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# Analysis of Individual Characteristics and Life-style on the occurrence of Gastroesophageal Reflux Disease

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## ABSTRACT

**Introduction:** Gastroesophageal reflux disease (GERD) with its major symptom as heartburn is the most common disorder of esophagus**,** and the major indication of antacid consumption.
**Aims:** To analyze the influence of individual characteristics and life-style on the occurrence of GERD.
**Settings and Design:** This prospective study has been done in the Department of Medicine, Sri Aurobindo Medical College and P.G. Institute, Indore (MP). 100 patients of GERD have been taken for study during the year 2012-2013.
**Methods and Material:** The patients who fulfilled the clinical criteria of GERD along with inclusion & exclusion criteria have been studied. Endoscopy and histopathology examination were done in all patients.
Statistical analysis used: Descriptive statistical analysis and evaluation were done to analyze the result. Chi-square test was applied and 'P' value was determined accordingly.
**Results:** In our study 56% cases are smoker and 44% of cases have addiction for alcohol consumption and 52% cases have addiction for tobacco chewing and a total of 64% patient had history of addiction of any kind.
**Conclusions:** We conclude that occurrence of Gastroesophageal reflux disease strongly associated with addiction habits like smoking and alcoholism.

**Key-words**: GERD, Addiction, Life-style


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## 1. INTRODUCTION

Gastro Esophageal Reflux Disease (GERD) is a complex disorder caused by the reflux of gastric contents into the esophagus either with or without complications. Gastroesophageal reflux disease with its major symptom as heartburn is the most common disorder of esophagus (Gallup survey, 1988), and the major indication of antacid consumption (Graham et al. 1983). Esophageal erosions and ulcerations are typical of reflux esophagitis but occur in fewer than 33% of patients with GERD. When endoscopic findings are normal, biopsies may reveal histological changes (Aste et al. 1999). It is called as Endoscopic Negative Reflux Disease (ENRD). The prevalence of GERD is estimated to be 10% to 20% in Europe and North America and 5% in Asia (Dent et al. 2005). The incidence rate, reported by two longitudinal studies, was 4.5 and 5.4 per 1000 people per year, respectively (Ruigomez et al. 2004, Kotzan et al. 2001). This particular study was designed to analyze the spectrum of GERD based on presenting symptoms, addiction habits and life-style.

## 2. SUBJECTS AND METHODS

This prospective study has been done in the Department of Medicine, Sri Aurobindo Medical College and P.G. Institute, Indore (MP). 100 patients of GERD have been taken for study during the year 2012-2013.

### Controls

50 patients (Those subjects who had undergone upper G I Endoscopy due to indication of other than GERD)

### Case Selection

The patients who fulfilled the clinical criteria of GERD along with inclusion & exclusion criteria have been studied.
Typical symptoms to fulfil the criteria of GERD are:

- Epigastric pain, heart burn, regurgitation of stomach content (of more than 3-4 wks duration).
- Endoscopy and histopathology examination were done in all patients.

### Inclusion criteria

All the patients attended OPD as well as IPD of SAIMS hospital, Indore with symptoms of GERD, age group of more than 18 year.

### Exclusion criteria

1. History of Diabetes Mellitus.
2. Known case of Duodenal/peptic ulcer.
3. History of taking antacid drugs or PPI for long term ( > 6 wk)
4. Pregnant females.
5. Chronic NSAIDs/steroid intake.
6. Known case of Carcinoma Esophagus.

## 3. STATISTICAL ANALYSIS

Descriptive statistical analysis and evaluation were done to analyze the result. Chi-square test was applied and 'P' value was determined accordingly. The data was analyzed using SPSS software (version 12; SPSS Inc. Chicago, IL, USA).

## 4. RESULTS

According to age group (Table 1), maximum patients were of 41-50 year of age that is 32%, and minimum number of patients were in 21-30 year age group that is 8%, and age group of 31-40 year had 28% patients, 51-60 year age group had 12% patients and 20% patients had age of more than 60 year. p value is not significant ; so there is no clear cut relationship between age group and incidence of GERD. According to sex distribution (Table 2), male patients were 68 and female patients were 32; which make a male-female ratio of 2:1. Maximum numbers of patients (48) had duration of symptoms since 1 to 6 months. 20 patients had duration of symptoms since 6 months to 1 year, and 32 patients had symptoms of more than 1 year (Table 3). All the 100 cases had complaint of epigastric pain during their period of symptoms; which shows high significant p value. 76 cases had reflux symptoms and 24 patients had no complaints of reflux; which shows a significant p value of 0.000.Out of 100 cases, 88 had complaints of heart burning and 12 cases had no such complaints. Controls had no complaint of heart burn. Complaint of dysphagia was present only in 4 out of 100 cases. Out of 16 patients who had extra esophageal manifestations; 8 patients had recurrent oral ulcers, 4 patients were anemic and 4 patients had pharyngitis. According to addiction habits; 64 cases out of 100 had addiction habits and 36 cases had no addiction. And in control group 27 cases out of 50 had addiction habits and 23 cases had no addiction habits (Table 4). According to tobacco addiction: 52 cases have found tobacco chewer and 48



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**Table 1**

Distribution of cases of GERD according to Age; (total cases =100 & control = 50); n=number of patients

| Age Group | | Case | Control | Total |
|---|---|---|---|---|
| **21 – 30** | n | 8 | 11 | 19 |
| | % | 8.00% | 22.00% | 12.67% |
| **31 – 40** | n | 28 | 10 | 38 |
| | % | 28.00% | 20.00% | 25.33% |
| **41 – 50** | n | 32 | 14 | 46 |
| | % | 32.00% | 28.00% | 30.67% |
| **51 – 60** | n | 12 | 9 | 21 |
| | % | 12.00% | 18.00% | 14.00% |
| **> 60** | n | 20 | 6 | 26 |
| | % | 20.00% | 12.00% | 17.33% |

Chi Square Test ; p = 0.082 ; Not Significant

**Table 2**

Distribution of cases of GERD according to sex (total cases =100 & control = 50); n = number of patients

| Gender | | Case | Control | Total |
|---|---|---|---|---|
| **Female** | n | 32 | 18 | 50 |
| | % | 32.00% | 36.00% | 33.33% |
| **Male** | n | 68 | 32 | 100 |
| | % | 68.00% | 64.00% | 66.67% |
| **Total** | n | 100 | 50 | 150 |

Chi Square Test ; p = 0.624 ; Not Significant

**Table 3**

Distribution of cases according to duration of symptoms: (Total cases= 100)

| Duration | Number of patients | Percentage (%) |
|---|---|---|
| **1 - 6 months** | 48 | 48.0 |
| **6 months to 1 year** | 20 | 20.0 |
| **> 1 year** | 32 | 32.0 |

**Table 4**

Distribution of cases according to addiction habits (Total cases = 100, control = 50)

| Addiction | | Number of Case | Number of Control | Total |
|---|---|---|---|---|
| **Absent** | Number | 36 | 23 | 59 |
| | Percentage% | 36.00% | 46.00% | 39.33% |
| **Present** | Number | 64 | 27 | 91 |
| | Percentage% | 64.00% | 54.00% | 60.67% |

cases had no tobacco addiction; which had a significant p value of <0.001 (Table 5). Among cases, 56 were found smoker and 44 cases were non smoker. Smoker group had significant p value of 0.003 (Table 6). According to alcohol addiction table, 44 patients were found alcoholic and 56 patients were non alcoholic, which had significant p value of 0.004 (Table 7).



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**Table 5**
Distribution of cases according to tobacco addiction; (Total cases= 100, control = 50); n= number of patients

| Tobacco Chewing | | Case | Control | Total |
|---|---|---|---|---|
| **Absent** | n | 48 | 39 | 75 |
| | % | 48.00% | 78.00% | 50.00% |
| **Present** | n | 52 | 11 | 75 |
| | % | 52.00% | 22.00% | 50.00% |

Chi Square Test ; p = < 0.001 ; Significant

**Table 6**
Distribution of cases according to addiction of smoking (Total cases= 100, control = 50) n= number of patients

| Smoking | | Case | Control | Total |
|---|---|---|---|---|
| **Absent** | **n** | 44 | 35 | 79 |
| | **%** | 44.00% | 70.00% | 52.67% |
| **Present** | **n** | 56 | 15 | 71 |
| | **%** | 56.00% | 30.00% | 47.33% |

Chi Square Test ; p = 0.003 ; Significant

**Table 7**
Distribution of cases according to alcohol addiction (Total cases = 100, control = 50) n = number of patients

| Alcohol | | Case | Control | Total |
|---|---|---|---|---|
| **Absent** | **n** | 56 | 40 | 96 |
| | **%** | 56.00% | 80.00% | 64.00% |
| **Present** | **n** | 44 | 10 | 54 |
| | **%** | 44.00% | 20.00% | 36.00% |

Chi Square Test ; p = 0.004 ; Significant

## 5. DISCUSSION

Out of 100 patients, maximum number of patients were in the age group of 41-50 years; youngest being 21 years of age and the oldest 70 years of age. The age ranges from 21 to 70 years. Sex distribution in our study was 68% males and 32% females giving a ratio of almost 2:1 approximately. Such type of sex ratio has also been shown by Wienbeck et al., (1989) in their study. Stal et al., (1999) have also found out increased acid reflux in men as compared to women. The male preponderance may due to more prevalence of smoking and alcohol in this group. Addiction habits were screened in our study group patients and it was seen that 36% of cases did not have any addiction, but 64% of cases had addiction habits. In our study 56% cases are smoker and 44% of cases have addiction for alcohol consumption and 52% cases have addiction for tobacco chewing and a total of 64% patient had history of addiction of any kind. Most of the patients had more than one habits of addiction. In 1975, Castell et al., found that smoking and alcohol along with other substances that decrease LES pressure have higher incidence of GERD. Smoking reduces LES pressure prolongs acid exposure and may decrease healing of reflux esophagitis treated with $H_2$ blocker (Dennish et al., 1987). Excessive alcohol reduces LES pressure and prolongs nocturnal acid exposure; the latter may be due to a diminished arousal response following reflux episode (Vitale et al., 1987). The commonest presenting complaint in our study was epigastric pain occurring in all patients. It was followed by retrosternal burning which was present in 88% of cases. Heart burn i.e. retrosternal burning has been described as classic clinical symptom of GERD (Kaynard et al. 2001; Sleisnger and Fordtran's Text book, Harrison text book of internal medicine 17 ed.). Next common symptom was a regurgitation or reflux symptom which was present in 76% of patients, Dysphagia was present only in 4 patients and extra esophageal symptoms were present in only 16% cases.






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## 6. CONCLUSION

We conclude that occurrence of Gastroesophageal reflux disease strongly associated with addiction habits like smoking and alcoholism.


## CONFLICT OF INTEREST

Nil

## SOURCE OF FUNDING

Nil


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