

## PREVALENCE OF GASTROESOPHAGEAL REFLUX DISEASE IN THE ROMANIAN COUNTY GORJ

## PREVALENȚA REFLUXULUI GASTROESOFAGIAN ÎN JUDEȚUL GORJ, ROMÂNIA

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### Abstract

**Background and aim:** Gastroesophageal reflux disease (GERD) is a common condition. There are few epidemiological data from Romania. We looked for the epidemiology of GERD in Gorj, a South-Western Romanian county.

**Methods:** We undertook a prospective study based on the self-report of heartburn and of some extradigestive symptoms attributed to GERD. A sample of 500 participants inscribed on the files of family physicians was investigated with a dedicated questionnaire.

**Results:** Our sample had a high response rate (90%). From these, one third never experienced heartburn or other GERD symptom. However 17% reported bothering heartburn (score 2 and 3 on a Likert scale from 0-3); 11% reported sour taste. Half used antacid drugs. 15-20% presented sleep disorders. No genders difference was observed.

**Conclusions:** Considering only bothering cases as GERD cases, in South-West Romania the prevalence of GERD is 17%. Our results may represent the background for managing GERD.

### Rezumat

**Background și scop:** Boala de reflux gastroesofagian (BRGE) este o afecțiune comună, despre care există puține date epidemiologice din România. Studiul de față și-a propus obținerea de date epidemiologice din județul Gorj din sud-vestul României.

**Metode:** A fost efectuat un studiu prospectiv bazat pe auto-raportarea pirozizului și a unor simptome extradigestive atribuite BRGE. Un eșantion de 500 de participanți înscriși în bazele de date ale medicilor de familie a fost investigat cu ajutorul unui chestionar dedicat.

**Rezultate:** Eșantionul a avut o rată mare de răspuns (90%). Dintre respondenți, o treime nu a avut niciodată pirozis sau alt simptom BRGE. Cu toate acestea, 17% au raportat pirozis (scor 2 și 3 pe o scala Likert de la 0-3); 11% au raportat gust acru; jumătate au utilizat medicamente antiacide; 15-20% au prezentat tulburări de somn. Nu a fost observată nicio diferență de gen.

**Concluzii:** Considerând doar cazurile cu pirozis supărător ca având BRGE, în sud-vestul României prevalența BRGE este de 17%. Rezultatele noastre pot reprezenta baza unor acțiuni de diagnostic și tratament al BRGE.

**Key-words:** *epidemiology, esophagitis, gastroesophageal reflux, GERD, heartburn.*

**Cuvinte cheie:** *epidemiologie, esofagită, reflux gastro-esofagian, BRGE, pirozis*

### Introduction

The gastroesophageal reflux disease (GERD) is defined as the clinical condition produced by symptoms caused by the reflux of the gastric content into the esophagus (Gyawali CP et al, 2017). Although a common disease, there are large variations in reporting the prevalence of GERD worldwide (Richter JE, Rubenstein JH, 2018). The pooled prevalence of

at least weekly episodes of heartburn, the marker of GERD, is almost 15% (Eusebi LH et al, 2018). The condition is more frequent in the USA, up to 20%, data depending on measurement tools (El-Serag HBvet al, 2014), and less frequent in China; it is largely uninvestigated in Africa, and in some East European countries (Eusebi LH et al, 2018; Richter JE, Rubenstein JH, 2018).

Data for Romania are scarce and only one study was included in the meta-analysis by Eusebi et al. 2018 (Eusebi LH et al, 2018). This study was performed in Eastern Romania and it reported a quite high prevalence of GERD, ranking Romania among countries with high GERD prevalence (Chirila I, 2016).

Due to its frequency, potential complications and use of healthcare services, GERD represent a burden for the public health policies (Vakil N et al, 2006). Therefore the prevalence of GERD assessed in the most simple way by investigating heartburn is important for the analysis of health budget spendings (Peery AF et al, 2012), i.e. the use of endoscopy or proton pump inhibitors as main drug. There is indeed a need to know more on the prevalence of GERD in this country. Until the occurrence of a national survey, we started with a regional study.

The aim of this study was to investigate the prevalence of GERD in South Western Romania, in Gorj County, where epidemiological data on this topic are missing.

## Methods

### Protocol

This is a cross-sectional study looking for the presence of GERD in the general population. The study was addressed to a sample from the general population. Subjects were admitted in the study after informed consent and were asked to fill a structured questionnaire on GERD. Endoscopy was not carried out in this study but some of the respondents had previous endoscopic examinations.

### Setting

The survey was undertaken in urban and rural areas of Gorj County, an administrative area situated in South-Western part of Romania. The county has 330,000 inhabitants, 53% living in rural area. 60,000 inhabitants are under 18 years.

### Sample

A number of 500 adult subjects were included in the study. They were selected at random from the files of general practitioners. These files include not only ill persons, but healthy or ill persons together, who have health assurance coverage.

### Protocol

The participants were asked to fill a

questionnaire. The questionnaire was filled by the interviewed subjects themselves, after pertinent explanation given by an instructed healthcare provider. The respondents who either complained of heartburn and other symptoms compatible with GERD at least once per week or had an endoscopic diagnosis of reflux esophagitis were considered GERD+. Subjects without these complaints were considered GERD-.

### Questionnaire

An ad-hoc questionnaire was used. It was based on a questionnaire used in previous studies (Bardhan KD, 2007, Mönnikes H, 2007) and adapted to be better focused on GERD symptoms. It included following items: biographical data: age, sex, education, rural/urban living area; questions addressed to GERD symptoms. Respondents had to mention if they presented or not the symptoms and to estimate their severity on a Likert scale from 0 to 3: 0=not at all, 1=mild; 2=bothering; 3=severe. Patients had to refer to GERD symptoms occurring only at least once per week.

Following digestive and extradigestive symptoms were surveyed: heartburn; belching, regurgitation, sour taste, use of antacids, hoarseness; cough interfering with sleep; cough to clean the throat, insomnia caused by heartburn.

### Statistical analysis

We used descriptive statistics including Student test and frequency tables and centrality indicators (mean, standard deviation). Data processing was performed with a commercially available statistical software, setting the significance level to  $p < 0.05$ .

### Ethical issues

The study was performed according to the Helsinki Declaration for Human and Animal studies. Each subject gave the informed consent before filling the questionnaire. Subjects did not receive payments or other incentives.

## Results

### Demographic data

448 subjects accepted to fill the questionnaire, giving a response rate of 90%. Those who did not fill the survey did not explain the refuse. In total, the sample investigated included 448 participants: 193 were males (43%) and 255 were females (57%). According to living

environment, 257 were living in rural areas (57.4%) while 191 were living in urban areas (42.6%). Mean age of the sample and standard deviation was 50+15 years. Thus, the group is representative for the age of the general population in this country.

**GERD symptoms prevalence and severity scores**

From our sample, one can see that only 38% of the general population never experienced heartburn at least once in a week (Table 1). However only 17% are characterizes the heartburn as bothering (2 and 3 on Likert scale). Thus, we can correctly estimate the prevalence of GERD in Gorj County, south-West Romania as 17%. Sour taste was bothering in 11%. Use of antacids was reported by 54% of participants.

There was no difference in heartburn prevalence between rural and urban area. The same was observed between genders: no difference in heartburn prevalence between males and females was observed.

Two other esophageal symptoms were investigated: bothering belching had a prevalence of 19%; bothering regurgitation was reported in 13% (Table 1).

| Gastroesophageal related symptoms   | 0      | 1       | 2   | 3  |
|---|--------|---------|-----|----|
| 1. Do you feel a burning sensation starting from the stomach and irradiating to the thorax? | 38%    | 45%     | 13% | 4% |
| 2. Do you have belching?  | 34%    | 47%     | 14% | 5% |
| 3. Did you feel re-gurgitation of the gastric content?                                      | 45%    | 42%     | 11% | 2% |
| 4. Did you feel sour taste in the mouth?  | 47%    | 42%     | 9%  | 2% |
| 5. Did you use antacid drugs?   | 46% no | 54% yes | NA  | NA |

Table 1. GERD related symptoms and their scores according to a Likert scale from 0 to 3

Some extradiigestive symptoms related to GERD are displayed in table 2.

| Sleep   | 0    | 1      | 2    | 3   |
|---|------|--------|------|-----|
| 1. Do you have coughing episodes interfering with your sleep? | 47 % | 40 %   | 10 % | 3 % |
| 2. Do you have difficulties in falling asleep?                | 58 % | 28 %   | 10 % | 4 % |
| Other symptoms  | 0    | 1      | 2    | 3   |
| 1. Do you present hoarseness?                                 | 2 %  | 46.5 % | 8 %  | 4 % |
| 2. Do you have breathing difficulties?                        | 67 % | 20 %   | 9 %  | 4 % |
| 3. Do you need to cough to expectorate throat secretions?     | 21 % | 60 %   | 15 % | 4 % |

Table 2. Extradigestive symptoms related to GERD

Our study shows that the GERD subjects have also several extradiigestive manifestations. Sleep disorders in GERD were encountered in almost 15%, while respiratory symptoms were present in 15-20%.

**Discussions**

GERD is a common medical condition (Bhatia SJ et al, 2019). Therefore its management has a major importance (Na'amnih W, 2020, Voutilainen M et al, 2020). The epidemiology of GERD has different geographical variations (Chirilă I, et al, 2016). In our country the data are scarce and only a study performed in North-Eastern part of Romania is validated in a recent meta-analysis (Eusebi LH et al, 2018).

Therefore we undertook the present study which to our knowledge is the first reporting epidemiologic data on GERD in Gorj County, South-Western part of Romania. Our data show a lower prevalence based on heartburn self-reported survey in adults, recorded on family physicians' files. In our study 17% of adults described bothering reflux. The differences versus the study from North-East Romania are explained by the fact that we considered only bothering symptoms and not sporadic symptoms. For this approach we followed the

methodology of the Rome IV working teams (Drossman DA, 2016). Life style and demography is not different in these two Romanian provinces situated in two different extremities of this country.

The use of antacids was found in half of the participants to the study. We may extrapolate from this result that many heartburn sufferers use antacids even when the condition is not bothering, i.e. also in mild cases.

Respiratory involvement in GERD is well-known (Chang AB et al, 2006, Lätti AM, 2020). Our study confirmed that 15-20% of GERD sufferers report also respiratory or respiratory-related sleep disorders.

Our study has as main limitation the sample of 500 subjects; this is not small but a larger investigation should be continued in order to obtain more convincing data. In this condition, the study is reporting first epidemiological data on GERD in South-Western Romania.

### Conclusions

GERD has a quite high prevalence in South-Western Romania (Gorj County) even when we consider only bothering cases. It is associated with respiratory symptoms. Use of antacid drugs is high in these patients. Our results may represent the background for managing GERD in our area.

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Conceptualization: DLD; research design: DLD; validation of the methodology; data collection: MI; data analysis and / or data interpretation: MI, DLD; writing-preparing the original text: MI; review and editing: DLD