

CLINICAL AND ENDOSCOPIC EVALUATION , PRE AND POST TREATMENT IN PATIENTS OF LARYNGOPHARYNGEAL REFLUX

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Received : 01/05/2023
Received in revised form : 07/06/2023
Accepted : 20/06/2023

Keywords:

Gastroesophageal Reflux Disease,
Laryngopharyngeal Reflux.

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DOI: 10.47009/jamp.2023.5.3.450

Source of Support: Nil,

Conflict of Interest: None declared

Int J Acad Med Pharm
2023; 5 (3); 2293-2297



Abstract

Background: Laryngopharyngeal reflux means reflux of gastric contents into the larynx and pharynx. The term REFLUX literally means backflow (latin, re - back + fluere – to flow). Kaufman recommended the term to designate laryngopharyngeal reflux symptoms , signs , or tissue damage from aggression of gastrointestinal contents into upper aerodigestive tract. Direct injury occurs when acid and pepsin comes into contact with laryngeal mucosa , causing mucosal damage. **Objective:** To determine the effect of gastric reflux on larynx and pharynx. To determine the effect of proton pump inhibitors along with life style modifications on laryngeal reflux symptom index and reflux finding score. **Materials and Methods:** A prospective study with experimental design was conducted to know the effect of proton pump inhibitors on reflux symptom score and reflux finding score in laryngopharyngeal reflux disease . A total of 108 patients were included in the study. Two expedient self-administered tools, the Reflux Symptom Index that help clinicians to evaluate the symptoms of laryngopharyngeal reflux and the Reflux Finding Score , which is useful for the laryngoscopic evaluation of patients of laryngopharyngeal reflux. **Results:** The age range of our study was 18-60 year . maximum no. of patients were found in the age group of 31-40 year i.e 36 patients. Females were found more commonly affected gender . Most common presenting chief complain was repeated throat clearing and foreign body sensation . Mean RSI calculated was 19.8 which is reduced to 8.13 after 8 week treatment with PPI while mean RFS was 9.19 which is reduced to 4.65. **Conclusion:** After giving 8 week treatment with proton pump inhibitors and life style modifications there is significant improvement in reflux symptom index and reflux finding score suggesting that long term treatment with proton pump inhibitors along with life style modification is effective in treatment of laryngopharyngeal reflux disease.

INTRODUCTION

Laryngopharyngeal reflux means reflux of gastric contents into the larynx and pharynx. The term REFLUX literally means backflow (latin , re - back + fluere – to flow).^[1] Term laryngopharyngeal reflux(LPR) was devised by James in 1980.^[2] In 1996, Kaufman recommended the term to designate laryngopharyngeal reflux symptoms , signs , or tissue damage from aggression of gastrointestinal contents into upper aero-digestive tract.^[3]

Laryngopharyngeal reflux frequently occurs in upright position and is mostly due to regurgitate of gaseous gastric contents, containing fine droplets. Tissue damage in LPR is relatively quicker because there are no mechanisms to buffer the action of the acid. Irritation of distal oesophagus by acid may

cause a reflux mediated by vagus nerve, resulting in chronic cough and throat clearing which may in turn produce traumatic injury to laryngeal mucosa.^[4] Incidence of patients presenting to an otorhinolaryngologist with GERD has been estimated to be 4-10%. Because of high prevalence of disease and potential serious consequences including laryngeal carcinoma, it is important to be familiar with the contemporary perspectives on this disorder.^[5,6,7]

Two expedient self-administered tools, the Reflux Symptom Index.^[8] that help clinicians to evaluate the symptoms of laryngopharyngeal reflux and the Reflux Finding Score⁹, which is useful for the laryngoscopic evaluation of patients of laryngopharyngeal reflux.

Study is conducted to reach the clinical diagnosis of laryngopharyngeal reflux, the evaluation of main

symptoms experienced by the patient with the help of RSI and endoscopic laryngeal finding with the help of RFS has been carried out and Also to see the effect of proton pump inhibitors (PPI) along with lifestyle modifications in reducing symptoms and signs produced in patients of laryngopharyngeal reflux.

Aim and Objectives

1. To determine the effect of gastric reflux on larynx and pharynx both clinically and endoscopically.
2. To determine the effect of proton pump inhibitors along with life style modifications on laryngeal reflux symptom index and reflux finding score.

MATERIALS AND METHODS

A prospective study with experimental design is conducted to know the effect of proton pump inhibitors on reflux symptom index and reflux finding score in laryngopharyngeal reflux disease in age group of 18-60 year in patients presenting to outpatient department of otorhinolaryngology with symptoms suggestive of laryngopharyngeal reflux disease within the time period of 1 year.

A total of 108 patients were included in the study after taking informed consent and fulfilling the inclusion and exclusion criteria.

Inclusion Criteria

- Patients who are between the age group of 18 – 60 yr .
- Patients with symptoms including foreign body sensation of throat , repeated throat clearing , annoying cough , hoarseness of voice , heartburn.
- Patients with symptoms suggestive of laryngopharyngeal reflux disease with reflux symptom index of more than 13.
- Patients with symptom suggestive of laryngopharyngeal reflux disease with a reflux finding score of more than 7 as per laryngeal endoscopic examination.

Exclusion Criteria

- Patients below the age of 18 yr.
- Patients above age of 60 yr.
- Patients who were allergic to proton pump inhibitors
- Patients who had already taken proton pump inhibitors in past 1 month
- Patients with other co- existing laryngeal pathology like acute infections of larynx, benign and malignant conditions of larynx.

To facilitate the diagnosis, a useful, available, validated self-measurement tool was developed by Belafsky et al. Which is REFLUX SYMPTOMS INDEX (RSI) for assessment of subjective degree of symptoms of laryngopharyngeal reflux and a clinical scale REFLUX FINDING SCORE (RFS)

which assesses the severity of mucosal injury by rigid endoscopic examination of larynx.

Both RSI & RFS scales were useful for both initial clinical evaluation and also for follow up so as to check efficacy.

Reflux Symptom Index

SYMPTOMS	Score (0 to 5)
Hoarseness of voice	
Clearing throat	
Excess throat mucus	
Difficulty in swallowing food,liquids	
Cough after eating/lying down	
Annoying cough	
Breathing difficulty/choking episodes	
Sensation of something sticking in throat	
Heart burn /chest pain/stomach acid coming up	

Patients were evaluated using Reflux Symptom Index, a set of nine self-assessment questions/entities that were graded from 0 to 5 (with a total score of 0 – 45) according to subjectivity of patients and those who had a score of more than 13 would be clinically labelled as LPR. patients were then subjected to rigid 700 endoscopy , which was done after taking proper consent from the patient.

REFLUX FINDING SCORE	SCORE	REFERENCE
Ventricular edema		2-PARTIAL 4-COMPLETE
Erythema / hyperemia		1-ARYTENOIDS 4- DIFFUSE
subglottic edema		0-ABSENT 2-PRESENT
Diffuse laryngeal edema		1-MILD 2-MODERATE 3-SEVERE 4-OBSTRUCTING
Post. Commissure hypertrophy		1-MILD 2-MODERATE 3-SEVERE 4-OBSTRUCTING
Granuloma/granulation tissue		0-ABSENT 2-PRESENT
Thick endolaryngeal mucus		0-ABSENT 2-PRESENT
Vocal fold edema		1-MILD 2-MODERATE 3-SEVERE 4-OBSTRUCTING

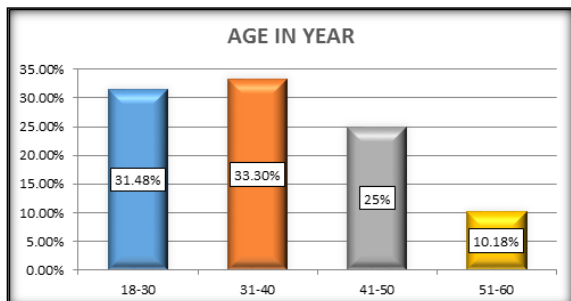
Patients in which reflux finding scores was above 7, were given PROTON PUMP INHIBITORS twice daily dosage 1 hour before meals and lifestyle modifications were advised which includes-head end elevation while sleeping , Short frequent meals , Meals 3-4 hours before bedtime, 30 Min walk after meals , Avoid hot , spicy and fatty food for a duration of 8 weeks .

Patient was then called after 8 week for symptomatic evaluation by RSI and endoscopic examination by RFS.

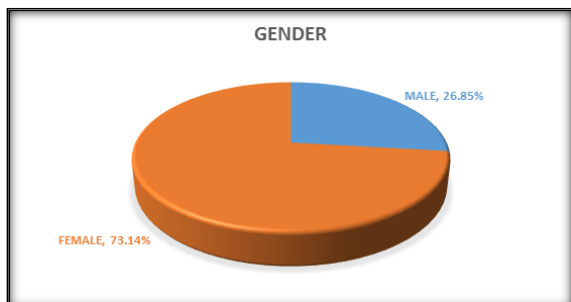
The results obtained in the study were compared and presented in tabulated manner. Statistical analysis was done using chi square test and Anova test. P value <0.05 was considered statistically significant and P value <0.001 was considered highly significant.

RESULTS

There were 108 patients in the age group of 18 TO 60 years of age in the study with a maximum number in the age group of 31-40(33.3%) and least number in those 51 to 60 years (10.18%) of age. Mean age - 36.4 yr.

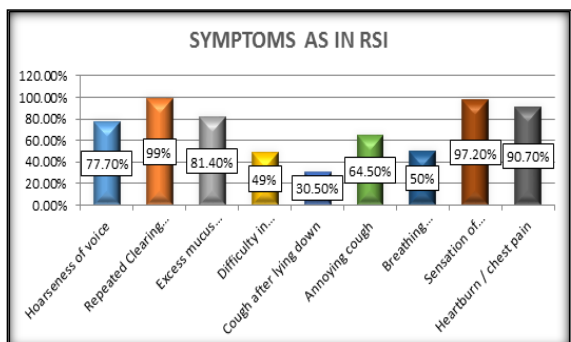


Majority of patients presented with symptoms suggestive of Laryngo pharyngeal Reflux Disease are females, constituting 73.14% against 26.85% which were males.

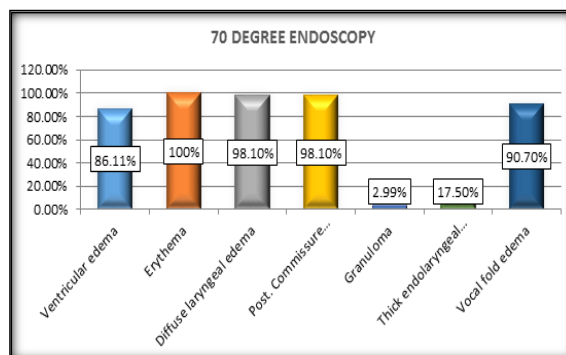


Patients were assessed according to addictions and it was observed that most common addiction was smoking seen in 19 patients followed by tobacco chewing in 18 patients and alcohol intake in 15 patients.

Patients were assessed according to their dietary habits and it was observed that excessive consumption of spicy food was seen in 73 patients (67.5%), excessive consumption of fried /fatty food was seen in 62 patients (57.4%) and excessive intake of tea/coffee was seen in 45 patients (41.6%). Amongst all the common symptoms of LPR as per RSI, repeated throat clearing is most common i.e in 107 patients while cough after lying down is least common i.e in 33 patients.

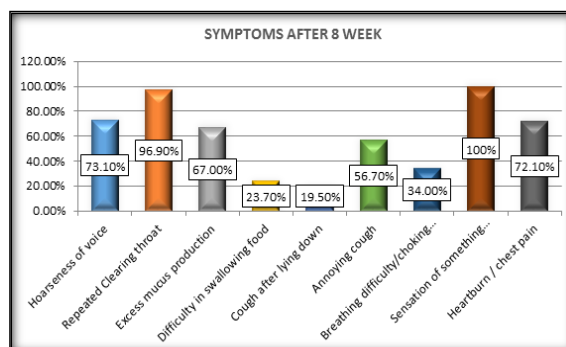


Amongst all the findings in 70 degree endoscopy, erythema was most common finding i.e in 108 pt. while subglottic edema was the least common finding not seen in any patient.



Patients were then again given treatment for 8 weeks with oral proton pump inhibitors and lifestyle modifications and were called for clinical evaluation by RSI and 70 degree rigid endoscopic evaluation by RFS.

After 8 week of treatment with proton pump inhibitor and lifestyle modification, most common symptom seen was something sticking in throat followed by repeated throat clearing while least common was breathing difficulty or choking episodes.



After 8 week of treatment reflux finding score was applied again and most common finding was posterior commissure hypertrophy followed by diffuse laryngeal edema i.e 90.70% and 87.6% while least common finding was subglottic edema which was not seen in any patient.

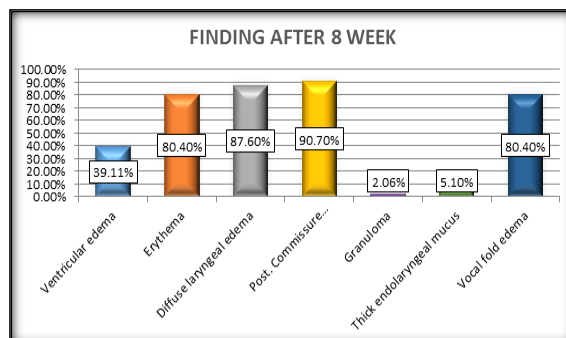


Table: Comparison of Mean of Reflux Symptom Index Score

RSI	PRE TREATMENT	8 WK POST TREATMENT
MEAN	19.8	8.13
STD.DEVIATION	4.148	2.564
MAXIMUM VALUE	32	14
MINIMUM VALUE	13	4
T test applied, p value- <0.001, significant		

Table: Comparison of Mean of Total Reflux Finding Score

RFS	PRE TREATMENT	8 WK. POST TREATMENT
MEAN	9.19	4.65
STD. DEVIATION	2.320	1.779
MAXIMUM VALUE	15	12
MINIMUM VALUE	7	2
T test applied, t value- 15.73, p value- <0.001		

Statistically significant difference in RSI and RFS was seen pre and post treatment with PPI along with lifestyle modification in patients of laryngopharyngeal reflux.

DISCUSSION

Prevalence of laryngopharyngeal reflux disease is very high and making the diagnosis of laryngopharyngeal reflux disease is not an easy task.^[10]

The present study was aimed to evaluate the effect of Proton pump inhibitors on the reflux symptom index and reflux finding score among those who suffer from Laryngopharyngeal reflux disease.

Age

In the present study 108 patients in the age group of 18 to 60 years of age in the study with a maximum number in the age group of 31-40(33.3%) and least number in those 51 to 60 years (10.18%) of age. Mean age of our study 36.4 yrs, which was comparable to Bhargava A et al.^[11] and Osman H A et al.^[12] study.

Gender

In the present study the majority of patients were females, constituting 73.14% against 26.85% which were males. Bhargava A et al.^[11] study total number of 120 patients were examined 64 were male and 56 were female. Bajoliya S et al.^[13] out of the total 34, (56.66%) patients were females and 26, (43.44%) were males.

Chief complaints

In the present study repeated throat clearing is most common i.e in 107 patients while pain in throat is least common i.e in 23 patients comparable to Osman H A et al.^[12] study.

Dietary habits

In the present study the majority of study subjects consume spicy food 67.50% followed by consumption of fatty food/Fried food, 57.40% and

intake of Tea/Coffee, 41.60%, which was similar to Nasreen Fathi Mahmoud et al.^[14] study

Addictions

In the present study the study subjects 13.80% have alcohol addiction, 17.50% have smoking addiction which was equivalent Bhargava A et al.^[11] study Symptoms as in RSI at initial presentation (pretreatment) . In the present study amongst all the common symptoms as in RSI of LPR, repeated throat clearing is most common i.e in 107 patients while cough after lying down is least common i.e in 33 patients. Bhargava A et al.^[11] symptoms seen were frequent clearing of the throat (71%), foreign body sensation in the throat (55%), cough (51%).

Findings in 70 degree endoscopy as from RFS (pretreatment). In the present study among all the findings in 70 degree endoscopy, erythema was most common finding i.e in 108 pt. while subglottic edema was the least common finding not seen in any patient in the study. Osman H A et al.^[12] Erythema is the most common laryngeal finding in the study seen in 54 patients (88.52%) , 51 of them 83.31 were had diffuse erythema while 3 (4.92%) were arytenoid only followed by Diffuse edema represent in 52 patients (85.25%), 32 (52.46%) of which were moderate, 17 (27.87%) where severe and 3 (4.92%) where obstructed edema, followed by vocal cord edema in 50 patient representing mild edema in 9 patient (14.57%), moderate in 15(24.59%),severe in 20 (32.79%), obstructed in 6 (9.84%).

Symptoms as in RSI after 8th week treatment (post treatment). In the present study out of 103 patients, 97 pt. came for follow up after 8th week. The most common symptom Sensation of something sticking in throat 100% was seen in the study. Bajoliya S et al.^[13] study observed significant reduction (74%) of RSI and also improvement of clinical symptoms after completion of twice daily PPI therapy, concordance to other studies like Vaezi et al.^[15] and Campagnolo et al.^[16] Charles et al.^[17] Out of 50 patients who showed severe LPR (RSI>13) 8 (16%) were lost to follow-up and 5 (10%) did not show significant reduction of clinical symptoms after PPI therapy, this could be due to poor compliance , or non-adherence to therapy, these patients may require another course of PPI therapy.

Findings in 70 degree endoscopy after 8 week treatment (post treatment). In the present study out of 97 patients the majority of the patients have post commissure hypertrophy 90.7% which was similar to Dawood MR et al.^[10] Bajoliya S et al.^[13] observed significant reduction (74%) of RFS and also improvement of signs after completion of twice daily PPI therapy Mean of RSI pretreatment was 19.8 which has reduced to 8.^[13] . Similar study has been done by Bhargva A et al.^[11] in which pretreatment RSI was 23.37 +/- 7.26 and is reduced to 5.24 +/- 2.51 Mean of RFS pretreatment was 9.19 which has reduced to 4.65 . . Similar study has been done by Bhargva A et al.^[11] in which pretreatment RFS was 10.36 +/- 3.11 and is reduced to 4.31+/- 2.00.

CONCLUSION

- Females were predominantly affected with laryngopharyngeal reflux with the ratio being 2.3:1.
- Disease was prevalent in age group of 31-40 year with mean age of 36.4 yr.
- Most common symptom in patients of laryngopharyngeal reflux according to reflux symptom index (RSI) was repeated throat clearing followed by foreign body sensation while the least common was cough on lying down.
- Most common finding seen in patients of laryngopharyngeal reflux according to reflux finding score (RFS) was erythema while the least common finding is subglottic edema .
- After giving 8 week of treatment with proton pump inhibitors and life style modifications there is significant improvement in reflux symptom index and reflux finding score.
- Hence the study suggests that long term treatment with proton pump inhibitors along with life style modification is effective in treatment of laryngopharyngeal reflux disease.

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