

Role of Nasal Saline Irrigation as an Adjunct Therapy in Allergic Rhinosinusitis: A Clinical Study

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Abstract:

Introduction: Allergic rhinosinusitis (ARS) is a cause of significant morbidity and affects patient's daily quality of life making treatment imperative. Management of this disease includes variety of drugs from different pharmacological profile with all having varied clinical efficacy. Our study aims to evaluate role of nasal saline irrigation as an adjunct therapy in allergic chronic rhinosinusitis and its impact on symptomatology and quality of life.

Design: Qualitative study using questionnaire.

Material and method: 60 patients were included in our study and were divided in two groups.

Group A: irrigation group and **Group B:** non-irrigation group (control group). All patients were evaluated using a pre-fixed questionnaire to assess the severity of symptoms and relief if any post treatment.

Results: Patient's who were in Group A using saline nasal irrigation had significant relief in symptoms compared to control group. Group A patient's had improved quality of life and none of the patients had any side effects.

Keywords: Allergy, Rhinosinusitis, Management, Nasal saline, Irrigation

I. Introduction

Allergic rhinosinusitis (ARS) is a common, expensive disorder that has negative effect on patient's quality of life¹. It significantly increases morbidity for the patient. ARS affects social life, sleep, school and work hours, making treatment imperative. Clinical features of ARS includes paroxysm of sneezing, nasal discharge, nasal congestion, headache, sleep disturbances and decreased smell sensation.

The management of ARS includes²: Patient education, avoidance of allergens (indoor as well as outdoor), antibiotics, anti histaminics, leukotriene inhibitor, mucolytics, oral and intranasal corticosteroid. Out of all intra-nasal corticosteroid is the most effective treatment. Use of irrigating solutions before patients take decongestants or corticosteroids improves these medications penetration and, presumably, efficacy.

Saline nasal irrigation is a non pharmacologic therapy for ARS originating from the ayurvedic medical tradition. Its formula, indication, administration and device was first described in medical literature in early 20th century^{3,4}.

Mechanism of action⁵: Although exact mechanism of nasal irrigation is unknown, various proposed mechanism of action are:

- It directly cleanses the nasal cavity & flushes out allergens and irritant containing mucus.
- It improves mucociliary function & increases ciliary beat function.
- It decrease edema thus improves drainage through ostia.
- It increases penetration & efficacy of intranasal drugs.
- It flushes out bacteria and thus can reduce the length of antibiotic therapy.

II. Material And Method

60 cases who presented to our out-patient department with allergic rhinosinusitis were included in our study. Patients included were in age group of 18-60 years. Only those patients having symptoms since more than 2 weeks were included in the study to rule out acute respiratory tract infection. Those having deviated nasal septum, nasal polyposis and post-surgery patients were excluded from the study.

All patients were given questionnaire and were asked to grade their symptoms on a scale from 0 to 5. Scale 0 denotes complete absence whereas 5 denotes full blown symptom. Symptoms which were included were: paroxysm of sneezing, nasal obstruction, headache, sleep disturbances, decreased smell sensation, itching in eyes and nasal discharge. After adding all the scores, total disability score and percentage morbidity score was calculated.

All patients received standard treatment protocol for allergic rhino-sinusitis which included antibiotics (penicillin group), antihistaminic, leukotriene inhibitor and intra nasal steroid spray with fixed dosing protocol. Then patients were randomly distributed into 2 groups:

Group A: irrigation group (Using nasal irrigation twice daily)

Group B: non irrigation group (control group)

Method of nasal irrigation: Patient's were asked to prepare their nasal saline solution at home. Non-iodised salt (NaCl) 800 mg and baking soda (NaHCO₃) 400 mg were added together and stored in an air tight container. Nasal saline solution is prepared by adding 2tsf of above mixture to 250ml of previously boiled luke warm water. Saline solution was delivered in nostrils through bulb syringes or squeezable bottle available. If there was any burning sensation while performing nasal irrigation patients were advised to add less amount of dry ingredient to make weaker solution.

III. Results

The demographic profile were similar in both groups. The mean of percentage morbidity score (PMS) was calculated which was compared both at the beginning and at the end of therapy. Both the study groups showed improvement in the symptomatology and PMS but improvement was more in the group having nasal saline irrigation after 3 weeks of therapy. Patients having nasal irrigation showed significant decrease in nasal symptoms and had improved quality of life. None of patient reported any adverse affects in irrigation group. However some patient found difficulty in doing nasal saline irrigation initially but later on they were able to manage it.

	IRRIGATION GROUP		NON-IRRIGATION GROUP	
	PRIOR TO TREATMENT (Percentage morbidity score)	AFTER 3 WEEKS OF THERAPY (Percentage morbidity score)	PRIOR TO TREATMENT (Percentage morbidity score)	AFTER 3 WEEKS OF THERAPY (Percentage morbidity score)
Paroxysm of sneezing	92 %	30 %	90 %	52 %
Nasal obstruction	90 %	34 %	90 %	53 %
Nasal discharge	88 %	28 %	88 %	41 %
Sleep disturbances	88 %	36 %	86 %	44 %
Eye itching	77 %	34 %	73 %	46 %
Decreased smell sensation	75 %	36 %	73 %	50 %
Headache	85 %	47 %	81 %	50 %

IV. Discussion

Our study shows that nasal saline irrigation used as an adjunct therapy together with standard treatment protocol in allergic rhinosinusitis shows significant improvement in patient's symptoms and accelerated patient's recovery. It helps in decreasing morbidity and improves quality of life. In our study high volume of home made saline solution were delivered by bulb syringe or squeezable bottle. Various studies⁶ have used different delivery system including irrigation pots, bulb syringes or metered dose pumps. Pynonen et al found that large volume saline nasal irrigation were more effective than nasal saline sprays for chronic nasal and sinus symptoms in a community based population^{7,8}.

Saline nasal irrigation is inexpensive and safe as an adjunct treatment for allergic chronic rhinosinusitis. Although minor side effects like sense of discomfort and nervousness were common when using for first time. Side effects like burning sensation or stinging in nasal mucosa and rarely epistaxis were experienced by few patients^{9,10}. In our study no such adverse effects were encountered. However, patients had problem in performing irrigation for self, which was overcome by proper teaching of technique, salinity adjustment by using weaker solution and involving patient's relatives help at home.

V. Conclusion

Nasal saline irrigation is safe, effective, inexpensive and well tolerated as an adjunct treatment along with anti allergic therapy in chronic allergic rhinosinusitis. Early improvement of symptoms decreases duration of medication (especially antibiotics) and number of visit to the physician. It has desirable economic consequences for patients and health care system. Thus nasal irrigation has enormous potential in improving quality of life in a cost efficient manner. Further studies involving larger sample size and multi centric trials are warranted to further validate beneficial use of nasal saline irrigation as an adjunct therapy.

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