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THE EFFECTIVENESS OF PPI IN THE CURE OF LARYNGOPHARYNGEAL REFLUX

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Abstract:

Objective: *Laryngopharyngeal reflux (LPR) is the type of swelling. This disease affects a greater number of patients. The retrospective current of gastric stuffing addicted to pharynx and larynx is the major source of this disorder. Patients suffering from this disease show many indications. The objective of the revision is to recognize the effectiveness of PPI in the cure of LPR.*

Patients and Methods: *The study was of forthcoming observational type. The study was made on 61 patients who were present in Mayo Hospital Lahore. The duration of the study was from January 2018 to July 2018. Patients continuously expressing the indications of laryngeal inflow for about 2 months were added in the study. Flexible naso-pharangoscope was used for laryngoscope observations. By observing the reflux symptoms index and reflux symptoms findings we can identify the complexity stage of the laryngeal symptoms. An esophagogastrodudenoscopy was performed in each patient before initiating the treatment.*

Results: *61 patients were added in the reading. The average age of the cases was between 31.62±5.61. 34.43% women and 65.57% men were added in the research. The regular weight of the females was 23±3.9 and that of males was 20±4.2. 54 patients were suffering from lump in the throat which was considered as common indication. The less frequent symptom is the complexity in breathing which was present in 21 patients. 20 mg dose of pantoprazole id given to the patient for healing two times in a day. This practice was carried out for about 6 months. The improvement in the indications was found after the treatment of 2 months on regular basis. The patients were recovered completely after 6 months regular treatment. In 54 patients the most general laryngeal finding is Erythema. 12 patients showed the presence of pseudosulcus. Some indications like endoscopic fractional ventricular annihilation, gentle choral cords edema, gentle laryngeal edema and perseverance of granuloma were also noticed after the completion of 6 months treatment.*

Conclusion: *The laryngopharyngeal reflux indications can be eliminated or reduced by the use of 20 mg Pantoprazole two times in a day followed for about 6 months.*

Key Words: *Proton Pump Inhibitors; Laryngopharyngeal Reflux; GERD.*

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INTRODUCTION:

Prevalence of Laryngopharyngeal reflux is present in the workplace of otolaryngologists [1]. It is noticed to range from 17 to 80%. [2, 3] Swelling is prominent in Laryngopharyngeal case. It is due to the inflow in the pharynx and larynx from gastric secretion. The most common indications of the disease are hoarseness of sound, globus impression, unnecessary phlegm, regular throat clearing and persistent cough. [4] Tissue smash up can result from the acidity of the gastric juice. [5] Some other things like pepsin, bile salts, bacteria and pancreatic protelytic also can hurt the tissues. This tissue damage can affect the therapy. At the ph greater than 6 the extra gastric tissues can be damages due to pepsin. [6]. Three incidents in a week are enough to completely damage the larynx. For the esophagus 50 incidence in a single day are required for significant damage. Although it has been noticed that acid clearing mechanism is present in esophagus which is absent in pharynx and larynx. Heartburn and regurgitation are not present in patients of LPR.

Identification of the LPR is a complex process. The confirmation of the disease is also very complex and time consuming process. [7] But these results are not confirmed by different clinicians and 80% laryngeal irritations are as found in healthy controls. [8] The complexity in identification is due to less reliable laryngeal findings. [9]. Two devices Reflux Index and Reflux Finding Score are used during the treatment. [10, 11] For the identification of initial indications of the PR, we use the Reflux indication directory. For the corroboration of reflux three advances are explained. These approaches are rejoinder of indicator to performance and experimental therapeutic management, expression of reflux actions through multichannel resistance and ph observing learning. In intentioning therapy some extra studies like spectrphtmetric capacity of bile reflux, radiography and mucosa biopsy can give the helpful knowledge. [12]

The range of 24 hr double investigate monitoring is 50 t 80%. [1] The effectiveness of the proton pump inhibitor is not too good. So some other drugs like H 2-receptors antagonists, prokinetics agents and mucosa cytprotectants can also be used for the treatment. [14] PPI combines with the outer surface of the luminal H^+/K^+ ATPase. It cannot be separated from the surface once binds with it. Acid secretion is the last step which triggers the enzyme. PPI therapy lessens the gastric acidity. It also inhibits the basal and activated acid secretion. [15]. Five type's of PPI is present recently. These are rabeprazole, pantaprazole, Iansoprazole, omeprazole, and esomeprazole. Initial 4 are raceme combination. Only S isomer of omeprazole is present in esomeprazole. There exist many structural variations between different PPI types. [16]

The intake of drug in the morning is more helpful than taking the dose in the evening. This is due the secretion of gastric acid in the day time. To gain the maximum repression of intragastric acidity drug is given two times in a day. Due to two times usage of drug in a day we can increase the inhibition of acid secretary capacity up to 80%. [17]. PPI are successful in the treatment of GERD. [18] Experimental information propose to facilitate the most favorable every day dosage of PPI for sensitive handling of reflux related indications and mucosa spoil is about 30-40 mg. 10-20 mg daily dosage is enough to continue the less harsh therapies. For the complete treatment 8 weeks are required. [19, 20] All PPI treatments are very safe drugs. They have very less limitations and side effects. [21, 22]

Aims of study:

The purpose of the research is to assess the efficiency of the PPI drugs in healing the PR by equally medical and endoscopic pursue up.

PATIENTS AND METHODS:

The type of the study was forthcoming observational. 61 patients were added in the study. The patients were collected from Mayo Hospital Lahore. The duration of the study was from November 2017 t September 2018. The patients showing the persistent indications of cough, painful throat, gorge clearance, croakiness of accent for at smallest amount 60 days. These indications were identified by bath Reflux symptom index and reflux findings score. During the silent breathing and gratis sound by one expert otorhinolaryngologistnasopharageal was used for the examination of Laryngoscope. Nose, pharynx and larynx were completely examined. Patients were undergone esophagogastroduodenoscopy to assess the occurrence of reflux. For this purpose vide endoscope, Olympus, GIF-XQ260 were used. These were continuously flowed for about 6 months. According to the Los Angeles distribution, degree of esophagi is observed during EGD. These were measured as LA (0) = absence of esophagitis, LA (A) = ≥ 1 split of mucosa ≤ 5 mm extended not increasing among mucosal crinkles, LA (B) = ≥ 1 split of mucosa > 5 mm extended not increasing among crinkles of mucosa, LA (C) = ≥ 1 split of mucosa ceaseless among the trimmings of ≥ 2 mucosal crinkles, concerning < 75% of the boundary and LA (D) = ≥ 1 mucosal smash relating ≥ 75% of the boundary. [23]

Inclusion criteria:
The entrance criteria in the observation study are laryngitis confirmed by laryngoscopically. The infections are absent in the patients for previous two months minimum.

Exclusion criteria:
Patients showing the habits of smoking, drinking, tracheobronchial infections or loud speakers like singers' or teachers are not added in the study. Patients previously underwent neck therapy, living in pollutants area, habitual of inhaling the corticosteroids are as rejected to enter into the study.

Some important historical background of the patients like profession, drinking, clinical records, treatment and drug consumption and smoking are noticed. Patients not showing interest in the observational study were also not added in the study. The patients who were considered eligible to enter into the study are completely informed the purpose and activity of the study. A written permission to participate in the study is also taken from the patients. Hospital morals committee confirmed the study.

Study designs:
The study was arranged to observe the effectiveness of PPI in the management of LPR. Study was of perception and observational type.

Treatment schedue:
Every patient was given the 20 mg pantoprazole two times in a day. The drug was given to the patient with bank stomach. Treatment was carried out for about 6 months.

Follow up:
Patients were continuously observed for 6 months. Follow up was taken two times, first after two months of treatment and second after 6 months. During follow up reflux indication catalog and laryngoscopic conclusion achieved reflux were utilized.

Arithmatic examination:
Anderson-Darling test was utilized for the testing of data. Testing was also made by homogeneity test before further mathematical analysis. Number and percents are used for the expression of categorical variables. Average and standard deviation can be utilized for the expression of continues variables. Mathematically important value was considered as p less than 0.05. SPSS 20.0 software was used for all the identification of the data.

RESULTS:

61 cases were added in the research. It was shown by the patients that the indications of coughs, hoarseness and sore throat. The typical age of the cases added in the study was between 31.62±5.16; 21. The weight of the women was 20±4.2 and that of males was 23±3.9. Jeopardy factors were noticed as 7 in reluxogenic and 4 in NSAIDS for the development of gastro esophageal reflux. 50 patients were not expressing any jeopardy factors.

Esophagogastroduodenoscopy of all the patients was performed before the initiation of the treatment. The patients were graded according to Esophagogastroduodenoscopy. According to this 13 patients were graded A, 40 with grade B and none of the patient was added in grade C. Esophagogastroduodenoscopy was continuously observed for about 6 months and the results were absolute healthy mucosa.

In 54 patients lump was observed which is most frequently observed indication. In 48 patients the less frequent indication which was clearing throat was examined. Cough was reported in 40 patients. 26 patients reported that cough is more prominent after eating or at the time of sleeping. 27 patients complained the croakiness in the sound. The minimum symptoms reported were complexity in breathing which was present in 21 cases.

All the symptoms were improved by the treatment of the patients with 20 mg pantoprazole two times in a day for about 6 months. The most frequent laryngeal judgment in our observation is the Erythema. It is reported in 54 patients. 51 were suffered from disperse erythema and 3 from arytenoids. In 50 patients' voice producing box edema was noticed in 50 patients with normal edema in 9 cases, judicious in 15 and harsh in 20 patients. In 40 patients subsequent commissural hypertrophy was observed. 11 cases have gentle hypertrophy, 22 had judicious and 4 had stern case.

Ventricular annihilation was observed in 34 patients. In 22 cases whole annihilation and in 12 cases fractional annihilation was found. In 25 cases granulation and chunky endolaryngeal mucosal were present. Pseudosculcus was found in 12 cases.

AS REGRAD, REFLUX INDICATION CATALOG, 60 DAYS SUBSEQUENT TOTHERAPY:

1. Five cases having scored 1 and six patients having scored 2 complained the croakiness of sound.
2. 15 patient's complained the throat clearing with

3 having score 1 and 10 having score 2.

3. Throat mucus in 7 patients was reported all having the score 1.
4. Complexity in ingesting was reported in 2 patients with score 2.
5. Complain of cough after eating or at the time of sleeping was reported in 3 patients, 2 with score 1 and 1 with score 2.
6. 13 patients were suffered from the feeling of extra thing in the throat, 5 with score 1 and 3 with score 2.
7. Hurt burn was noticed in 3 patients, 3 with score 1.

All these indications were eliminated after 6 months treatment with PPI drugs.

TABLE 1: REFLUX SYMPTOMS INDEX:

Inside the most recent 60 days how these indications influence you	**0 = no problem 5= severe problem**					
croakiness of vote	0	1	2	3	4	5
Common defrayal of voice	0	1	2	3	4	5
Surplus gullet mucus or post nasal drip	0	1	2	3	4	5
Complexity consuming food, juices or medicine	0	1	2	3	4	5
Coughing subsequent to eating meal or after lying down	0	1	2	3	4	5
Breathing intricacy or securing incidents	0	1	2	3	4	5
Bothersome or maddening cough	0	1	2	3	4	5
Feeling of something in throat or a lump in throat	0	1	2	3	4	5
It ranges from 0 to 45						

TABLE 2: REFLUX FINDING SCORE:

Pretend sulcus	0 not present	2 present			
Ventricular annihilation	0 not present	2 partial	4 inclusive		
Erthema	0 not present	2 arytenoids	4 disperse		
Vocal cord edema	0 not present	1 gentle	2 reasonable	3 stern	4 polypoidal
Disperse laryngeal edema	0 not present	1 gentle	2 reasonable	3 stern	4 hampering
Subsequent commissure hypertrophy	0 not present	1 gentle	2 reasonable	3 stern	4 hampering
Granuloma	0 not present	2 present			
Chunky endolaryngeal mucus	0 not present	2 present			

TABLE 3: CHARACTERISTICS INFORMATION FOR ALL CASES AND THE DANGER ASPACTS FOR GERD:

limitation	charge
figure	61
period	31.62±5.16
Gender	
Male	40
Female	21
BMI	
Men	20±4.2
women	23±3.9
Risk factors	
Reluxogenic food	7
NSAIDs	4
Nothing	50
Los-Angeles grade	
Rank A	23
Rank B	30
Rank C	8

TABLE 4: SHOWING INDICATIONS OF ALL CASES:

limitation	**value**
croakiness or setback with voice	27
numerous clearance of throat	48
surplus throat mucus or postnasal drip	46
complexity consuming food, juices or medicine	15
Coughing after having eaten or after lying down	26
Breathing involvedness or wedging occurrence	21
bothersome or irritating cough	14
Sensation of incredible fixing in throat or a bump in throat	54
stomachache, chest ache, heartburn or stomach acid impending up	36

TABLE 5: PRESENTING SIGNS OF ALL PATIENTS:

Limitation	**value**
Pseudosulcus	12
Ventricular annihilation	34
Erythema	54
Vocal cords edema	50
disperse laryngeal edema	52
subsequent commeasure hypertrophy	40
Granulation	25
substantial endolarymgeal	25

TABE 6: REFLUX SYMPTOMS INDEX:

Indication	**Prior to management**	**After 60 days**	**P. value**
croakiness or dilemma with voice			
Present	27	11	
Absent	34	50	0.02
recurrent defrayal of throat			
Present	48	15	
Absent	13	46	<0.0001
surplus throat mucus or postnasal drip			
Present	46	7	<0.0001
Absent	15	54	
complexity consuming food, juices or medicine.			
Present	15	2	
Absent	46	59	0.0036
Coughing after meal or after lying down			
Present	26	3	<0.0036
Absent	35	58	
Breathing difficulties or choking episodes			
Present	21	5	0.0033
Absent	40	56	
Troublesome or annoying cough			
Present	14	2	0.006
Absent	47	59	
feeling of something attached in throat or a swelling in throat			
Present	54	13	
Absent	7	48	<0.0001
indigestion, chest pain, heartburn or stomach acid coming up			
Present	36	3	
Absent	25	58	<0.0001

TABLE 7: REFLUX JUDGEMENT ATTAIN:

cryptogram	**prior to management**	**After 60 days**	**P. value**	**After 6 months**	**P. value**
Pseudosulcus					
Present	12	5		0	
Absent	49	56	0.146	61	
Ventricular obliteration					
Compete	22	0	<0.0001	0	0.004
Partial	12	19		8	
No	27	42		53	
Erythema					
Arytenoids only	3	11		0	
Diffuse	51	0	<0.0001	0	

No	7	50		61	
Vocal cord edema					
Mild	9	21		10	
Moderate	15	5		0	0.0001
Severe	20	0		0	
Obstructed	6	0	<0.0001	0	
No	11	35		51	
Diffuse laryngeal edema					
Mild	0	32	<0.0001	7	
Moderate	32	6		0	0.0001
Severe	17	0		0	
Obstructed	3	0		0	
No	9	23		54	
Posterior commeasure hypertrophy					
Mild					
Moderate	11	15		0	
Severe	22	9	0.0024	0	
Obstructed	4	0		0	
No	3	0		0	
	21	42		61	
Granulation					
Present	25	20	0.551	6	
Absent	36	41		55	0.0012
broad endolaryngeal mucus					
Present	25	7		0	
Absent	36	54	0.0027	61	

DISCUSSION:

10% patients working in otolaryngologist are suffering from LPR. [1] The main symptom of the reflux disease is gruffness. RSI and RFS are used in our study to identify the laryngopharngeal reflex. It is also used to analyze the response of patients towards PPI and esophagogastroduodenoscopy to corroborate the reflux. [25] 45 patients suffering from LPR shows the indication of feelings of extra thing in the throat. In 48 patients throat clearing is observed. Throat mucus and cough are noticed in 46 and 40 cases respectively. These observations are similar to the study reports of Suhail et al. He noticed globules feelings in throat in 74% patients and throat clearing in 64%.

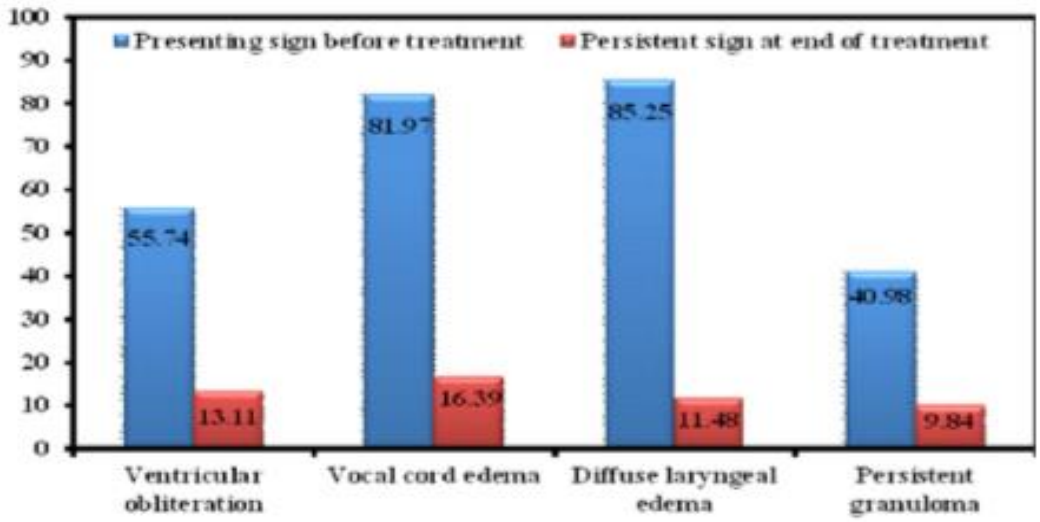

Figure 1 Presenting signs still detected 6 months post PPI therapy.

Some other studies such *as Mesallam and Stemple [31], Karkos and Yates [28], Issing andKarkos [29]* have also observed globules pharyngeal as most commonly noticed symptom. Throat burning is also noticed as most common indication of the disease in studies like *Pieter Noordzij* [30], recurrent clearing of throat *Toros and Toros* [32] and Hoarseness in *Koufman*[1]

The most frequent judgment in our study is the Laryngeal erythema present in about 88.52%. Diffuse edema is present in 85.25% cases and focal edema is found to occur in 81.997% cases. In opposite to our study results the most frequent indication found by other studies is posterior commissure hypertrophy noticed by *Belfasky and Postma*. [11] Pseudo sulcus was noticed to be occur in just our observation; however 70% pseudo sulcus was noticed by *Belfasky et a*l and 50% by *suhail et a*l.

The results shown by patients towards PPI therapy were varied among different patients. [37] Disagreement was not controlled by medical examination. This is due to the different enclosure criterion of the studies. They were not succeeded to stratify the inhabitants on the basis of LPR complexity. Proper control, proper dose of the drug and time requirement of the therapy were not balanced. [12] In our study the treatment was done by giving the 20m g dose of pantoprazole two times in a day for six months. The dose was given to the patients without eating or drinking. The higher improvement rate was noticed in patients.

Some indications like lighter edema in voice producing box, mid laryngeal edema and presence of granuloma was also noticed after the 6 months treatment therapy. Enhancement in gruffness and throat defrayal was noticed in the study of Noordzij et al in his placebo-control test. But in this study no significant improvement in laryngo-pharyngeal indications was calculated. In this study patients with irregular ph query were included. In our observations after the 6 months treatment still some indications like granuloma, fractional ventricular annihilation and average edema were noticed. So these patients may take advantage by addition of anti-inflammatory drugs.

CONCLUSION:

For the control of laryngeopharyngeal reflux the effective therapy inhibits the movement of protons followed for six months. It is necessary to conduct more studies to detect the function of calculation of anti-inflammatory drugs for the patient's showing indications after the PPI treatment.

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