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ORIGINAL ARTICLE

Gastroesophageal Reflux Caused Pharyngitis in Local Population A Comparative Clinical Study

MUKHTAR IBRAHIM[1], SALMA MUMTAZ[2], SEHAR GUL MEMON[3], UMER SAEED ANSARI[4], MARIUM MUNIR TUNIO[5], SABA SHUJA SHAIKH[6], ARSLAN SHUJA[7], NAVEED SHUJA[8]

[1]Assistant Professor ENT, Indus Medical College Tando Muhammad khan Sindh Pakistan.
[2]Assistant Professor Department of Physiology Indus Medical College Tando Muhammad khan Sindh Pakistan.
[3]Assistant Professor Department of Physiology Indus Medical College Tando Muhammad khan Sindh Pakistan.
[4]Associate Professor Department of Biochemistry, Rashid Latif Khan University Lahore Pakistan.
[5]Lecturer Department of Community Medicine Institute Jinnah Sindh Medical University, Karachi Pakistan.
[6]Lecturer Department of Community Medicine Institute Jinnah Sindh Medical University, Karachi Pakistan.
[7]M.Phil Biochemistry (Scholar), Institute of molecular Biology and Biotechnology (IMBB), The University of Lahore, Lahore, Pakistan.
[8]Associate professor Department of Biochemistry Lahore Medical & Dental College Lahore Pakistan.
Corresponding author: Naveed Shuja, Email: rananaveedshuja@gmail.com, Cell: +923334205687

ABSTRACT

Objective: In gastroesophageal reflux disease gastric contents caused erosive action in esophagus as well as in upper respiratory chamber which is a very common and painful medical complication in our population. Therefore investigation of GERD related risk factors are very important for health awareness.

Study Design: A comparative clinical study.

Population Sampling: In this study 2000 male and female individuals were selected with gastroesophageal reflux diseases from urban, suburban areas and rural areas.

Sample Size: 2000 individuals collectively participated in present study, including 900 from urban areas, 853 from suburban areas, and 1010 from rural areas.

Place and Duration: Current study was conducted in Department of Biochemistry Lahore Medical & Dental College Lahore, Indus Medical College Tando Muhammad khan Sindh and Institute of molecular Biology and Biotechnology (IMBB), The University of Lahore, Lahore Pakistan from February 2022 to July 2022.

Methodology: In current study total 2000 individuals were selected and their interviewee conducted for the completion of questionnaire. The questionnaire was created based on lifestyle factors such as obesity, smoking, drinking, gastroesophageal reflux disease (GERD) frequency and severity in previous years, and history of respiratory and laryngopharyngeal disorders in the previous year.

Results: The prevalence of heartburn, Regurgitation, Epigastric pain, Dyspepsia, Pharyngitis, Laryngitis, GRED Frequency, Smoking, Drinking alcohol and BMI among male and female individuals has significant ($P > 0.05$) with laryngopharyngeal, respiratory illnesses. The Correlation between percentage association of gastroesophageal reflux disease and laryngopharyngeal illness showed in table-3. The findings of this study were indicated a directly proportional significant ($P>0.05$) correlation of Pharyngitis and Laryngitis with GRED Frequency of individuals.

Practical implication: Through current study health awareness can be delivered in the local population.

Conclusion: In conclusion, gastroesophageal reflux disease is a substantial public health issue that affects a large portion of the adult population. The pathophysiology and etiology of gastroesophageal reflux disease are likely linked to a number of laryngopharyngeal, respiratory illnesses.

Keywords: Esophagus, Gastroesophageal reflux diseases, Heartburn, Regurgitation and Retrosternal pain.

INTRODUCTION

The reverse movement of gastric contents to the esophagus is a medical disorder termed as gastroesophageal reflux[1]. It is a widespread illness that affects about one third of the world's population[2,3]. Gastroesophageal reflux is a physiological process, which may occurs many times in a day and gastric contents damage esophageal mucosa through erosive action[4]. The acid concentration of gastric contents also caused sore throat. The basic indications of gastroesophageal reflux diseases (GERD) are heartburn, regurgitation and retrosternal pain but when these acid contents come in pharynx and larynx caused pharyngitis and laryngitis[5]. When erosive action occurred in pharynx and larynx region it damaged mucosal membrane than bacterial flora which is already present in this region produced infection.[6]

Inflammation of the pharynx is known as pharyngitis and the most common term used to describe it is "sore throat."[7] In addition to scratchiness in the throat, pharyngitis can make it difficult to swallow[8]. A sore throat is what is often meant by the phrase pharyngitis. The pharynx can become infected and swollen, painful, and red when bacteria or viruses enter the throat[6]. The symptoms of pharyngitis are fever, muscle aches, swollen lymph nodes and pain in throat. Primary care patients frequently have pharyngitis, which can be brought on by bacterial, viral, or fungal causes. S pyogenes infections are the most serious because they can result in both supportive and non-suppurative consequences. Due to their similar clinical presentations, viral, bacterial, and fungal pharyngitis are difficult to distinguish clinically[4,12]. The most typical symptoms include fever, odynophagia, and sore throat. Usually, these symptoms peak in 3 to 5 days and disappear by day 10[3,5]

A digestive condition known as gastroesophageal reflux disease, or GERD, damages the muscular ring between esophagus and stomach. Doctors speculate that certain patients may be affected by the ailment known as hiatal hernia[4,5]. In most situations, dietary and lifestyle modifications can reduce your GERD symptoms [6,7].Though some people could require treatment or surgery. More than 60 million adults experience heartburn at least once every month, and more than 15 million adults, including many pregnant women, experience it daily[9,10]. Recent research indicates that GERD in infants and children is more prevalent than previously believed. Recurring episodes of vomiting may result from it. Additionally, it may result in coughing and other respiratory issues. Inflammation of the pharyngeal mucosa is one of the typical symptoms of chronic pharyngitis[11]. Pepsin enters the throat as a result of gastroesophageal reflux. Pepsin has therefore been suggested as a biomarker for gastroesophageal reflux illness and as a key cause of laryngopharyngeal reflux.[2,7,9]

Significance of Study: Present study provides health awareness to the population through which they managed their better treatment of medical complications.

Gastroesophageal reflux disease is a substantial public health issue that affects a large portion of the adult population. The pathophysiology and etiology of gastroesophageal reflux disease

are likely linked to a number of laryngopharyngeal, respiratory illnesses.

Research Gap: Gastroesophageal reflux diseases are a broad medical complications such as respiratory illnesses, heartburn, Regurgitation, Epigastric pain, Dyspepsia which in this study collectively not considered as biomarkers in detail.

Rationale of Study: The aims and objectives of current study was to identify the consequences of gastric contents in esophagus as well as in upper respiratory track where it caused erosive action.

MATERIALS AND METHODS

Research Design: This study was a comparative clinical study on questionnaire based analysis.

Population Sampling: In this study 2000 male and female individuals were selected with gastroesophageal reflux diseases from urban, suburban areas and rural areas.

Sample Size: 2000 individuals collectively participated in present study, including 900 from urban areas, 853 from suburban areas, and 1010 from rural areas.

Sample Collection Method: Subjects: Finally, 2000 participants participated in this study, including 900 from urban areas, 853 from suburban areas, and 1010 from rural areas.

Questionnaire: The questionnaire was created based on lifestyle factors such as obesity, smoking, drinking, gastroesophageal reflux disease (GERD) frequency and severity in previous years, and history of respiratory and laryngopharyngeal disorders in the previous year.

Interviewee: Total 2000 individuals were selected and their interviewee conducted for the completion of questionnaire. Prior to the real investigation, a pilot study was carried out among 100 randomly chosen outpatients who visited our gastroenterology clinic in order to assess the suitability of the questionnaire and acquaint the interviewers with the survey's methodology and criteria. The issues that the interviewers ran into during the pilot research were examined, and the appropriate fixes were given.

Design of the survey and response rate: The same doctor reviewed and preserved the completed questionnaires. The absent subjects were noted, and two follow-up interviews were scheduled twice a week. 2000 participants in total were successfully interviewed over the course of 4 months, yielding a 91.8% response rate. Regarding age and gender, there was no difference between respondents and non-responders (P > 0.05), and the non-constitution responder's varied little among regions (P > 0.05).

Exclusion and inclusion criterial: Upper respiratory illnesses, functional dyspepsia (FD), irritable bowel syndrome (IBS), symptoms of GERD, and certain potential risk factors were all identified in face-to-face and regionally focused investigation randomly by considering samples of 2000 residents between the ages of 18 and 70 by employing a standardized questionnaire in local population of Pakistan. Some identified medical complications were not considered in the results of this study while some parameters which are not directly interrelated in the present study are considered exclusively and inclusively.

Bio-Statistical analysis of raw data: Collected raw data was represented bio-statistically with the application of SPSS version 2021 in which Mean Standard Deviation considered significant (P≤0.05) changes of each regression.

RESULTS

Epigastric pain can manifest as a single, isolated sensation, as one of several symptoms that also include heartburn, or in conjunction with other symptoms like bloating or early satiety. Epigastric discomfort is a common complaint among patients, which has prompted the creation of empirical tactics. Indigestion is also referred to as dyspepsia. People with persistent indigestion frequently describe experiencing bloating, excessive fullness, and stomach pain both during and after meals. Heartburn, frequent burping, and acid reflux are some more common symptoms. While testing reveals that only one-third of those with these symptoms have peptic ulcer disease, the other two-thirds have functional dyspepsia.

A sore throat can result from acid reflux, although heartburn is the most typical Trusted Source symptom. A person could experience a lump in their throat along with a sore throat when acid reflux is the cause. Acid reflux sensations in the head and neck might be deceptive. Doctors can misidentify chronic tonsillitis as a persistent sore throat brought on by acid reflux. The findings present study are correlated to the concluded results of different studies by number of researchers.

Table-1: Active parameters of male and female

Parameters	Male Responders	Female Responders
Individual quantity (n)	1170	830
Age	18-70	18-70
Spicy food	70%	65%
Body activities levels	27%	53%
Over intake	67%	49%
Coffee	72%	75%
Tea	89%	93%
Extra sweet intake	47%	33%

The prevalence of heartburn, Regurgitation, Epigastric pain, Dyspepsia, Pharyngitis, Laryngitis, GRED Frequency, Smoking, Drinking alcohol and BMI among male and female individuals were (95.81±0.02, 65.44±0.01, 75.61±0.01, 88.51±0.03, 35.62±0.02, 35.61±0.01, 30.83±0.04, 90.25±0.02, 15.61±0.01, 45.21±0.02) and (96.51±0.02, 66.61±0.03, 78.71±0.01, 90.41±0.02, 40.91±0.02, 40.71±0.01, 36.21±0.02, 16.24±0.02, 06.71±0.04, 56.11±0.01) respectively shown in Table-2. Whereas active parameters of male and female were individual quantity regarding Individual quantity (n), age, spicy food , body activities levels, over intake, coffee , tea and extra sweet intake (1170,18-70,70%,27%,67%,72%,89%,47%) and (830,18-70,65%,53%,49%,75%,93%,33%) were seen comparatively in this study represented in table-2.

Table-2: percentage of major indications of gastroesophageal reflux disease Among male and female

Parameters	Male (Mean ± SD) n= 1170 Percentage	Female (Mean ± SD) n= 830 Percentage	P≤ 0.05)
Heartburn	95.81±0.02	96.51±0.02	0.02
Regurgitation	65.44±0.01	66.61±0.03	0.03
Epigastric pain	75.61±0.01	78.71±0.01	0.01
Dyspepsia	88.51±0.03	90.41±0.02	0.01
Pharyngitis	35.62±0.02	40.91±0.02	0.02
Laryngitis	35.61±0.01	40.71±0.01	0.01
GRED Frequency	30.83±0.04	36.21±0.02	0.04
Smoking	90.25±0.02	16.24±0.02	0.02
Drinking alcohol	15.61±0.01	06.71±0.04	0.03
BMI	45.21±0.02	56.11±0.01	0.01

Table-3: percentage Association between gastroesophageal reflux disease and laryngopharyngeal illness

Parameters	Male (Mean ± SD) %	Female (Mean ± SD) %	P≤ 0.05)
GRED Frequency	30.83±0.04	36.21±0.02	0.04
Pharyngitis	35.62±0.02	40.91±0.02	0.02
Laryngitis	35.61±0.01	40.71±0.01	0.01

Between males and females there was no bio-statistically significant (P>0.05) difference in the prevalence of GERD seen in comparative analysis. In table-3 a significant (P>0.05) percentage

Correlation between percentage association of gastroesophageal reflux disease and laryngopharyngeal illness showed in table-3. The findings of this study were indicated a

directly proportional significant (P>0.05) correlation of Pharyngitis and Laryngitis with GRED Frequency of individuals.

DISCUSSION

Population-based research is ideal for examining the epidemiology of gastroesophageal reflux disease, a widespread condition in society[7,11,14]. Without additional diagnostic testing, the diagnosis might be made only on the patient's specific heartburn and acid regurgitation symptoms. In a population-based research of GERD, the methodology using a self-reported questionnaire has therefore gained popularity. However, this type of research may be constrained by the varying levels of understanding of the definitions by the respondents as well as by the very low response rates[13,17].

According to a community-based survey, 1.6% of Singaporeans had GERD, which was characterized as experiencing heartburn and/or acid regurgitation at least once per month[1,8,15]. Even if the methodology and terminology utilized in these research make them incomparable, the different GERD prevalence may indicate that these groups genuinely have diverse GERD prevalence rates[12]. These variations were likely brought about by genetic, environmental, nutritional, and health-related variables[19]. These characteristics in our analysis were more likely to account for regional variations in the frequency of SGER. In laboratory settings, it has been demonstrated that eating habits and consumption of particular foods, such as fat, chocolate, mints, coffee, onions, citrus fruit, and tomato products, are linked to transient GER or relaxed LES[16].

Our population-based study showed that high dietary intake, meals that make you sweat, and coffee were only occasionally linked to SGER, but there was no correlation between SGER and dietary fat, tea, or spicy foods[17]. Our findings somewhat agreed with other findings by different researchers that GER symptoms and the risk of esophageal or stomach cancer were not related to dietary variables, according to a population-based case-control research conducted across the country[18,19]. In conclusion, GERD is a substantial public health issue that affects a large portion of the adult population. The pathophysiology and etiology of GERD are likely linked to a number of laryngopharyngeal, respiratory, and other illnesses or symptoms [19,20].

CONCLUSION

In conclusion, gastroesophageal reflux disease is a substantial public health issue that affects a large portion of the adult population. The pathophysiology and etiology of gastroesophageal reflux disease are likely linked to a number of laryngopharyngeal, respiratory illnesses.

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