>6</sup>, Diagnosis by X- ray of paranasal sinuses that appear hazy or show fluid level, by CT Scan of paranasal sinuses<sup>7,8</sup> and sometimes if required Proof puncture is done for aspirating the secretions and sent for investigations. The conventional medical approach is use of local and systemic decongestants and analgesic to relieve the symptoms with broad spectrum antibiotics. Surgical approach is usually antrum puncture for washing out of sinuses & clears the sinus cavity<sup>9</sup>.

The main aim of the present study is to investigate the effect of 8 weeks practice of JalaNeti and Bhramari Pranayamas in patients suffering from chronic rhinosinusitis.

#### Inclusion criteria's –

- (1) History of cough more than 4 months.
- (2) Nasal secretion on physical examination.
- (3) Confirmation of sinusitis by radiological rating scale 4 or with scale 5.

#### Exclusion criteria's –

- (1) Mucocele
- (2) Anatomical defect
- (3) Sign of bronchial obstruction at beginning and during the study.

### METHODS

36 patients of 14 to 32 years age groups were enrolled in the study they were given diagnosis of chronic Rhinosinusitis according to the criteria described by Shapiro and Rachlefsky<sup>10</sup>. Treatment was



stopped for more than 15 days before the beginning of the study.

The study was approved by the institutional Review Board of R. D. Gardi Medical College & Ujjain Yoga Life Society (M.P) and Informed consent was obtained from all the patients before entering the study. The severity of disease was measured by two clinical & Radiological score. Cough & Post nasal discharge (PND) score were measured at the beginning of study, once a week for 4 weeks & 1 month after the end of the study in the clinic. Radiological score was performed only at the beginning of the study and 1 month after the end of study. The severity of disease was rated on the following scale (Table No.1, 2 and 3).

**Table No.1:** Clinical – Cough score

SCORE	SYMPTOMS
1	No symptoms
2	mild cough only at night
3	moderate cough at night & day
4	severe cough during day disturbing sleep

**Table No.2:** Post nasal discharge score

SCORE	SYMPTOMS
1	No symptoms
2	Clear secretion
3	Purulent secretion

**Table No.3:** Radiological score

SCORE	SYMPTOMS
1	Normal maxillary sinus
2	Mild thickening of maxillary sinus
3	Moderate thickening of maxillary sinus
4	Sever thickening of maxillary sinus
5	Complete opacification of the maxillary sinus

Patients, who gave consent for yogic intervention techniques were randomly divided in 2 groups.

- **Group I**-Included 19 patients, made to Practice Jala-Neti and Bhramari pranayamas and Kapal-randhra-dhauti, Karna-randhra-dhauti daily under supervision of yoga experts for 8 weeks<sup>11</sup>.
- **Group II**-Included 17 patients Instilled 10 drops (about 1ml) of normal saline (0.9%NaCl in 100 ml of water) three times a day for 8 weeks.

**JalaNeti (Method):** Hold Luke warm saline water in cupped palm of the hand. Close one nostril with forefinger of other hand and suck in water steadily with the other nostril. Expel water from mouth. Blow the nostrils clear of all watery discharge. Repeat with the other nostril. Followed by Kapal – randhra - dhauti, Karna – randhra - dhauti daily.

**Bhramari Pranayamas (Method):** Done in sitting position, Index finger placed on ear cartilage patient is asked to take deep inhalation by gently pressing the cartilage during exhalation and at the same time making a loud humming sound like a bee. Breathe in again; continue the same pattern for 6-7 times. This was advised to do 3-4 times every day.

#### Statistical Analyses:

The differences of scores between group -I (study group) and group- II (control group) as measured before and at the end of the study were calculated by Mann- Whitney U Test. Probability (p) values of 0.05 or less were considered significant. The differences within the groups were calculated by the Wilcoxon signed rank test, and (p) values of 0.05 or less were considered significant.

## RESULTS

36 patients began the study but only 30 patients could complete the study. The clinical and radiological score were calculated as means±SD. The patients of the study group (group I) have significantly reduced the cough score from 3.67±0.49 to 1.67±0.72 (P<0.01), reduced PND score from 2.73±0.46 to 1.80±0.77 (P<0.01) and also reduced sinus radiological score from 8.20±1.32 to 3.33±1.54 (P<0.01) at the end of study (Table No-4). The fifteen patients (group II) who were treated with Normal saline did not show any significant improvement (Table No.4).

**Table No.4:** Results of cough, PND and radiological score before and after yogic interventions

	Group	Score	Before		After	
			No. of patient s	MeanES D	No. of patient s	MeanES D
COUGH SCORE	Group -I	1	0		7	
		2	0	3.67±0.4	6	1.67±0.72
		3	5	9	2	
		4	10	0		
	Group -II	1	0		9	
		2	0	3.60±0.51	6	3.40±0.50
		3	6		0	
		4	9		0	
PND SCORE	Group-I	1	0		6	
		2	4	2.73±0.4	6	1.80±0.77
		3	11	6	3	
	Group-II	1	0		0	
		2	3	2.80±0.41	4	2.47±0.74
		3	12		11	
RADIOLOGICAL SCORE	Group-I	1	0		6	
		2	2		4	
		3	3	8.20±1.32	2	3.33±1.54
		4	6		2	
	Group-II	1	0	8.20±1.32	0	7.93±0.88
		2	3		2	
		3	2		4	
		4	6		5	
	5	4		4		

PND- Post nasal discharge

## DISCUSSION

Scientific basis of Jala Neti (nasal irrigation with luke warm saline water) proves that it Clears the nasal passages and Increase mucociliary clearance and also ciliary beat frequency<sup>12</sup>, make mucus thin and decreases the intensity of inflammation. Tamooka et al showed nasal irrigation for treatment of disease<sup>13</sup>. David Rabago and colleagues at university of Wisconsin have shown that daily hypertonic saline irrigation improves sinus related problems<sup>14</sup>. Bhramari Pranayamas creates sound vibrations that increase the air movements between the sinuses and nasal passage, air movements also open ostia (connects nose to sinus) allowing sinus to drain properly, thus Improving ventilation of sinuses and prevent settling down of infections<sup>15</sup>. A study done by Jon Lundberg & Eddie Weitzberg of the Karolinska institute in Sweden shown that daily humming or Om chanting increased Nitric oxide levels to fifteen folds during exhalation (compared to quiet exhalation without humming), indicating better ventilation between sinuses and nose, high Nitric oxide level prevent infection to settle down. Apart from sinusitis other benefits of Jala Neti on asthma bronchitis headache, migraine, epilepsy, hysteria, depression, it helps to flush the tear ducts encouraging clearer vision, improves sensitivity of olfactory nerves It has subtle effects on the pineal and pituitary glands which control the hormonal system. This has a harmonizing effect on emotional behavior<sup>16</sup>. Bhramari pranayamas relieves tension, anger & anxiety, Improves concentration, Builds confidence, Helps in reducing blood pressure.

## CONCLUSION

Practicing Jala Neti along with Bhramari pranayamas twice a week improves the clinical and radiologic status among patients with chronic rhino sinusitis. Such practice of yoga is inexpensive and safe when done under proper supervision, can be used as adjuvant therapy in preventing and treating chronic rhino sinusitis

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