

Gastroesophageal reflux disease (GERD) in students of a government medical college at Karachi

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Abstract

Objective: To assess the frequency of symptoms suggestive of Gastroesophageal reflux disease (GERD) in students of a government medical college at Karachi.

Methods: This is a cross sectional study conducted at Dow Medical College (from September to December 2008) through a well structured questionnaire meant to assess the typical and atypical manifestations of GERD in terms of frequency, consultation with physician and life style changes adopted to reduce the severity of symptoms.

Results: Out of 595 students interviewed, 444 (74.6%) were female. Majority of them were aged between 17-25 years. Abdominal discomfort ever developed in 288/595 (48.4%) students out of which 132/595 (22.18%) students complained of heartburn. Weekly episodes of heartburn were present in 35/444 (7.88%) female students and 10/151 (6.62%) male students. Dysphagia was present in 88/595 (14.8%) students, 9/88 (10.22%) of which also suffered weekly from heart burn. Overall 109/595 (18.3%) students, comprising of 82/444 (18.5%) female and 27/151 (17.9%) male, exhibited breathing problems. Weekly presentation of heartburn was also prevalent in 13/109 (11.92%) students who suffered from breathing problems.

Conclusion: The study concludes that the percentage of students having weekly episodes of heart burn is significantly higher than that in general Asian population. The atypical symptoms of GERD are also found to be more prevalent among medical students (JPMA 60:147; 2010).

Introduction

Gastroesophageal reflux disease (GERD) is the most common gastrointestinal disease diagnosed during patient visits to non-emergency clinics.¹ The recent global consensus Montreal definition defines it as "a condition in which reflux of gastric contents causes troublesome symptoms or complications". The characteristic typical symptoms are heart burn and/ or acid regurgitation.² To assess the burden of disease many epidemiological studies define GERD as weekly presence of these hall mark symptoms with no reference to symptom severity. In addition, to these typical symptoms, the atypical extraesophageal manifestations include dysphagia, asthma and pain of non-cardiac origin.^{3,4} The causative factors involved in the disease are numerous. Dietary factors pre disposing to the condition include coffee, vitamin C supplements, cruciferous vegetables, alcohol, carbonated soft drinks, while drugs aggravating the symptoms are beta 2 agonists, aminophyllines, nitrates and calcium channel blockers. Numerous studies indicate that increased body mass index (BMI) is also a risk factor for GERD. Epidemiological surveys in general populations pertaining to symptomatology conclude that the disease affects 60 percent population during the course of a year.⁵ The weekly manifestations vary according to the study conducted but generally ranges from 10 to 20 percent.⁶ This condition alone accounts for an estimated 9 million patient visits in

United States alone per annum costing a financial expenditure of around 10 billion dollars.⁷ The consequences of this condition are manifold depending on the frequency, severity and duration of symptoms. These range from time loss from work⁸ and impaired health related quality of life⁹ to potentially serious implications such as esophageal adenocarcinoma.¹⁰ Studies indicate that the incidence of this cancer is rising more rapidly than any other cancer.¹¹ However, many patients do not consult a physician, specially if the symptoms felt are mild in intensity.^{5,6} Different studies have reported this condition to be more prevalent in the west compared to Asia.^{6,12,13} The objective of this study was to assess the frequency of symptoms suggestive of GERD in students of Dow Medical College.

Methods

This is a cross- sectional study conducted at Dow Medical College (Dow University of Health Sciences) over a period of 4 months (From September to December 2008).

Data was collected by interviewing the medical students through a well structured questionnaire which was prepared with assistance from the guidelines regarding symptomatology of GERD from the North American Society for Paediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN), The Children's Digestive Health and Nutrition foundation (CDHNF), and the American

Academy of Paediatrics (AAP). A written consent for the afore-mentioned purpose was taken from each student.

The main objective was to determine the prevalence of heartburn (defined as the presence of burning sensation behind the sternum) in terms of frequency, severity, duration etc. which is considered to be the primary symptom. Demographic variables included the participants gender, age and professional level in graduation. Additional questions were designed to obtain information pertaining to the atypical symptoms such as dysphagia (defined as difficulty during swallowing), respiratory problems such as asthma, chronic coughing, wheezing and hoarseness of voice etc. Respondents were classified as having GERD if they experienced at least a weekly episode of heartburn.

Data was assessed using SPSS Program 15.0. Questionnaires with in-complete responses were excluded from the study. For, comparison demographic and basic GERD variables were used.

Ethics:

The study was given approval by the ethical Review Committee of Dow University of Health Sciences (DUHS).

Results

Our study included 595 students of Dow Medical College which consisted of 444 (74.6%) female students and 151 (25.4%) male students between the ages of 17-25 years. Total number of students who ever suffered from abdominal discomfort was found to be 288/595 (48.4%) of which 132/595 (22.18%) students, comprising of 94/444 (21.17%) female students and 38/151 (25.17%) male students, complained of heartburn which is regarded as a typical symptom of GERD. Weekly presentation of the symptom, being a characteristic feature of GERD, was found in 45/595 (7.56%) students of which 35/444 (7.88%) were female and 10/151 (6.62%) were male. Of the students suffering weekly from heart burn, 12/35 (34.29%) female students and 5/10 (50%) male students consulted a physician about the problem. Year wise presentation of typical and atypical symptoms of GERD along with their frequencies among male and female students is shown in Table-1.

The life style changes adopted by the sufferers are listed in Table-2. Dysphagia, considered as an atypical symptom of GERD, was experienced by 88/595 (14.79%) students. Overall 54/444 (12.16%) female students and

Table-1: Presence of typical and atypical symptoms of Gastro Esophageal Reflux Disease (GERD) along with their frequencies among male and female students in a government medical college of Karachi.

Institutional year	Gender of students	No. of students n = 595	Students suffering weekly from heart burn (typical symptom) n = 45	Students consulted physician n = 17
1st year	Female	131	7 (5.34%)	2 (28.57%)
	Male	36	5 (13.89%)	1 (20.0%)
	Total	167	12 (7.19%)	3 (25.0%)
2nd year	Female	63	5 (7.94%)	1 (20.0%)
	Male	18	0 (0.0%)	0
	Total	81	5 (6.17%)	1 (20.0%)
3rd year	Female	47	7 (14.89%)	4 (57.14%)
	Male	42	1 (2.38%)	1 (100.0%)
	Total	89	8 (8.99%)	5 (62.50%)
4th year	Female	89	7 (7.87%)	2 (28.57%)
	Male	46	4 (8.69%)	3 (75.0%)
	Total	135	11 (8.15%)	5 (45.45%)
5th year	Female	114	9 (7.89%)	3 (33.33%)
	Male	9	0 (0.0%)	0
	Total	123	9 (7.32%)	3 (33.33%)

Frequency of dysphagia (atypical symptom) (% within relative sex)

Sex of student	Weekly n = 28	Once a month n = 29	Occasionally n = 29
Female	13 (2.93%)	15 (3.37%)	24 (5.41%)
Male	15 (9.93%)	14 (9.27%)	5 (3.31%)

Frequency of respiratory problems (atypical symptom) (% within relative sex)

Sex of student	Weekly n = 26	Once a month n = 32	Occasionally n = 47
Female	18 (4.05%)	25 (5.63%)	35 (7.88%)
Male	8 (5.29%)	7 (4.64%)	12 (7.95%)

Table-2: Life style changes adopted by students having weekly symptoms of heart burn.

Life style changes	No. & (%) of female students suffering weekly from heartburn who adopted the change n = 35	No. & (%) of male students suffering weekly from heartburn who adopted the change n = 10
Ate smaller meals more often	8 (22.86)	4 (40)
Avoid eating or drinking 2-3 hrs before bedtime	6 (17.14)	3 (30)
Avoid carbonated drinks, chocolate, caffeine, fast foods, limited spicy foods	17 (48.57)	3 (30)
Elevating the head of the bed	4 (11.43)	0 (0.0)

34/151 (22.5%) male students had the problem. Among the students suffering from dysphagia, 30/88 (34.1%) students complained of difficulty or discomfort or pain with swallowing, 39/88 (44.3%) had the sensation that food gets stuck while swallowing and 19/88 (21.6%) persistently cleared their throat. The figures are further categorized on the basis of gender and frequency in Table-1. Medical advice by a physician was sought by 16/54 (29.63%) female students suffering from dysphagia and 7/34 (20.59%) male students having the same problem. Of the students having difficulty during eating, 9 (10.22%) also suffered weekly from heart burn.

Breathing problems, another atypical manifestation of GERD, were ever developed in 109/595 (18.3%) students with 82/444 (18.46%) female students and 27/151 (17.88%) male students. Among those with breathing problems, 60/109 (55.04%) students suffered from the symptoms recently (i.e., from this week up till one month ago) of which 4/60 (6.66%) suffered from recurring pneumonia, 10/60 (16.67%) students faced difficulty in controlling asthma, 18/60 (30.0%) students had complaint of chronic cough and 25/60 (41.67%) students complained of wheezing, one (1.67%) suffered from improperly controlled asthma and wheezing, one student (1.67%) had chronic cough, improperly controlled asthma with wheezing and one (1.67%) had all four symptoms. Physician's advice was sought by 54/82 (65.85%) female students who ever suffered from breathing problems and 17/27 (62.96%) male students who had the same problem. Of the students who suffered from breathing problems, 13/109 (11.92%) also had weekly episodes of heart burn.

Bad breath was present in 44/595 (7.3%) students, of which 6/44 (13.64%) also suffered weekly from heart burn. Dental erosion occurred in 57/595 (9.5%) students, 7/57 (12.28%) of which also had weekly episodes of heart burn. Complaint of hoarseness existed in 45/595 (7.5%) students

of which 6/45 (13.33%) also suffered weekly from heart burn. Weight gain was inadequate in 82/595 (13.78%) students and weekly episodes of heart burn were prevalent in 7/82 (8.5%) of them. Sleeping problems were complained by 155/595 (26.1%) students and 12/155 (7.74%) of them also had weekly episodes of heart burn.

Discussion

This is thought to be the first study indicating the frequency of GERD symptoms in medical college students of Pakistan. Weekly sensation of heartburn, the typical symptom of disease,^{2,21} documented in 45 (7.56%) students as well as weekly presentation of the atypical manifestations i.e. dysphagia and respiratory problems reported in 54 (9.1%) participants is significantly higher than general Asian population. Numerous studies have indicated the prevalence of disease in different regions of world with majority signifying that the condition is more frequent in west as compared to Asia.

Locke et al reported the incidence to be 20% in United States which is similar to 21% in a British study conducted by Mohammad et al.¹⁴ A recent survey carried out in Sweden by Sharma et al also concluded 20% incidence of disease. Results from epidemiological surveys in Spain and Finland were 9.8% and 15% respectively.^{15,16}

Information pertaining to the burden of disease in Asia is limited as compared to west. Furthermore, the statistics are not consistent varying from the reported prevalence of 9.9% in Singapore to 20% in Japan. Estimates from China have reported prevalence of 5.8%.^{17,20} These are studies from general adult population and not pertaining to medical students.

Our study did not show any noteworthy association of GERD with gender (typical symptoms present in 7.88% female and 6.62% male students) which is analogous to studies done elsewhere.^{5,15,22} A limitation in quite a few Asian surveys has been the use of vague terminologies to avoid mis-interpretation by the participants, however, we assume that medical students can better comprehend the scientific terms.

The limitations of this study included the limited sample size and the numbers of female participants outnumbering the males as greater proportion of female students take admission in medical colleges as compared to male students and open merit system of admission allows more female students to enter medical colleges. These results reflect the high prevalence of symptoms and cannot be applied to the entire population as the study was conducted in a single government medical college of Karachi. The participants had age ranges of 17 to 25 (mean 21±4 SD), as a result of which the study cannot reveal the

association of gallstones and co-morbid conditions such as diabetes mellitus, hyperlipidaemia, with the expression of the evaluated symptoms as these conditions are rarely found in this age group. Hence, if a similar study was conducted in a general population with a varied mean age there would be a marked variation in results.²³⁻²⁵ This study highlighted only the frequency of symptoms suggestive of GERD in medical students, therefore, it does not reflect the diagnosis of the GERD.

Despite limitations the study adds to the scientific literature especially in context of this region of the world where limited data is available in students and general population.

Conclusion

The symptoms of GERD exist in medical students with burden of disease similar to the western countries. To estimate the prevalence of disease in general population and its associated risks, a large population based funded research equipped with invasive diagnostic techniques should be done. There are serious consequences of GERD. Hence, the importance of awareness programs for general public and medical students may decrease the incidence of GERD.

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