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Evaluation of gastroesophageal reflux disease and related factors in seasonal agricultural workers

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Abstract

As gastroesophageal reflux disease affects various aspects of health and consumes considerable resources, it is important to know its prevalence in seasonal agricultural workers. This study was conducted to evaluate the frequency of gastroesophageal reflux disease and related factors in seasonal agricultural workers.The study is a cross-sectional study conducted on seasonal agricultural workers working in rural Eskişehir. 536 of seasonal agricultural workers were formed the working group. The prevalence of gastroesophageal reflux disease was evaluated with the National Institutes of Health Patient-Reported Outcomes Measurement Information System Gastroesophageal Reflux Disease Scale. Multivariate logistic regression analysis was used in multivariate analysis.Of the study group, 62.5% were female and the age of the study group ranged from 18 to 92 years. The prevalence of gastroesophageal reflux disease among seasonal agricultural workers were detected as 82.8%. Gender, age, monthly average income, and body mass index were all found as important risk factors for gastroesophageal reflux disease in our study.Also, it was detected a considerable amount of gastroesophageal reflux disease in seasonal agricultural workers.Family income status has to be improved and struggle against overweight to decrease the prevalence of gastroesophageal reflux disease in seasonal agricultural workers.

Keywords: Gastroesophageal reflux disease, seasonal agricultural workers, epidemiology

Introduction

Gastroesophageal Reflux Disease (GERD) is defined as the escape of stomach contents to the esophagus, causing symptoms and/or complications that disturb the person. Important risk factors for GERD include lifestyle factors such as smoking, chocolate, consumption of spicy, foods, consumption of cigarettes and alcohol, obesity, and the use of drugs such as aspirin and nonsteroidal anti-inflammatory drugs. GERD is a persistent gastrointestinal disease that decimated standard of life and causes an important complication like esophageal stricture, gastrointestinal bleeding, or Barrett's esophagus [1].

GERD is common in agricultural workers [2]. It is well known that working conditions, fees, and nutrition are highly deficient in seasonal agricultural workers, influencing health negatively [3]. Physical activity, weightlifting, carrying heavy loads, frequent or long slopes are contributing to the development of GERD and severe course [2]. Many of gastroesophageal reflux disease patients never seek medical attention and therefore go undiagnosed. As the disease affects various aspects of health and consumes considerable resources, it is important to know its frequency in the community [4], but the frequency of GERD in seasonal agricultural workers is more important than the community. Because, seasonal agricultural workers undergo many social, economic, and health-related problems that differ from those in the general population [5]. This study was conducted to evaluate the frequency of gastroesophageal reflux disease and related factors in seasonal agricultural workers.

Material and Methods

The study is a cross-sectional study conducted on seasonal agricultural workers working in rural Eskişehir in 2017.

The prevalence of gastroesophageal reflux disease was estimated to be 50%, the error margin was 5%, the confidence interval was 95%, the minimum number of people to be reached was calculated

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as 384 so that the reliability of the results could be accepted. 536 of seasonal agricultural workers were formed the working group.

In the study, among the inclusion criteria are volunteering to participate, 18 years of age and over, having cognitive competence to answer the questions, not having any health problems preventing the interview, understanding, and communicating in Turkish.

Refusal to participate in the study, under the age of 18, pregnancy, the patient's perception disorder, and psychiatric disorder to preventing communication, failure to answer 90% of the questions in the questionnaire are among the exclusion criteria from the study.

The questionnaire includes socio-demographic features of the person, factors that are thought to be related to GERD, and questions about the NIH PROMIS GERD Scale. The questionnaires were filled by the authors using face-to-face method interviews. This method took approximately 30 minutes.

NIH Promis GERD Scale

Individuals with burning symptoms in the retrosternal region for at least 1 day in the last week were considered as retrosternal burning positive and patients with regurgitation of foods and drinks without vomiting were accepted as regurgitation positive. Individuals with symptoms of retrosternal burning and regurgitation at least 1 week in the study were identified as GERD. Prevalence of gastroesophageal reflux disease was evaluated with the National Institutes of Health (NIH) Patient-Reported Outcomes Measurement Information System (PROMIS) Gastroesophageal Reflux Disease (GERD) Scale. This scale was developed by the National Institutes of Health (NIH) in 2014 [6, 7],and the validity and reliability study in Turkey was conducted by Özşeker et al. The scale includes 13 questions with 5 Likert types. The scores from each question range from 0-4. Scores to be taken from this scale ranged from 0 to 52. According to the scoring system, 16 and over points were the most symptomatic, 8-15 points were moderate symptomatic, 4-7 points were mild symptomatic, 1-3 points were the least symptomatic, and 0 points were accepted as asymptomatic [8].

Data analysis

Statistical Package for Social Sciences (SPSS 15.0) was used to assess the obtained data. Chi-square test was used for univariate analysis and multivariate logistic regression analysis was used in multivariate analysis. $p<0.05$ was taken as a significance for all variables.

Results

Of the study group, 62.5% were female and the age of the study group ranged from 18 to 92 years and the mean (SD) was 39.05 (13.59) years. The prevalence of GERD among seasonal agricultural workers were detected as 82.8%. The sociodemographic attributes of the study groupare given in Table 1.

In our study, male gender (OR: 2.072; p=0.007), age(>30) (OR: 1.891; p=0.014), family income status(<500€) (OR: 5.200; p=0.001) and overweight (OR: 1.962;p=0.009) were detected as a significant risk factors for gastroesophageal reflux disease. Multivariate logistic regression analysis outcomes are given in Table 2.

Table 1. The sociodemographic attributes of the study group

Sociodemographic characteristics	Number (n)	Percentage (%)
Gender		
Female	335	62.50
Male	201	37.50
Age group		
≤30	172	32.10
>30	364	67.90
Monthly average income		
≥500 €	21	3.90
<500 €	515	96.10
Education status		
Illiterate	348	64.90
Primary school graduate	163	30.40
High school and above	25	4.70
Chronic Disease		
No	292	54.50
Yes	244	45.50
BMI (kg/m^2)		
<25	157	29.30
≥25	379	70.70
Total	536	100.0

Table 2. Multivariate logistic regression analysis outcomes

Variables		GERD(%)	OR (95% CI)	p
Gender	Female	79.40	1	**0.007**
	Male	88.60	2.072 (1.219-3.522)	
Age group	≤30	73.30	1	**0.014**
	>30	87.40	1.891 (1.139-3.141)	
Monthly average income	≥500€	52.40	1	**0.001**
	<500€	84.10	5.200 (2.028-13.333)	
Chronic Disease	No	78.80	1	0.093
	Yes	87.70	1.540 (0.931-2.547)	
BMI (kg/m^2)	<25	73.90	1	**0.009**
	≥25	86.50	1.962 (1.182-3.256)	

OR: Odd's ratio, CI: Confidence interval

Discussion

GERD is a common disease of the gastrointestinal tract that affects the quality of life of people with various symptoms and complications [9]. The prevalence of GERD in seasonal agricultural workers were detected as 82.8%. GERD is widespread in agricultural workers [2]. It is well known that working conditions, fees, and nutrition are highly deficient in seasonal agricultural workers, influencing health adversely [3]. It has been reported in some studies among adults in various countries that the frequency of GERD varies between 6.2-31.3% (12-14)[10-12]. The lack of standardization of the methods used to diagnose GERD may be among the reasons for the different reported results.

In the study, the frequency of GERD in males was 2.072 times higher than that of females (p=0.007).Similarly, researches have reported the frequency of GERD is higher in men, regardless of homeland, ethnicity, and decade [13]. Whereas Shaha et al. reported that the frequency of GERD in females was higher than in men [14] and on the other hand in Locke et al.'s study in Minnesota, there was no variation in the frequency of GERD between men and women[15]. In research handled by Sağlan and colleagues, it was reported that there was no variation in the frequency of GERD between men and women in Type 2 Diabetes Mellitus patients [9].

In our study, the age group was determined as anindependent risk factor for GERD. Pourshams et al.'s study, it was reported there was also a trend toward the increasing frequency of GERD with increasing age [4]. Similar results have been reported in a community-based population study conducted by Wang et al. in southern India [16].

In our study, the GERD frequency was higher in families who have a monthly average income of <500€. In the literature, it was reported that there was a relationship between the frequency of GERD and low income [17]. In research, it was reported that GERD frequency was higher in families with moderate income when compared with families that had a good income [1]. In another study conducted in the literature, it was reported that seasonal agricultural workers reported insufficient income (90.7%) [3], and on the other hand,In research committed in the literature, it was reported that there was no relationship between monthly average income and GERD [18].

In our study, there was no relationship between chronic disease and GERD (p>0.05). In research committed by Sağlan et al., it was reported that Diabetes Mellitus over a decade was found to be a significant risk factor for gastroesophageal reflux disease and GERD was found to be a common complication in diabetic patients [9]. Inresearch committed, it was reported that GERD frequency was higher in chronic cough, asthma, diabetes mellitus, hypertension, and COPD patients [18]. In research committed in the literature, it was reported that GERD frequency was higher in those who were at high Obstructive Sleep Apnea Syndrome risk status [1].

In the literature, it was reported that obesity is a significant risk factor for GERD [1]. In our study, overweight was detected as an independent risk factor for GERD (p=0.009). Similar results have been reported in a study conducted by El-serag and his colleagues [19]. In researches committed in the literature, it was determined that GERD frequency was too much in obese persons[16, 20]. An increase in intragastric pressure with increasing central obesity was contributed to GERD [19].

This study has several limitations. Among the limitations of the study are that it is a cross-sectional study, that it was conducted only in a provincial and semi-rural area, and that no endoscopy, ph meter, etc. tests were performed for diagnosis.

Conclusion

In the study, it was detected a considerable amount of gastroesophageal reflux disease in seasonal agricultural workers. In our study, male gender, age group (>30 years), monthly average income (<500€),and body mass index (≥25 kg/m2) were all found as important risk factors for GERD. Family income status must be improved and struggle against overweight to decrease the prevalence of gastroesophageal reflux disease in seasonal agricultural workers.

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Conflict of interests
The authors declare that they have no competing interest

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Ethical approval
The ethical permission was received from the Social and Human Sciences Ethics Committee of Ankara Yıldırım Beyazit University.

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