

# Frequency of Pulmonary Manifestations of in Patients with Gastroesophageal Reflux Disease

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## ABSTRACT

**Introduction:** Pulmonary manifestations of GERD are attracting increasing attention. The physiological link between GERD and pulmonary disease has been extensively studied in chronic cough and asthma. The gastric contents can cause throat irritation, postnasal drip and hoarseness also recurrent cough.

**Objectives:** This study is to determine frequency of pulmonary manifestations in patients with Gastroesophageal Reflux Disease.

**Settings:** This cross-sectional study was conducted in Aeer ud din Medical college during June 2019 to December 2019. All patients with heartburn, both males and females of 20-70 years of age.

**Results:** Out of 150 patients' laryngeal symptoms

were 10% have dry cough 8% have hoarseness and dry cough hoarseness both in 10% in patients with heartburn. 34% patients with GERD were found to be asthmatic. Nasal symptoms were infrequent 2%. Out of 150 patients 36% do not have any pulmonary manifestations.

**Conclusion:** There is high prevalence of pulmonary manifestations in patients with GERD.

**Keywords:** Gastroesophageal Reflux Disease; Pulmonary manifestation

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## INTRODUCTION

Gastroesophageal Reflux Disease is defined as a condition which occur when the reflux of stomach cause troublesome symptoms (Vakil N, *et al.*, 2006). It is a common disorder worldwide (Ferguson DD and Devault KR, 2007). It usually runs a chronic course as individuals ignore it mostly until complications appear (Khan NR, *et al.*, 2008). History is simplest and quickest method to diagnose GERD. The diagnosis is important to consider, however, because significant improvement in symptoms and in asthma control occur with appropriately treated GERD (Richter JE, 2000). Frequency pulmonary manifestations is very high in patients with GERD (Sylvester DC, *et al.*, 2012) and is potential trigger for Asthma and COPD (Khalil A and Zaidi SB, 2008).

The objective of this study was to determine frequency of pulmonary manifestation in patients with Gastroesophageal Reflux Disease. The respiratory manifestations seen in patients with GERD are laryngeal, nasal sensual pharyngeal symptoms. Most common manifestations are recurrent cough, hoarseness, chest congestion and lung inflammation leading to asthma, bronchitis shortness of breath and pneumonia. No Data available for nasal symptoms in patients with GERD. These manifestations are may be due to: Direct or vagally mediated irritation of larynx, pharynx and posterior nasal mucosa by gastric contents during reflux (Mathew JL, *et al.*, 2004).

- Micro or macro aspiration of esophageal contents into larynx and tracheobronchial tree.

- Exposure to small amount of acid was found to significantly impair the sensory integrity of laryngopharynx (Fontana GA and Pistolesi M, 2003). Pulmonary manifestations were assessed by questionnaire validated in preliminary studies. One should be able to predict cough due to GERD in following categories of patients:

1. Non- smokers.
2. With normal chest X-ray.
3. Those with negative broncho-provocative test for asthma.
4. Not taking ACE inhibitors.
5. Those with persistent cough despite effective treatment for postnasal drip (Phua SY, *et al.*, 2005).

Treatment of GERD is aimed at reducing reflux of acid and preventing complication of GERD.

There is evidence that 2-month treatment with PPI is sufficient to reduce cough in patients with GERD (Jaspersen D, 2004).

## METHODOLOGY OF THE STUDY

This cross-sectional study was conducted in Aeer ud din Medical College during June 2019 to December 2019. This study included both males and females of 20-17 years old. Patients included were with chronic heart burn and GERD not treated at the time of evaluation (Poe RH and Kallay Mc, 2003). Patients excluded were:

1. COPD/ smokers.
2. Pregnancy.
3. Restrictive pulmonary disease.
4. Pulmonary malignancies or laryngeal stenosis.

Apparatus used was a Questionnaire. Study design was "Cross sectional study". This study was conducted in medical OPD and Emergency of Lahore General Hospital, Lahore.

## RESULTS

Out of 150 patients' Laryngeal symptoms were 10% have dry cough 8% have hoarseness and dry cough hoarseness both in 10% in patients with heartburn. 34% patients with GERD were

found to be asthmatic. Nasal symptoms were infrequent 2%. Out of 150 patients 36% do not have any pulmonary manifestation (Tables 1 and 2 and Figure 1).

There are more boys than girls in the ages between 10 to 17 years old and length of stay between 0-15 years.

The results of the different tests (T-tests) after assisting with the well-being of adolescent living can be seen in Table 2.

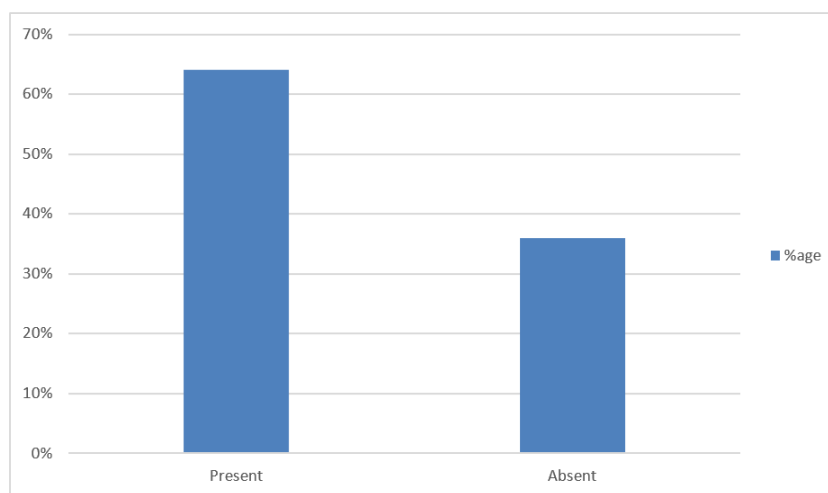
After 1 (one) month after the mentoring, there was a change in the welfare of adolescents. The significant influence is the way to control themselves, vitality and physical health of adolescent orphans, especially on the vitality of life (Table 3).

**Table 1: 64% patients with GERD have pulmonary manifestations and 36% have no pulmonary manifestations**

Pulmonary manifestations in GERD	
Symptoms	%age of patients
Present	64%
Absent	36%

**Table 2: Age distribution of pulmonary manifestations in patients of GERD Younger age groups most commonly affected**

Pulmonary manifestations	Number of patients with GERD (years)					Total no of patients included in study
	20-30	31-40	41-50	51-60	61-70	
Age	20-30	31-40	41-50	51-60	61-70	
Dry cough	7	2	3	2	1	15
Hoarseness	5	2	3	1	1	12
Both dry cough and hoarseness	8	2	3	2	0	15
Asthma	27	7	8	5	4	51
Nasal symptoms	2	1	0	0	0	3
No pulmonary manifestations	-	-	-	-	-	54
						150



**Figure 1: Pulmonary manifestations in GERD**

The results of this linear regression test showed that there was no effect between the length of stay in the orphanages and the welfare of adolescents' lives.

Seeing the results of the above research, it can be concluded, the first hypothesis is rejected, because there is no influence between the length of stay in the institution and the welfare of adolescents. The second hypothesis is partly accepted, that there is an influence between adolescent assistance with the welfare of adolescent nursing homes on aspects of self-control, vitality and physical health (Miftahul J, 2015).

**DISCUSSION**

A causal relationship between asthma and GERD has been known and researched upon for some time now. GERD is considered to be the

third leading cause of chronic cough and affects an estimated 20% of the patients (Irwin RS and Madison JM, 2000; D'Urzo A and Jugovic P, 2002). Different mechanisms of esophageal acid-induced bronchoconstriction include a vagal-reflex, local axonal reflexes, bronchial hyper-reactivity, and microaspiration. Asthmatics are predisposed to GERD development because of a high prevalence of hiatal hernia, autonomic dysfunction and an increased pressure gradient between the abdominal and thoracic cavity. Literature review showed that GERD in patients with chronic sinusitis, laryngitis, and pharyngitis and support the consideration of GERD in patients with upper airway symptoms recalcitrant to treatment (Koufman JA, 1991; Champion GGL and Richter JE, 1993; Yellon RE, 1997). These investigators postulated a causal relationship between GERD and pulmonary manifestations of

GERD (Koufman JA, 1991; Champion GGL and Richter JE, 1993; Yellon RF, 1997). Support of this hypothesis requires the demonstration of an increased prevalence of pulmonary manifestations in a population of patients with GERD. The subjects of the present study were selected on the basis of their chronic heartburn and not upper airway pathology. Collection of the questionnaire answers was completed without the subjects being aware that the association of pulmonary manifestations with GERD was being studied.

### LIMITATIONS

- 24 hr pH monitoring would give better result but it is not widely available.
- Large sample size and longer study duration can also improve the results.

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