Dyspepsia prevalence in general population aged over 20 in the west part of Iran

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Abstract

Objective: To estimate the prevalence of dyspepsia in the general population aged over 20 in western Iran.

Methods: The cross-sectional study was conducted among the randomly selected general population over the age of 20 years in Sanandaj city. Iran, from April to December 2009. A questionnaire containing demographic, symptoms and history variables was used. Dependent variables were self-reported gastrointestinal symptoms. The prevalence of dyspepsia in different groups was analysed using chi square test, while logistic regression analysis was done to determine dyspepsia, ulcer-like, dysmotility-like and reflux-like prevalence after controlling the confounders.

Results: Among 590 respondents, the prevalence of dyspepsia was 54.6% (n=322). Among them were 243 (41.2%) cases of uninvestigated dyspepsia. According to dyspepsia classification, the prevalence of ulcer-like, dysmotility-like, reflux-like and non-specific dyspepsia were 31.5% (n=186), 11% (n=65), 27.3% (n=161) and 12.4% (n=74), respectively. Difference in dyspepsia prevalence between men and women persisted after adjustment for other factors (p=0.01) and dyspepsia prevalence was higher in over-60-years old group than the middle aged group (p=0.008).

Conclusion: The study showed high prevalence of dyspepsia in the general population. Gender, age, family history and theophylline consumption affect the prevalence of dyspepsia.

Keywords: Dyspepsia, Prevalence, Overlapping, Gastrointestinal symptoms. (JPMA 62: 672; 2012)

Introduction

Dyspepsia is a common medical disorder[1] and it has an unfavourable economic effect because of frequent consumption of drugs and taking days off due to the symptoms.[2] Dyspepsia has non-specific symptoms[3] defined by the presence of upper abdominal pain or discomfort accompanied by other upper gastrointestinal symptoms, such as belching, vomiting, nausea, etc or without them.[4,5] The prevalence of dyspepsia varies through the world from 8.5% to 56%[6-8] due to different diagnostic criteria, time differentiation,[9] environmental and dietary factors,[10] H.pylori infection,[11] lifestyle,[7] and other factors. Dyspepsia has several causes, including gastroesophageal reflux, peptic ulcer or functional dyspepsia which indicates the presence of chronic symptoms of upper abdominal pain in the absence of any known specific structural cause.[12] But in about 50% cases no clear cause is found.

The prevalence of dyspepsia in health centres cannot reflect its prevalence in the community as a whole. Most patients who are bothered by dyspeptic symptoms do not reach out to a doctor since they either consider this symptom being not important enough, or do self-medication.[9] Consequently, the precise prevalence cannot be measured and it needs to be studied in the general population. As the understanding of dyspepsia prevalence and its related factors are important for suitable health planning, this study was conducted to estimate its prevalence in Western Iran.

Subjects and Methods:

The cross-sectional study was carried out with due clearance by the Ethics Committee of the Kurdistan University of Medical Sciences, and all the subjects provided informed written consent before being interviewed.

The study was conducted in the general population, older than 20 years in Sanandaj city in the west part of Iran from April to December 2009. Assuming 5% as alpha and dyspepsia prevalence of about 30%, the sample size was calculated to be 580 persons. A total of 600 people were finally approached. We divided the city to 40 clusters according to health centres coverage. Then 15 houses were sampled from the first right-side alley near the health center and one person from each house was selected randomly. After receiving the consent forms, interviews were conducted by volunteers.

A questionnaire containing demographic, symptoms and history variables was completed by two interviewers who were medical students and were trained by an assistant professor at the Internal Medicine Unit of the University.

The dependent variables were self-reported gastrointestinal symptoms. Dyspepsia was defined as having upper abdominal pain accompanied by (or without) other gastrointestinal symptom such as, vomiting, nausea, excessive

belching, heartburn, abdominal fullness, early satiety lasting for at least one month and occurring at least one day per week.

Dyspepsia was further classified into four categories.

Ulcer-like dyspepsia was defined as upper abdominal pain with at least two of the four symptoms: a)pain often relieved by food, b) pain often relieved by antacids or food, c) pain before meals or when hungry, d) night pain.

Dysmotility-like dyspepsia referred to upper abdominal pain with at least three of the four symptoms; a) abdominal bloating and distension, b) pain often aggravated by food, c) pain often relieved by belching, d) early satiety.

Reflux-like dyspepsia was considered present if there was heartburn or acid regurgitation, or both, while non-specific dyspepsia was upper abdominal pain or nausea that did not fit into the other categories.

The data was analysed using SPSS version 11.5. The prevalence was calculated with 95% confidence interval (95%CI). Univariate analysis was performed using χ^2 test and odds ratio (and 95% CI) were calculated. Logistic regression analysis was done for controlling the confounders. The independent variables entered for logistic regression analysis were gender, family history, age group, theophylline consumption, education level and marital status. Other variables were not entered to the model because they may have been affected by dyspepsia. The odds ratios of significant variable in the final model were calculated from the coefficients estimated in the logistic regression model. All values were two-tailed, with the level of statistical significance specified at 0.05.

Results

Ten people did not agree to the interview, which left

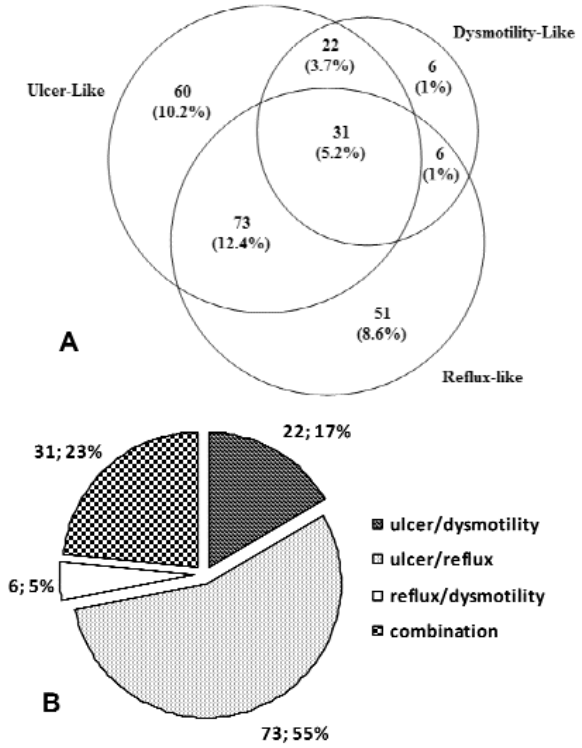
Table-1: Prevalence and associated factors of dyspepsia in the subjects.

Variables	Frequency of variables (%)	Prevalence of Dyspepsia (%)	OR (95% CI)	P-value*
Age Group				**0.03**
<40	325 (55.1%)	166 (51.1%)	1	
40-59	193 (32.7%)	107 (55.4%)	1.19 (0.83-1.7)	
>=60	72 (12.2%)	49 (68.1%)	2.04 (1.18-3.5)	
Sex				0.008
Male	187 (31.7%)	87 (46.5%)	1	
Female	403 (68.3%)	235 (58.3%)	1.6 (1.13-2.28)	
Education				0.05
Diploma and College	191 (32.3%)	98 (51.3%)	1	
Less than Diploma	188 (31.9%)	95 (50.5%)	0.97 (0.65-1.45)	
Uneducated	211 (35.8%)	129 (61.1%)	1.49 (1-2.22)	
Marital Status				0.01
Single	84 (14.2%)	35 (41.7%)	1	
Married	486 (82.4%)	273 (56.2%)	1.8 (1.12-2.86)	
Divorced or Widow	20 (3.4%)	14 (70%)	2.26 (1.14-9.33)	
Sunshade				0.2
No	301 (51%)	172 (57.1%)	1	
Yes	289 (49%)	150 (51.9%)	0.74 (0.53-1.02)	
Smoking				0.4
No	520 (88.1%)	287 (55.2%)	1	
Yes	70 (11.9%)	35 (50%)	0.81 (0.58-1.12)	
Alcohol consumption				0.1
No	581 (98.5%)	315 (54.2%)	1	
Yes	9 (1.5%)	7 (77.8%)	2.95 (0.61-14.34)	
Tea Consumption				0.5
<6 cup	430 (72.9%)	238 (55.3%)	1	
>= 6 Cup	160 (27.1%)	84 (52.5%)	0.89 (0.6-1.28)	
NSAID				0.4
No	472 (80%)	254 (53.8%)	1	
Yes	118 (20%)	68 (57.6%)	1.162 (0.77-1.753)	
OCP				0.8
No	574 (97.3%)	314 (54.7%)	1	
Yes	16 (2.7%)	8 (50%)	0.82 (0.31-2.23)	
Theophylline				0.008
No	577 (97.8%)	310 (53.6%)	1	
Yes	13 (2.2%)	12 (92.3%)	10.1 (1.33-80)	
Family history of Ulcer				<0.001
No	511 (86.6%)	260 (50.9%)	1	
Yes	79 (13.4%)	62 (78.5%)	3.52 (2-6.2)	

NSAID: Non-steroidal anti-inflammatory drugs. OCP: Oral contraceptives.

Table-2: Relation between the disorders and some variables.

Disorders and some variables	B	OR (95% CI)	P-Value	R^2
Dyspepsia				0.1
Sex (female vs. male)	0.468	1.6 (1.11-2.3)	0.01	
Family History of Peptic ulcer (Yes vs. No)	1.311	3.71 (2.1-6.57)	<0.001	
Theophylline consumption (Yes vs. No)	2.152	8.6 (1.1-67.9)	0.04	
Age			0.02	
<40		1		
40-59	0.138	1.14 (0.79-1.66)	0.4	
>=60	0.755	2.12 (1.22-3.7)	0.008	
Ulcer-Like				
Family History of Peptic ulcer (Yes vs. No)	0.822	2.27 (1.38-3.75)	0.001	0.1
Theophylline consumption (Yes vs. No)	1.46	4.3 (1.24-14.93)	0.02	
Age			0.02	
<40		1		
40-59	0.251	1.28 (0.85-1.93)	0.2	
>=60	0.758	2.13 (1.23-3.7)	0.007	
Marriage status			0.008	
Single		1		
Married	1.03	2.8 (1.4-5.58)	0.003	
Divorced or Widow	1.51	4.51 (1.43-14.21)	0.01	
Dysmotility-like				
Family History of Peptic ulcer (Yes vs. No)	1.34	3.84 (2.13-6.91)	<0.001	0.06
Reflux-like				
Family History of Peptic ulcer (Yes vs. No)	0.748	2.11 (1.29-3.45)	0.003	0.03
Theophylline consumption (Yes vs. No)	1.11	3.03 (0.99-9.3)	0.05	



Prevalence of pure ulcer-like, dysmotility-like and reflux-like in dyspeptic subjects was 57.8%, 20.2% and 50%. Prevalence of combination of ulcer-like/dysmotility-like, ulcer-like/reflux-like, reflux-like/ dysmotility-like and combination of three kinds was 6.8%, 22.7%, 1.9% and 9.6, respectively.

Figure: Overlap of the dyspepsia subgroups in all of the participants (A) and combination of the types of dyspepsia (B).

590 participants for evaluation. The mean age was 40.3 ±14 years; 403 (68.3%) were female; 211 (35.8%) were uneducated; 486 (82.4%) were married; and 70 (11.9%) were smokers (Table-1). According to symptoms, 150 (25.4%) subjects had upper abdomen pain, 158 (26.8%) had distention after meals, 75 (12.7%) had nausea after the meals, 45 (7.6%) were vomiting after meals, 132 (22.4%) had early satiety, 161 (27.3%) had heartburn, and 82 (13.9%) had belching. As the data indicates, there were several who reported more than one symptom.

The prevalence of dyspepsia was 54.6% (322 subjects) from which 79 people (24.5%) had the record of evaluation for dyspepsia. The prevalence of uninvestigated dyspepsia, as such, was 41.2% (243 subjects). The prevalence of dyspepsia was higher among the elderly (P=0.03), women (P=0.008), those consuming theophylline (P=0.008) and those who had family history of peptic ulcers (P <0.001) in univariate analysis.

According to dyspepsia classification, prevalence of ulcer-like dyspepsia, dysmotility-like, reflux-like and non-specific in participants were 31.5% (n=186), 11% (n=65), 27.3% (n=161) and 12.4% (n=74), respectively (Figure-1A). Again, as the data indicates, there was a combination of these types of dyspepsia in the study population (Figure-1B).

Difference in dyspepsia prevalence between gender, age groups and family history of peptic ulcer diseases was significant after adjustment for other factors. The risk of dyspepsia in females was 1.6 times greater than males

(P=0.01). The risk in the over-60 group was higher than <40 groups (2.12 times) (P=008). There was no significant relationship between dyspepsia with hormone therapy and NSAID drugs consumption (Table-2).

Discussion

Dyspepsia is a common medical disorder which has various prevalence rates in different parts of the world. In our study, the prevalence of upper GI symptoms was higher than in other parts of Iran such as those noted by Khoshbaten et al.[13] in Tabriz (14.3%), and by Bazrkar et al. in Tehran,[8] (8.5%). Dyspepsia was common (54.6%) in Sanandaj general population. Dyspepsia prevalence is diverse in various studies ranging from 13% to 56%[6,7,14] and uninvestigated dyspepsia prevalence also varies from 10% to 40%.[6,15,16] In our study, uninvestigated dyspepsia prevalence was 41.2%.

The prevalence of ulcer-like, dysmotility-like and reflux-like dyspepsia in the subjects was 57.8%, 20.2% and 50%. However, 50% of the subjects fell into more than one category. In a study by Telly et al[17] 64% of dyspeptic subject had ulcer-like dyspepsia, 31% dysmotility-like, 38% reflux-like and 43% were placed in more than one category. In a study in the UK, corresponding numbers were 31%, 13%, 4% and 46%, respectively.[9] These differences might be caused by different definitions of dyspepsia and the use of different diagnostic criteria, or might be the result of cultural and nutritional conditions of the studied groups.[5,7,9,10] Another important reason for the increase of prevalence is that patients usually are not diagnosed and treated. Nevertheless, it seems dyspepsia prevalence is high in the study region and it is essential to initiate training and follow-up activates in order to bring the numbers down.

The prevalence of H.pylori infection can be a factor because the prevalence of H.pylori is high in Iran.[18] However, in the study it was not possible to medically assess patients regarding H.pylori infection.

The risk of dyspepsia in females was 1.6 times greater than males. Some studies did not observe gender differences, but in some other studies dyspepsia was more prevalent among the females.[10,19] Also in Tokuda et al, digestive symptoms were more prevalent among women.[19] Probably, cultural, nutritional, social and hormonal factors have their respective impacts.

In some studies, as well our study, smoking was not defined as a risk factor for dyspepsia.[7,10,20] But in some other studies smoking is recognised as a risk factor for peptic ulcer.[7,10] Talley et al[21] according to adjustment of age, marital status and literacy level, has illustrated that there is a relationship between dyspepsia and smoking. Maybe in some communities smoking is accompanied by other behavioural factors. Our study only measured the prevalence, and it is probable that patients have been recommended to stop drinking tea, cigarette smoking, and drug consumption, etc. and these can affect the intensity of prevalence. Besides, in cross-sectional studies the 'temporality' issue of causality cannot be inspected.[7] However, it is suggested to examine such relationships in cohort studies or perform studies in which incidence cases would be analysed to find out whether there is any connection between dyspepsia and smoking or not.

Sunflower-seed and tea are highly consumed by Sanandaj citizens and physicians are considering the relationship between dyspepsia and the consumption of sunflower-seed and tea. Our study did not demonstrate such a relationship and dyspepsia prevalence was approximately the same among two extreme consumers of tea and sunflower-seed. Tea was not recognised as an effective dyspepsia factor in other studies as well.[14]

In this study, the risk of dyspepsia in people over 60 was higher than those under 40 (2.12 times). In Li et al's study in China, it was the highest in 41 to 50-year-old age group[20] and in a study in Japan the highest prevalence was observed among people aged 50 to 59.[22] These differences may be the result of various care statuses, environmental and nutritional factors, or drug consumption. The relationship between age and dyspepsia was variable in different studies. Some studies verified this phenomenon[7] but in some studies it was not found.[23] In Talley et al. study, dyspepsia prevalence decreased with increasing age ($p<0.01$) and it was more prevalent among women.[24] Family history was a risk factor for dyspepsia in our study (OR=3.71) and the same result was seen in Bernersen et al.[25] Maybe, it is due to genetic, similar behaviour or nutritional habits.

In Ofman et al. study,[5] NSAID consumption was recognised as a dyspepsia risk factor which made it 3 times more prevalent, although it was not common in low dosages. In Talley et al's[21] study, through adjustment of age, sex, marital status, and literacy level it was illustrated that there was a relationship between aspirin consumption and dyspepsia. In Wallander et al's[7] study, most of the new cases of dyspepsia were found among women taking aspirin or those who were undergoing hormone therapy.[7] These sorts of differences are caused by the method of study and the people who are taking part in such studies. Cross-sectional studies cannot properly demonstrate these relationships because disease diagnosis and prescriptions given by physicians can affect the symptoms.

There were also some limitations in our study. As it was a prevalence study, it was not able to measure the relationships suitably. Therefore, it was not possible to do

regression logistic for some factors that are under the effect of disease diagnosis. In addition, it was not possible to use endoscopies in such a vast range.

Conclusion

The study showed high prevalence of dyspepsia in the general population. Gender, age, family history and theophylline consumption were found to be related to the prevalence of dyspepsia. Therefore, physicians must consider the disorder in these specific groups.

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