Research Article

A study of chronic allergic rhinitis in rural area and its management by cryosurgery

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Abstract

Background: Allergic Rhinitis is still one of the commonest maladies that the otolaryngologist is called upon to treat. **Aim and Objectives:** To find out historically type of Allergic Rhinitis present in rural area. To apply Cryosurgical technique as one of the alternative modality in management of chronic allergic Rhinitis and to evaluate male and female response after Cryosurgery technique. **Material and Method:** A detailed study of 90 cases of Chronic Allergic Rhinitis patients from rural area were studied over a period of 2yrs and were treated with Cryosurgery as an alternative mode of treatment and patient were followed up for 3months to 1 ½ yrs to study the response and was evaluated in terms of relief of symptoms. **Result:** In Cryosurgery procedure the bulk of the turbinates was considerably reduced so that their nasal obstruction first got relieved followed by relief of other symptoms. In our series it was very interesting to find that males have responded better than females, the reason being perhaps female patients have limited scope of changing their environment in Rural area. **Conclusion:** Cryosurgery technique definitely increases the efficiency of the otolaryngologists, eliminates hospitalization, increase the quality of medical care and provides superior results, but in some situations its use is of limited value, and continual critical assessment with careful evaluation is still required in order that over enthusiastic claims should not be made.

Keywords: Chronic Allergic Rhinitis, Nasal Obstruction, Nasal discharge, Sneezing, Cryosurgery.

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INTRODUCTION

Allergic Rhinitis is defined as an altered reactivity of the host to all substance, foreign to him, after initial exposure[1]. The symptoms of Allergic Rhinitis vary from minor trivial inconvenience to profuse symptomatology to a point where symptoms adversely affect the quality and enjoyment of life[3]. Certain individuals when untreated are in capacited for several day months. Management of Allergic Rhinitis is an Art and Science[2]. The present area being mofsle area, financial burden, patient's compliance disway a more comprehensive line of treatment. Cryosurgery having already established its foot holds with the treatment of various E.N.T. Pathologies. It is also be used in the treatment of Allergic Rhinitis. It's easy availability simple set up, OPD procedure, no anesthesia, no special training and the most important of all its cost effectiveness prompted us to carry out this modality of treatment on our rural area patients with chronic Allergic Rhinitis in whom conventional line of treatment have been tried.

AIMS AND OBJECTIVES

1. To find out historically types of Allergic Rhinitis present in our rural area.
2. To apply Cryosurgical technique as one of the alternative modality in management of chronic Allergic Rhinitis cases in those who have already received conventional management and have failed to respond satisfactorily
3. To evaluate male and female response after Cryosurgery technique.

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4. To determine whether this simple modified techniques can be used as an alternative mode of treatment in management of Chronic Allergic Rhinitis.

MATERIAL AND METHOD

A detailed study of 90 cases of Allergic Rhinitis patients were studied. All these patients were selected in OPD basis who were attending D.Y.Patil hospital, E.N.T. Department from surrounding rural area over a period of 2years.All these patients were chronic and referred cases, at no times was there a need to admit any of patients. The Criteria applied for selecting this case were

1. All these 90 patients were chronic case of Allergic Rhinitis
2. All these patients had received all sorts of conventional treatment earlier and had failed to response to these treatments.
3. All patients had 3 major Allergic symptoms.

Examples

- Nasal obstruction
- Nasal discharge
- Sneezing

Some patient had watering and itching of eye, Headache and Anosmia. The patients were grouped into 2 types of Allergic Rhinitis. i.e. Perennial Rhinitis and Seasonal Rhinitis. This grouping was done on history and Clinical evaluation. No special tests were conducted for this. In every patient Routine haemogram, complete blood counts were carried out. According to detailed history, through clinical examination and considering duration of symptoms cases were diagnosed as Allergic Rhinitis and decision was taken to treat these cases with Cryosurgery. None of the patient was admitted prior or after Cryosurgery procedure. No preoperative preparation of this patients was needed. In our series all the 90 patients were treated with Cryosurgery.

EQUIPMENT and TECHNIQUE

The Cryosurgical ERBOKRYOCA unit with Cryoprobe and Cryogenic gas as Nitrousoxide was used. The Cryounit is designed to achieve a Freezing Point of (-90^0C) temperature. The Basic principle considered for this technique is post ganglionic parasympathetic fibers of their posterior nasal branches of the pterygopalatine ganglion are served by transnasal route[11]. The nitrous oxide is allowed to flow into the cryounit which is designed to achieve a freezing point of (-90^0C). The area selected for Cryosurgery was locally anaesthetized with 4% xylocaine or infiltrated with 2% solution of xylocaine with adrenaline. The inferior turbinate were visualized and the tip of the cryoprobe was applied at selected points. The freezing time at each point is about 30 seconds and the tissue thawing is about 20 seconds. It takes about l0 minutes to complete the whole procedure on the both the sides patient were kept for 30 minutes after the procedure in recovery room and then send home to resume their normal work on the same day.

Basic rules of Cryosurgery

- Apply warm Cryoprobe to the moistened lesion before freeze.
- If deeper than 2mm destruction is required, a double freeze thaw is suggested.
- Approximately 1mm of frozen tissues outer edge is not destroyed it is reversible.

OBSEVATIONS

In present series the highest incidence of age group is between 18-30yrs and 31-40yrs i.e. in the 3rd and 4th decade with slight male preponderance is seen 51.1% male patient and 48.8% were females as shown in the Table-I

Table 1: Showing Age and Sex Distribution

Age in Years	Number of Case		Percentage	Total
	Male	Female		
18-30	18	28	51.1%	46
31-40	11	10	23.3%	21
41-50	10	6	17.7%	16
51-60	05	0	5.5%	5
61 and Above	02	0	2.2%	2
Total	**46**	**44**	**100%**	**90**

In our series of 90 cases highest incidence of perennial type of Allergic Rhinitis is found in our region with around 63(70%) cases out of 90 cases while seasonal rhinitis is around 27(30%) cases.

Table 2: Showing Types of Allergic Rhinitis found in rural area

Age in Years	Number of Case		Total	Percentage
	Male	Female		
Perennial	34	29	63	70%
Seasonal	11	16	27	30%

In our region its is seen that the farmers and housewifes have maximum incidence of Allergic Rhinitis i.e. 28 out of 90 cases were farmers and 33 case were housewifes. 11 individuals were working in office while 15 were students. Only one individual has business of cotton while 3 individuals out of 90 cases had no occupation.

Table 3: Showing Occupation

Occupation	Number of Case		Total
	Perennial	Seasonal	
Farmer	22(24.3%)	6(6.6%)	28
Housewife	20(22.2%)	13(14.8%)	33
Student	10(10.1%)	4(4.5%)	14
Business	2(2.2%)	0	2
Office	7(7.7%)	3(3.3%)	10
No	2(2.2%)	1(1.1%)	3
Total	**63**	**27**	**90**

Table 4: Symptoms

Symptoms	Number of Case	Percentage
Nasal Obstruction	90 (11)	100%
Nasal Discharge	90	100%
Sneezing	90 (59)	100%
Itching andWatering ofeye	57	63.33%
Headache	63	70%
Anosmia	79	87%

TABLE IV highlights all the three symptoms. The symptoms were present in varying extent in all cases. Out of 90 patients 77 cases had Perennial nasal blockage, figure in bracket indicate unilateral nasal blockage out of 11 cases 5 cases had left nostril blockage while 6 cases had Right nostril blockage. All 90 cases had nasal discharge 45 patients had profuse continuous watery discharge while rest 45 case had mucoid to mucopurulent discharge which was not continuous. Purulent discharge was present in 6.6% of cases which was revealing infection. Sneezing was present in 59 cases indicating in bracket, itching and watering of eye was present in 63.3% of patients , 70% of patients had headache and 87% of patients complained of anosmia. Examination findings of Anterior Rhinoscopy reveals inferior hypertrophy in 100% of cases, around 86.6% of case had Right side inferior turbinate hypertrophy while 10% cases had left side hypertrophy. 78 cases had normal septum while 9 cases had DNS to Right nostril and 3 patients with DNS to left nostril. Out of 90 cases15 patients had middle turbinate hypertrophy, 7 had bilateral while 9 pts had right middle turbinate hypertrophy and 3 patients had left middle turbinate hypertrophy. 11% of patient had paranasal sinus infection and were treated with antibiotics before giving cryosurgery. Posterior Rhinoscopy findings did not relieve and findings. Out of 90 patients 15 patients were having known Bronchial Asthma, out of these 15 patients 13.3% had perennial type and 3.3% had seasonal type of Allergic Rhinitis. Among 90 patients 2 patients were diabetic and one patient was known hypertensive. In our study out of 90 patients 6 patients had undergone SMR, while 1 patient had undergone septoplasty for same complaints and 5 patients had undergone inferior turbinate electric qauterization follow up was done for an average period of 3months to 1½ years, for interpretation of results patients were grouped info 4 categories based on their response to the therapy.

GROUP

- **Excellent:** Relief of all 3symptoms, Nasal obstruction, Nasal discharge and Sneezing.
- **Good:** Relief of 2 symptoms out of 3 symptoms.
- **Satisfactory:** Relief of any 1 symptom out of 3 symptoms.
- **Poor:** No Relief in any of the Symptoms.

On assessment of overall response rate 60.8% males and 31.8% of females obtained excellent result while17.3% of males and 15.2% of females showed good response. On the other side 15.2% males and 29.5% .Females showed satisfactory response while 6.52% of male 18.1% female showed poor response. Thus considering both male and female response around 92.6% cases had excellent response in relieving the symptoms. (Table V)

Table 5: Showing post operative response rate

Response	Number of Case		Percentage		Total
	Male	Female	Male	Female	
Excellent	28	14	60.8%	31.8%	92.6%
Good	8	9	17.3%	20.4%	37.7%
Satisfactory	7	13	15.2%	29.5%	44.7%
Poor	3	8	6.52%	18.1%	24.62%
Total	**46**	**44**	**99.8%**	**99.8%**	

DISCUSSION

The present rural area is rich in sugarcane, rice, paddy fields, and animals' danders. The chief weed of this area is parthenium (congress grass). All four seasons prevail in this area. The main occupation in this area is of farming around (30.9%) and all of them were suffering from chronic Allergic Rhinitis. 24.3% were suffering from perennial type and around 16.6% had seasonal Rhinitis housewifes constituted 37.0% with 22.2% had perennial Rhinitis while 14.8% of cases had seasonal Rhinitis usually air in country side contain more spores than that of cities and house dust is the substance more often accused of perennial Rhinitis (voorhost (1967))[3] and exposure to pollen usually cause seasonal Rhinitis (Lichenstein and Norman 1971)[8]. In our region study showed maximum suffers as farmers and house wife's. The common cause may be because of agricultural area and house dust[3]. When a patient's problem is not adequately controlled on symptomatic treatment and definitely when the problem is interfering with normal activities, specific diagnosis and treatment are indicated[1.] The disease also started in middle age groups Schachter and Higgins 1976[4] based on varying results from the literature 2-20% of seasonal rhinitis is present in a reasonable average accumulative frequency value for young adults which is 10%. This frequency is higher apparently in the U.S.A. due to rag weed and lower in Europe and Possibly slightly higher in students than in other subjects Border1947[5]. The common age group in our study who had seasonal type of allergy were 18 to 30 yrs of age which also agrees with the author. Perennial Rhinitis occurrence in our series was between 18 to 30 yrs which was also reported by author Viner and Jackman1976 [6]. In our present series in total of 90cases46 patients were male while 44 patients were female. Shanmugum.V.[7] Presented study of 200 cases which

showed 101 were male while 99 were female, 70% were in 3rd decade similarly our study also shows maximum number of cases (51.1%) in the 3rd decade. As comparing our study with other authors nasal blocking, nasal discharge and sneezing also reported 100% of Viner and Jackman[6]. In present study we have evaluated the role of Cryosurgery as and effective management. Shanmugum.V.[7] observed that 58% of male and 32% of females had excellent result while our study showed 60.8% of males and 31.8% females had excellent results. M. Gulati and M. Tankwal[8] who not 67% patients were benefited in terms of relief of nasal obstruction. Golding Wood .P.A.[9] noted a success rate of 94% with cryosurgery while ozenberger J.M. [10] . Showed a success rate of 83% with cryosurgery for the treatment of chronic Allergic Rhinitis. Our collective response rate is 87% comparison of results with different authors.

Response of Cryosurgery	Shanmugum. V. 1986	Maru Y.K. 1987	Saurabh Varshney 1997	Present Series
No. of Case	200	50	100	90
Complete Response	90(45%)	40(80%)	42(40%)	42(46.6%)
Partial Response	80(43%)	10(20%)	32(30.8%)	37(41.2%)
No Response	18(9%)	-	10(9.6%)	11(12.3%)

Maru. Y.K[11] studied 50cases of chronic Allergic Rhinitis which observed 80% of cases with complete response (relieving all 3 symptoms) while our series showed 46.6% Shanmugum.V.[7] Showed 45% of complete response Saurabh Varshney.[12] reported 40% partial responses (relief of 2 symptoms) reported by Shanmugum. V.[7] was 43%, MaryY.K.[10] reported 20% while Saurabhvarshney.[12] reported 30.8% while our series showd 41.2% No response reported 9% and 9.6% respectively by Shanmugum.V.[7] and Saurabh varshney.[12] our study shows 12.2% patients with no response. Maru.Y.K [10] reports almost 100% cure rate. His study comprises of only 50 case. This could be the reason why his study has revealed a 100% cure rate. Holden[13] and Poswillo[14] reported that the application of freezing to the interior turbinate's gives more clinical relief than submucous diathermy. Since this causes post operative pain and bleeding. While our study of Cryosurgery to the turbinate, our patients did not have any pain, discomfort or complications either post-operatively, intra operative or post operatively. In fact they were discharged one hour after the surgery and asked to resume their regular duties.

CONCLUSION

Both seasonal and perennial types of Allergic Rhinitis were seen in our region. Incidences of occurrence of perennial rhinitis were 70% of cases which was more than that of seasonal rhinitis i.e. 30% of case were found.

- Male Preponderance was seen but no total sex difference could be demonstrated.
- Maximum numbers of case of Chronic Allergic Rhinitis were in 3rd and 4th decade. More common in farmers and house wife's, while student's official workers and business individuals had less extent. The reason behind this may be our region is in more countryside having fields of grains, sugarcane, pollen, animal dander's, dust and fungus.
- Cryosurgery procedure was done on our youngest patients 18 years old as well as oldest patients 75 years old. It was also done on known patient of diabetes, hypertension and asthma.
- In this procedure the bulk of the turbinate's was considerably reduced so that the nasal obstruction first got relieved followed by relief of other symptoms. It is interesting to note that male's responses better than females, the reason being perhaps the female patients have limited scope of changing their environment.
- Cryosurgery can be done as outpatient procedure, safe, simple to operate, no general anesthesia is needed, no bleeding or no post operative stenosis or scar is seen.
- Cryosurgery technique increases the efficiency of the physician, eliminates hospitalization, increases the quality of the medical care and provides superior results.
- In our study the longest follow up of our cases were 1 ½ years and shortest were 9 months this period is not long enough to comment about the consistency of results, whether the results are going to be permanent or whether there is going to be regeneration of autonomic nerve fibers and recurrence of symptoms. There are now many conditions in which the results of Cryosurgical treatment have been encouraging but in some situations its use is of limited value, and continual critical assessment with careful evaluation is still required in order that overenthusiastic claims should not be made. The potential benefits certainly justify its place as a valuable therapeutic agent.

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CONTRIBUTION OF AUTHORS

We declare that this work was done by the author(s) named in this article and all the liabilities pertaining to claims relating to the content of this article will be borne by the authors. VAP designed the study, collected, analyzed the data and prepared the manuscript. PAP conceived and supervised the study while, RM and PP reviewed the manuscript all authors mentioned in this article approved the manuscript.

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