



# CHRONIC LARINGITIS RELATED HOARSENESS TREATMENT: A COMPARATIVE ANALYSIS

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## ARTICLE INFO

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## ABSTRACT

**Introduction:** Chronic laryngitis is a very common problem seen in our ENT out patient department on a daily basis .Most patient presents with hoarseness as a chief symptom followed by sore throat ,dysphagia and cough .While large number of patients respond to anti reflux medication ,there are some groups who continues to report of long term voice distortion despite treatment .**Objective:** We divided the patients in two cohorts to compare the effect of steam inhalation and short term oral steroids in patients of chronic laryngitis. **Material and methods:** This is a prospective study done on 50 patients randomly divided into two groups .One group was offered steam inhalation while other group was given short term steroids .Findings were recorded and compared after one week of treatment. **Conclusion:** Though both the group showed good outcome but short term steroids surely takes the upper hand in hoarseness treatment and improvement in voice.

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## INTRODUCTION

Inflammation of larynx is known as laryngitis. It is accompanied by various symptoms such as hoarseness , sore throat ,difficulty in swallowing .It is said to be acute if symptoms last for less than three weeks and chronic if symptoms last for more than three weeks .May be caused due to allergies , repeated cough causing trauma to the vocal track ,smoking ,upper respiratory track infection and acid reflux .The underlying mechanism being chronic inflammation of the larynx leading to irritation .The acute form generally requires no treatment and resolves on its own with some added symptomatic treatment like voice rest ,antacids and adequate hydration .Antibiotic is of no help in acute cases .Chronic form of laryngitis is commoner in men and middle age .Primary and most debilitating condition of laryngitis is hoarseness .Anti reflux medicine is used in hoarseness due to chronic laryngeal inflammation but is found seldom to be of any help .This study is done over 50 patients of chronic laryngitis where chief complaint was hoarseness. They were randomly divided into two groups and respectively were treated with steam inhalation and steroids. Results were further evaluated at the end of the treatment.

## MATERIAL AND METHODS

This is a prospective study done at tertiary health care centre over 50 patients who were enrolled to become the part of the study.

Patients were randomly divided into two groups using random number table and Microsoft excel software .Criteria was formulated and protocols were made .Candidates following the same were selected for our study.

### Inclusion criteria

- ) Patients of age group between 14 to 36 .
- ) Healthy individual
- ) Chronic laryngitis of more than 6 months
- ) Chief complaint being hoarseness
- ) Giving consent for study upon them
- ) GBRAS score <= 3

### Exclusion criteria

- ) Co morbid conditions
- ) Smoking and allergic history
- ) Other laryngeal conditions

Patients who were coming up in our out patient department with main complain of hoarseness were examined .Detailed medical history was taken regarding their problem and were put through visual examination of larynx .Confounding factors in both the groups was taken care of and excluded. Laryngoscopy was done to exclude any other causes of laryngitis .They were then randomly divided into two groups who were prescribed medicines accordingly.

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**Group 1:** Prednisolone 1mg/kg body weight for 1 week.

**Group 2:** Steam inhalation 12 hourly daily for one week.

#### Steam inhalation procedure

- ) It involved exposing airway mucosa to humidified steam through inhalation for minimum 10 min (5 cycles of 2 min)
- ) Temperature was maintained between 40 and 65 °C in the first 5 min after initiation of treatment .
- ) Patients were then asked to drape the towel over their head lowering toward the hot steam down to about 40 cm from the water.

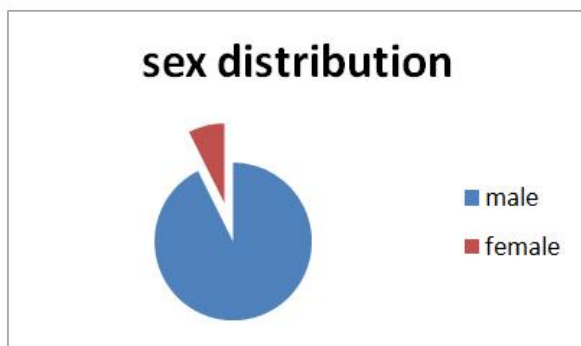
All the patients were strictly put on voice rest. Patients were followed up regularly .After one week hoarseness was evaluated on GBRAS score. Patients were kept in two categories on the basis of results .An auditory-perceptual evaluation method for hoarseness is the GRBAS scale, which gives scores of 0, 1, 2, or 3 for the Grade of hoarseness; Roughness, Breathiness, Asthenia, and Strain, where score 0 is normal, 1 is a slight degree, 2 is a medium degree, and 3 is a high grade .Those who were having improvement with GBRAS score 0 ,1 and 2 after treatment and those who didn't show considerable improvement in their voice was scored 3 .

#### Statistical analysis

The statistical analysis was performed using SPSS Statistics for Windows, Version 24.0. Continuous variables were compared using the Mann-Whitney test, and categorical variables were compared by the Chi-Square test .Statistical tests were two-tailed, and a p-value < 0.05 was considered significant .

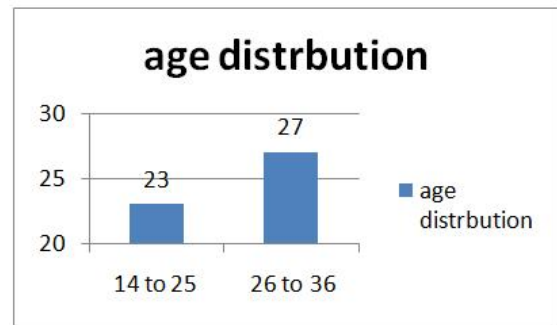
## RESULTS

50 patients were taken for the study .There were no dropouts in patients during treatment and follow up .Age group of patients range from 14 to 36 years standard deviation being 6.7. Mean of the age was 25.2 years and variance being 44.8 .The sampling mean most likely follows a normal distribution. In this case, the standard error of the mean (SEM) when calculated was 0.97 .Out of 50 patients ,20(40%) was male and 30 (60%)was female. Chart 1,2.



**Chart 1. Sex distribution**

Patients were examined on 8<sup>th</sup> day after starting of medication .GBRAS scale analysis was done of all the patients .There were no patients with lost follow up and drop outs .Out of 25 patients who were given steroids 14 patients were having score of 1 ,7 had score of 0 while 3 patients did not show any improvement with score of 3 .In second group who were advised steam inhalation 12 patients showed improvement with score 1 , 3 patients showed improvement with score 0 while rest of the patients remained at score 3 .Table 1.



**Chart 2. Age distribution**

**Table 1. GBRAS score following treatment**

score	group 1	Group 2
0	7(28%)	3(12%)
1	14(56%)	12(48%)
2	-	
3	4(16%)	10(40%)

P value and statistical significance:

The two-tailed P value equals 0.12. By conventional criteria, this difference is considered to be not statistically significant. Recovery rate of hoarseness was 84% from group given steroids treatment and 60% of the group treated with steam inhalation only Table 2

**Table 2. Data Review**

GROUP	1	2
Mean	6.25	6.25
SD	5.91	5.68
SEM	2.94	2.84
N	4	4

## DISUSSION

Chronic laryngitis can be caused by more severe problems, such as nerve damage, sores, polyps, or hard and thick lumps on the vocal cords<sup>1</sup>. Chronic laryngitis mostly presents with hoarseness which can persist for more than 3 weeks .Other accompanying symptoms can be odynophagia, dysphagia, rhinorrhoea ,sore throat<sup>2</sup>.Diagnosis can be based on clinical features which is further aided by visual examination through laryngoscopy<sup>3</sup> and stroboscopy .Vocal cord might be normal or may present with aperiodicity ,asymmetry ,and disturbance in mucosal wave. On laryngoscopy there can be some dilated vessels ,redness , secretions or stiffness<sup>4</sup>.Treatment is supportive in nature with behavioural therapy, hydration, humidification, voice rest and anti reflux medication .Vocal hygiene includes measures such as voice rest, drinking sufficient water, reducing caffeine and alcohol intake, stopping smoking and limiting throat clearing<sup>2</sup>. Anti-reflux drugs may be given for patients with signs of chronic laryngitis and hoarse voice. If anti-reflux treatment does not result in a decrease of symptoms, other possible causes should be examined. Antacids and H-2 blockers may be used over the counter medication.<sup>4</sup>Antacids are often short-acting and may not be sufficient for treatment. <sup>5</sup>When beneficial, anti-reflux surgery may benefit some individuals. When treating allergic laryngitis antihistamines and steroids could be of help .<sup>4</sup>Corticosteroids reduces the vocal cord inflammation and thus improves voice quality very fast .So it is mostly used in patients with urgent need of their voice such as singer and those who have tried all the basic measures but still not improving .But the side effects of corticosteroids cannot be waded off and should be given under guided instructions .Surgical treatment is the ultimate step which is taken when there is a particular cause of hoarseness and is recalcitrant to medical therapy .

## CONCLUSION

Chronic laryngitis presents with many symptoms with hoarseness being one of the primary symptoms which do not resolve soon and the situation is very annoying and many a times depressive to patient .Voice rest hydration and behavioural treatment being the earlier treatment quite often resolve the problem but some patient do not respond to it or some candidates might be in urgent need of voice correction .To them a short course of corticosteroids have been tried with success with improvement in quality of voice .Our study which was a comparative study to see the outcome of steam inhalation and oral corticosteroids in chronic laryngitis patients .The results in group treated with steroids were surely better than those who were treated with steam inhalation though some degree of improvement was seen in patients who were just asked to take steam .

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