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Otorhinolaryngological Manifestations of Laryngopharyngeal Reflux Disease and Role of Proton-Pump Inhibitors in its Management

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Abstract

Background: Laryngopharyngeal reflux Disease (LPRD) is defined as the retrograde flow of stomach content into the larynx and pharynx whereby this content comes in contact with the upper aerodigestive tract. It is an extraoesophageal variant of gastroesophageal reflux disease that affects the larynx and pharynx. Our study is aimed to evaluate symptoms and signs of Laryngopharyngeal Reflux Disease [LPRD] in the rural area and role of protonpump inhibitors in its management. **Material and Methods:** This is a prospective clinical observational study conducted in 50 patients diagnosed as LPRD on the basis of reflux finding score and reflux symptom index and to evaluate the role of PPI in LPR management by observing the effect of PPI on reflux finding score (RFS) and reflux symptom index (RFI) during the follow up period of 12 weeks in the department of Otorhinolaryngology in Kamineni Institute of Medical Sciences, Narketpally from November 2020 to November 2022. **Results:** 76% of patients showed good response to the treatment and 24% had poor response. **Conclusion:** LPR was found to be predominant in females irrespective of age except in 6th decade where male predominance is seen. Most of the patients with LPR had their BMI in the range of 25-30, The common extralaryngeal manifestation was serous otitis media 76% of patients showed good response to the treatment and 24% had poor response for which the treatment was continued for another 3 months after which patients improved clinically.

Keywords: Laryngopharyngeal reflux, LPRD, Proton pump inhibitor, Reflux symptom index, Reflux finding score.

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Introduction

Laryngopharyngeal reflux Disease (LPRD) is defined as the retrograde flow of stomach content into the larynx and pharynx whereby this content comes in contact with the upper aerodigestive tract. It is an extraesophageal variant of gastroesophageal reflux disease that affects the larynx and pharynx.[1,2] The other terms used for this in otorhinolaryngology practice are ‘extra esophageal reflux’, ‘chronic laryngitis’ and ‘supra esophageal complication of gastroesophageal reflux’.[2]

LPRD manifests with symptoms like Cough, Throat clearing Difficulty in swalloing/Throat pain. It may not be accompanied with symptom of reflux and hence a high degree of suspicion is required for diagnosis and is mostly not recognized because it may be a “Silent Reflux”. Not only it has been implicated in common presentations like “Globus Hystericus”

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but also in the etiology of laryngeal carcinoma. The importance of LPR can be gauged by the suggestion that up to 10% of patients presenting to an otolaryngologist's OPD is LPR and 50% of all patients suffering from hoarseness and voice disorder may have significant LPR.[3]
LPRD treatment is complex and requires modification of patient's lifestyle and habits in addition to pharmacotherapy. Proton pump inhibitors have shown the best effects in reducing LPRD. Santhana Krishna Kumar and Sivasankari done studies and opined that Early recognition and treatment for LPRD will prevent the development of laryngeal complications.[4]
Though there is increase prevalence of LPRD in Otorhinolaryngology in general, there are no epidemiological studies conducted in rural areas for its prevalence, in view of this our study is designed to identify the LPRD through its manifestations in Otorhinolaryngology and role of proton pump inhibitors in its management with objectives of 1)To Identify Symptoms based on RSI (Reflux Symptom Index) 2) To Identify Signs based on RFS (Reflux Finding Scor) 3) To identify Extra laryngeal symptoms and signs associated with LPRD 4) To see whether symptoms and signs of LPRD subside with proton pump inhibitors.

Material and Methods

This is a Prospective clinical observational study with sample size of 50 conducted in Department of Otorhinolaryngology and Head and Neck Surgery, Kamineni Institute of Medical Sciences, Narketpally from November 2020 – November 2022.Firstly instituitional ethical clearance was obtained Informed consent was obtained from the selected patients and the willing patients were accrued in the study.Reflux Symptom Index (RSI) symptoms were used to select the patients, selected patients were completely evaluated and the proforma was filled. RSI > 14 considered as poor response and RSI < 14 good response.
Extralaryngeal Manifestations of LPRD include Serous Otitis Media, Rhinitis, Sinusitis. Symptoms and Signs of Extra laryngeal manifestations of LPRD are evaluated Clinical Examination of Ear, Nose, Throat was done followed by Flexible Nasopharyngo Laryngoscopy.

Inclusion Criteria

Adult patients between 18 and 60 years of age, All patients with following symptoms presenting more than 3 weeks a) Chronic dry cough b) Globus sensation c) Dysphonea d) Throat pain e) Constant Throat clearing with/without heartburn f) Constant Throat clearing with/without Regurgitation.

Exclusion Criteria

Malignancy of Larynx and laryngo pharynx 2. Benign vocal cord lesions History of Other diseases of otorhinolarngology with onset before the onset of LPRD. Patients not willing for follow UP.

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Reflux Symptom Index

Within the last MONTH, how did the following problems affect you?

0 = no problem, 5 = severe problem

1. Hoarseness or a problem with your voice	0 1 2 3 4 5
2. Clearing your throat	0 1 2 3 4 5
3. Excess throat mucous or postnasal drip	0 1 2 3 4 5
4. Difficulty swallowing food, liquids, or pills	0 1 2 3 4 5
5. Coughing after you ate or after lying down	0 1 2 3 4 5
6. Breathing difficulties or choking episodes	0 1 2 3 4 5
7. Troublesome or annoying cough	0 1 2 3 4 5
8. Sensations of something sticking in your throat or a lump in your throat	0 1 2 3 4 5
9. Heartburn, chest pain, indigestion, or stomach acid coming up	0 1 2 3 4 5
Total	

Source: Center for Voice Disorders of Wake Forest University. Reprinted with permission.

REFLUX FINDING SCORE (RFS)

SUBGLOTTIC OEDEMA	0=ABSENT, 2-PRESENT
VENTRICULAR OBLITERATION	2=PARTIAL, 4-COMPLETE
INTERARYTENOID ERYTHEMA	2-ARYTENOIDS ONLY, 4-DIFFUSE
VOCAL CORD OEDEMA	1-MILD,2-MODERATE,3-SEVERE 4-OBSTUCTING
DIFFUSE LARYNGEAL OEDEMA	1-MILD,2-MODERATE,3-SEVERE, 4-OBSTRUCTING
POSTERIOR COMMISSURE HYPERTROPHY	1-MILD, 2-MODERATE, 3-SEVERE, 4-OBSTRUCTING
GRANULOMA/GRANULATION TISSUE	0-ABSENT, 2-PRESENT
THICK ENDOLARYNGEAL MUCUS	0-ABSENT, 2-PRESENT
PSEUDOSULCUS	0-ABSENT, 2-PRESENT

Treatment

1. Life style modifications involving type of food, exercise and control of BMI and sleeping pattern
2. Patients were treated with Proton pump inhibitors Pantoprazole 40mg 30 minutes before food twice daily for 3 months Patients were followed up: On completion of treatment and Early review in case of worsening of symptoms / no improvement within 2 weeks of treatment.

Extra laryngeal Manifestations of:

1. **Serous otitis media:** Subsided /Not subsided
2. **Rhinitis:** Subsided /Not subsided
3. **Sinusitis:** Subsided /Not subsided. Reflux Symptom Index and Reflux Finding Score were assessed and tabulated.

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RESULTS

Table 1: Distribution of patients based on clinical symptoms and signs (n=50)

Symptoms	Number	Signs	Number
Throat clearing	26(52%)	Interarytenoid erythema	21(42%)
Cough	20(40%)	Thick endolaryngeal mucus	16(32%)
Throat pain/ Difficulty in swallowing	15(30%)	Posterior commissure hypertrophy	09(18%)

Anaylsis of patients accrued in to the study was analysed and found that Throat clearing was more frequent and interarytenoid erythema common sign

Table 2: Distribution of Patients Based on BMI (n = 50)

NORMAL (20- 25 kg.m2)	10 (20 %)
OVER WEIGHT (25- 30 kg.m2)	26 (52 %)
OBESITY (> 30 kg.m2)	14 (28 %)

Analysis of BMI in our study revealed that 80% of them were either overweight or obese however symptoms were present in patients with normal BMI and they formed 20% of the group.

Table 3: Distribution of Patients Based on Response to Treatment (n=50)

Patients showed good response RSI < 14 and RFS < 7	Patients showed poor response RSI >14 and RFS >7
38 (76%)	12(24%)

- In our study 38 patients had good response and 12 did not respond well and their symptoms still persisted though RSI and RFS reduced it was >14 and >7 respectively
- Further analysis of patients revealed that out of 6 patients who had extralaryngeal manifestations 4 belonged to good response group and 2 belonged to poor response group but in them also extralaryngeal manifestations subsided.
- Pretreatment BMI and post treatment BMI remained same in poor response group i.e 25-30 kg.m2

Patients with poor response were treated for another 3 months and followed up after 3 months. These patients improved and RSI and RFS got reduced <14 and <7 respectively and BMI in these patients also got reduced from 25-30 to 20-25 kg.m2

DISCUSSION

Analysis of patients in our study revealed that maximum patients were under 31-40 years of age group (36%) In a study conducted by Patigaroo et al,[5] Ramadas et al and Santhana Krishna Kumar most of the patients were in the age group of 31-40 years Our study correlated well with all the above studies.[6]

In our study 58% were females and 42% were males showing slight female predominance (statistically insignificant p value > 0.01) In a study conducted by Patigaroo et al 60 % were females and 40% were males. In a study conducted by Robert A. Cantania et al,[7] 68.8% were females and 41.1% were males. In a study conducted by santhana Krishna kumar et al 61.6% were females and 38.3% were males. our study is corresponding well with the above studies.

In a study conducted by Patigaroo et al and J.A. Koufmann et al,[8] most common symptom was throat clearing followed by cough. In a study conducted by Santhana Krishna kumar

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throat clearing and hoarseness of voice was most common symptom Our study correlated with the above studies.

In our study the most common laryngeal sign was interarytenoid erythema (42%) followed by endolaryngeal mucous (32%). In a study conducted by S.Z Toros et al, Santhana Krishna kumar et al and Koufmann et al most common sign was interarytenoid erythema however Hamdan et al,[9] found that most common sign was Interarytenoid erythema followed by endolaryngeal mucus as in our study.

Mean BMI in our study was 28.2 which corresponded well by study conducted by K.A. Perry,[10] however K.S. Trad et al and John M. wo et al,[11] found mean BMI 25.7 and 25.8 respectively which is less than our study.

M. de Benedetto,[12] in his article described Mechanism of Extra laryngeal manifestations however no studies had mentioned the exact incidence and response to treatment.

Analysis of our study revealed 06 patients had Extralaryngeal manifestations (12%) in which serous otitis media was the most common comprising of 50%. It is also seen that the patients with these manifestations recovered fully with treatment regime followed even in those patients who showed poor response.

CONCLUSION

The conclusions drawn from the study carried out and results obtained are as follows:

LPR was found to be predominant in females irrespective of age except in 6th decade where male predominance is seen.

Most of the patients with LPR had their BMI in the range of 25-30. The common extra laryngeal manifestation was serous otitis media 76% of patients showed good response (RSI<14 and RFS< 7) to the treatment with PPI and 24% had poor response for which the treatment was continued for another 3 months after which patients improved and releived from presenting symptoms.

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