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Prevalence and the risk factors of gastro-esophageal reflux disease in medical students

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ABSTRACT

Background: Gastroesophageal reflux disease (GERD) is a commonly prevalent gastrointestinal disorder in adults. Very few studies on magnitude of GERD in student community have been done and there is none so far from India. Rigorous MBBS curriculum makes medical students prone for reflux symptoms. Hence, this study was conducted to determine the prevalence of GERD in medical students and the potential risk factors associated with it.

Methods: This was a cross sectional observational study conducted on medical students in a premier medical college of India. All participants were interviewed for GERD symptoms using the validated questionnaire on frequency scale for the symptoms of GERD. Additional 11 questions include enquiries on medical history and lifestyle factors.

Results: Of the 600 students, 150 (25%) had GERD symptoms. Of these, 88 (58.6%) had mild, 58 (38.6%) moderate, and 4 (2.7%) severe reflux symptoms. Fifty eight (38.6%) of students with GERD had associated dyspepsia. On univariate analysis higher BMI, final years of MBBS course, use of NSAID or alcohol, inadequate sleep, sleeping within one hour of taking dinner, missing breakfast regularly and quick eating were significantly associated with GERD ($p < 0.05$).

Conclusions: Prevalence of symptoms of GERD in medical students is 25%, majority had mild symptoms. Associated dyspeptic symptoms were present in 38.6%. Factors predisposing to GERD in them are higher BMI, final years of MBBS course, use of NSAID, inadequate sleep, sleeping within one hour of taking dinner, missing breakfast on regular basis and quick eating.

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Introduction

Symptomatic gastroesophageal reflux disease (GERD) is a commonly prevalent gastrointestinal disorder. In western

countries the prevalence of GERD ranges from 10% to 30%.¹ Magnitude of this problem is not clearly known in India. A recent study from north India concluded that GERD symptoms were prevalent in 16.2% of hospital employees.² The principal symptoms of GERD are heartburn and/or regurgitation.³

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Younger age, female sex, obesity, shorter dinner-to-bed time, fatty meal, mental stress, smoking, and alcoholism are known risk factors for this disorder.^{1,4,5}

There is no study on the prevalence of and severity of GERD and dyspepsia amongst medical students from India. There are two studies from Asia which revealed prevalence of GERD in university students between 14.8% and 25%. Many of them also had overlap of reflux symptoms with dyspepsia and irritable bowel syndrome.^{6,7} Most medical students who suffer from GERD and/or dyspeptic symptoms do not reach out to a doctor since they either consider these symptoms insignificant, or do self-medication. GERD may affect their quality of life and thus affecting daily activities, college attendance and the students' well-being.

In view of the above, to ascertain the prevalence of GERD in young Indian medical students and to find out the risk factors associated with it this study was conducted.

Materials and methods

Study participants

Study population was all the medical students in age range 17–25 years, studying in different years of MBBS in a premier medical college of India.

Study design

A cross sectional study was done in 2015 and data collection was completed over 3 months.

Inclusion criteria

- 1) MBBS students
- 2) Willing to participate in the study

Exclusion criteria

- 1) Unwilling students
- 2) Incomplete answers to the questionnaire

Methodology

Students studying in different years of MBBS in a medical college were selected as per the inclusion and exclusion criteria. Demographic characteristics of students such as age, gender, weight (in kg), height (in meter), body mass index, lifestyle habits (smoking, alcohol intake, dietary and sleep hygiene) was recorded in the questionnaire.

All participants were interviewed by principal worker and two of her colleagues for reflux symptoms using Frequency Scale for the Symptoms of GERD (FSSG) questionnaire, which comprises of 12 questions regarding GERD symptoms, to which participants answered correspondingly along with the frequency of symptoms: never, occasionally, sometimes, often oral ways. GERD was considered present if the total FSSG score was ≥ 8 . FSSG score was used in this study as it can evaluate not only the acid-reflux related symptoms but also the dyspeptic

symptoms. FSSG at cut off eight points showed sensitivity of 62%, specificity of 59%, and accuracy of 60% in diagnosing GERD.⁸ Copy of FSSG questionnaire is provided as supplementary material to this article.

Additional 11 questions include enquiries on medical history and lifestyle factors. This questionnaire was self-administered to all the study subjects so as to reduce interviewer bias. All the points in both the questionnaires were explained to the students. Ethical clearance was obtained from the ethics committee of our medical institute and written informed consent was taken from all the participants.

Statistical analysis

The data recorded was analyzed using appropriate statistical methods using SPSS software version 24. Frequency was calculated for categorical variables and mean \pm standard deviation for continuous variables. Chi-square test was used for comparing categorical variables. Univariate analysis was done to find out association of GERD with each independent variable so as to determine potential risk factors and a *p*-value of <0.05 was taken as significant.

Results

Out of 614 questionnaires filled, 600 were complete with a response rate of 97.7%. Detailed demographic profile of these 600 valid participants is summarized in Table 1. Out of these 600 medical students, 500 (71.8%) were male and 100 (28.2%) were female. Their age ranged between 17 and 25 years with a mean of 21.5 ± 1.9 years. There were 120 students each in first to fifth year of MBBS course. BMI $> 25 \text{ kg/m}^2$ was present in 161 (26.8%) and 560 (93.3%) had never smoked. Need based non-steroidal anti-inflammatory drugs (NSAIDs) were used by 62 (10.3%), proton pump inhibitors (PPI) by 26 (4.3%), histamine 2 receptor-antagonists (H2RA) by 13 (2.2%). 411 (68.5%) were non-veg and 189 (31.5%) were vegetarians in diet preference, 177 (29.5%) were missing their breakfast on regular basis and 137 (22.8%) were sleeping within one hour of taking dinner. Only 12 (2%) students admitted to be social drinkers and 196 (32.6%) were quick eaters which were defined as finishing major meals in less than ten minutes.

Prevalence of symptomatic GERD

Of the 600 students, 150 (25%) had GERD. Of these 150 symptomatic students 88 (58.6%) had mild, 58 (38.6%) moderate, and 4 (2.7%) had severe symptoms. Fifty eight (38.6%) of students with GERD had associated dyspepsia as compared to only 35 (7.7%) students having dyspepsia without associated GERD symptom's.

Factors associated with GERD symptoms

Univariate analysis revealed, high BMI, final years of MBBS course, use of NSAID or alcohol, inadequate sleep, sleeping within one hour of taking dinner, missing breakfast on regular basis and quick eating has significant ($p < 0.05$) association with the presence of GERD (Table 2). Age, sex, initial years of

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