

The differences in epidemiological and psychological features of globus symptoms between urban and rural Guangzhou, China

A cross-sectional study

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Abstract

To compare the epidemiological and psychological features of globus symptoms between individuals from urban and rural areas in Guangzhou.

In total, 3360 individuals aged 18 years and over were selected to participate in our questionnaire investigation using random cluster sampling under the stratification of a urban area and a rural area. The questionnaire comprised questions on personal characteristics and globus symptomatology and psychological characteristic and sleep quality scales.

Lifetime prevalence and Glasgow-Edinburgh throat scale scores of globus symptoms were greater in the urban area than in the rural area, but no significant differences in sex ratio or onset age between individuals with globus were found. The incidences and severity of anxiety, depression, and sleep disorders were significantly higher among patients who presented with globus in the urban area than among those in the rural area.

The lifetime prevalence of globus symptoms and the psychological features of globus patients differ between urban and rural inhabitants. We should pay more attention to these differences.

Abbreviations: GETS = Glasgow-Edinburgh throat scale, PSQI = Pittsburgh Sleep Quality Index, ZSAS = Zung self-rating anxiety scale, ZSDS = Zung self-rating depression scale.

Keywords: globus symptoms, lifetime prevalence, psychological disorders, urban and rural differences

1. Introduction

Globus, a commonly used term in medicine for *Globus hystericus*, a persistent or intermittent non-painful sensation of a lump or foreign body in the throat, is the fourth functional esophageal disease according to the classification of the Rome III criteria.^[1] Although it is a common disease, epidemiological research on the subject is rare. Thompson^[2] reported that about 46% of the general population has experienced globus at some point in their lives. However, this study was dated and the sample size was small. Moreover, the etiology of globus is still unclear but appears to be multifactorial,^[3] similarly to other functional diseases where social, cultural, and psychological factors may play important roles. Thus, we conducted a large sample,

population-based investigation to explore the epidemiological and psychological characteristics of globus symptoms.

2. Methods

2.1. Methods

We randomly selected an urban community and a rural village in Guangzhou, south of China, as the survey areas. We used the stratification and cluster sampling methods to select subjects based on a pre-investigation with a lifetime prevalence of 20%. The investigation was conducted via in-person interviews at the subjects' homes or in local residential committee offices. All respondents completed questionnaires about globus symptomatology and the Glasgow-Edinburgh throat scale (GETS).^[4] Subjects who reported having experienced globus at some point in their lives with no obvious abnormality in physical examinations, history of gastroesophageal reflux diseases (GERDs), true dysphagia, odynophagia, or alerting signal, such as weight loss or hoarseness, were judged as individuals with globus. We assessed the psychological characteristics (using Zung self-rating anxiety/depression scale [ZSAS^[5]/ZSDS^[6]]), and quality of sleep (using Pittsburgh Sleep Quality Index [PSQI]^[7]) for individuals who had globus and presented globus symptoms concurrent to our study.

2.2. Ethics statement

This study was approved by the ethics committee of Guangzhou Nansha Central Hospital and was registered in the Chinese Clinical Trial Registry center (Registration number: ChiCTR-

Editor: King-Wah Chiu.

The authors have no conflicts of interest to disclose.

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Medicine (2018) 97:43(e12986)

Received: 16 January 2018 / Accepted: 4 October 2018

<http://dx.doi.org/10.1097/MD.0000000000012986>

EOC-15006029). All respondents gave their written informed consent to participate.

2.3. Patients

In total, 3360 individuals were selected to participate in our investigation, of whom 3006 (89.46%) subjects completed the questionnaire. Of these, 1507 were urban inhabitants and 1499 were rural inhabitants. Men accounted for 46.44% (1396/3006) of the samples, and 53.56% (1610/3006) were women, and the mean age was 47.65 ± 16.15 years (range, 18–95 years). Individuals were excluded if they were non-residents, less than 18 years old, had a major psychiatric illness, or had severe visual or hearing abnormalities.

2.4. Survey instruments

The globus symptomatology questionnaire was designed according to the Chinese version of the Asia-Pacific functional gastrointestinal disorders and the Rome III criteria^[8] of globus irrespective of symptom duration.

The GETS is a validated questionnaire used to measure the severity of globus symptoms. It is composed of 2 parts. In this study, we only used the section regarding globus symptoms, which consists of 10 questions assessing various throat symptoms. Patients subjectively grade their symptoms for each question on an 8-point scale, with 0 being “none” and 7 being “unbearable.” The total GETS score is calculated by summing the scores from each question, and the highest possible score is 70. The higher the score, the more severe the globus symptoms.

The ZSAS/ZSDS was designed by Zung to evaluate the level of anxiety/depression symptoms, respectively. It is still widely used as a self-rating scale in both clinical and research settings and the Chinese version has great reliability and validity. The ZSAS/ZSDS contains 20 items to evaluate the frequency of anxiety and depression symptoms. Each is scored on a 4-point scale; 1 meaning never, 2 meaning sometimes, 3 meaning most of the time, and 4 meaning almost all the time. The sum of the 20 scores is the raw score. Thus, the raw score $\times 1.25$ equals the standard score. High scores indicate more severe anxiety/depression symptoms. A standard ZSAS score ≥ 50 indicates the presence of anxiety, and a standard score of ZSDS ≥ 53 indicates the presence of depression.

In addition, the PSQI is widely used to study sleeping disorders and the Chinese version has high reliability and validity.^[9] Eighteen items were used to calculate the PSQI score. A high score indicates bad sleep quality with a score > 7 indicating a sleep disorder.

2.5. Statistical analysis

Statistical analysis was performed using SPSS version 13.0 (SPSS, Chicago, IL). Continuous data are expressed as the mean \pm standard deviation. Comparisons between the 2 groups were made using χ^2 test for categorical data and a *t* test for continuous data. All tests were 2-sided, and a *P* value of $< .05$ was considered statistically significant.

3. Results

3.1. Epidemiological characteristics

In the study, 645 individuals (urban: 399, rural: 246) had experienced globus symptoms at some point in their lives. The lifetime prevalence of globus symptoms was significantly higher

Table 1
Epidemiological characteristics of globus symptoms.

	Urban globus	Rural globus	<i>P</i>
Lifetime prevalence n (%)	399 (26.48%)	246 (16.41%)	.001
Male (n)	174	106	.935
Female (n)	225	140	
Age of onset (mean \pm SD)	41.22 \pm 15.16	42.50 \pm 15.70	.490
Scores of GETS (mean \pm SD)	8.18 \pm 4.36	7.38 \pm 3.93	.020

GETS=Glasgow-Edinburgh throat scale, SD=standard deviation.

in the urban area than in the rural area (26.48% vs 16.41%, respectively, *P* = .001). However, there were no significant differences in the mean onset age (41.22 ± 15.16 vs 42.50 ± 15.70 , *P* = .49) and sex ratio (*P* > .93) between globus individuals from urban and rural areas. Compared to the rural patients, urban patients had significantly higher GETS scores (8.18 ± 4.36 vs 7.38 ± 3.93 , *P* = .02) (Table 1).

3.2. Psychological characteristics and quality of sleep

In total, 193 individuals (urban: 84, rural: 109) experienced globus symptoms during the time of the study. As shown in Table 2, these patients' ZSAS and ZSDS scores were significantly higher coming from the urban individuals than from the rural individuals (35.25 ± 8.53 vs 31.67 ± 6.78 , *P* = .001, 36.99 ± 9.40 vs 33.44 ± 8.99 , *P* = .008). Similarly, the incidences of anxiety and depression were significantly higher in the urban area, (48.80% vs 33.94%, *P* = .037, 40.48% vs 25.69%, *P* = .029). The PSQI score of the urban area patients was slightly higher than that of the rural area patients, but the difference was not statistically significant (6.15 ± 1.22 vs 5.23 ± 1.93 , *P* > .11). However, the incidence of sleeping disorders was significantly higher in urban individuals than in the rural individuals (35.71% vs 21.10%, *P* = .024) (Table 2).

4. Discussion

Globus is a common disease, but studies regarding its epidemiological features are rare^[10] and its pathogenesis is still unclear. This was a large, stratified, clustered, and random sample investigation that explored the differences in globus symptoms between urban and rural settings and was conducted

Table 2
Psychological characteristics of present globus patients.

	Urban globus patients (=84)	Rural globus patients (n=109)	<i>P</i>
ZSAS score (mean \pm SD)	35.25 \pm 8.53	31.67 \pm 6.78	.001
ZSDS score (mean \pm SD)	36.99 \pm 9.40	33.44 \pm 8.99	.008
anxiety			.037
Yes n (%)	41 (48.80%)	37 (33.94%)	
No n (%)	43 (51.20%)	72 (66.06%)	
Depression			.029
Yes n (%)	34 (40.48%)	28 (25.69%)	
No n (%)	50 (59.52%)	81 (74.31%)	
PSQI score (mean \pm SD)	6.15 \pm 1.22	5.23 \pm 1.93	.118
Sleep disorder			.017
Yes n (%)	30 (35.71%)	23 (21.10%)	.024
No n (%)	54 (64.29%)	86 (78.90%)	

PSQI=Pittsburgh Sleep Quality Index, SD=standard deviation, ZSAS=Zung Self-Rating Anxiety Scale, ZSDS=Zung Self-Rating Depression Scale.

by well-trained interviewers who worked in-person. The study had a good response rate (89.46%). Besides, the diagnosis of globus relies on symptomology and the elimination of organic disease,^[8] which is the basis of epidemiological investigation. Thus, the study results potentially reflect the actual situation of globus symptoms in Guangzhou.

In this investigation, the lifetime prevalence of globus was higher in the urban area than in the rural area, which has not been previously reported. Perhaps the lifestyle (daily diet) or pollution levels in the urban areas could be the causes. Further research is needed to explore this possibility. Compared with the rural globus patients, urban globus patients also had severe symptoms. The reason for this is not clear, so further research into the different socioeconomic backgrounds, cultures, life stresses, and psychological problems between these groups are needed.

Psychological problems have often been thought to play an important role in the occurrence and development of globus. Some studies^[11–13] have reported that globus patients have a higher frequency of anxiety and depression than the healthy controls. Our previous investigation also reported^[14] that almost half of the globus patients suffered from psychological disorders, such as anxiety and depression, supporting the existence of a relationship between psychological factors and globus. Furthermore, other studies have indicated^[15,16] that an empirical trial of antidepressants might significantly improve globus patients' symptoms. On the other hand, several studies^[2,3,17] have reported increased incidents of stressful life events preceding symptom onset, suggesting that life stress might be a cofactor in globus symptom genesis and in exacerbation. Indeed, up to 96% of globus patients report symptom exacerbation during periods of high emotional intensity.^[2] The incidences and severity of anxiety, depression, and sleep disorders were significantly higher among patients who presented with globus in the urban area than among those in the rural area. However, the reasons for this are still unclear and may due to different degrees of stress experienced by each individual. One of the limitations of our study was not exploring the effect of life stresses. Although there was a certain correlation between psychological problems and symptom severity,^[14] further research is needed to explore these factors.

In this study, no differences were found in the sex ratio between globus patients from the 2 areas, which is consistent with the findings of a previous study^[18] reporting that the presence of globus had no significant association with sex. Drossman et al^[19] reported that the peak of onset of globus was in middle-aged individuals. This investigation yielded the same results and found no differences between patients from urban and rural areas.

In conclusion, the lifetime prevalence of globus symptoms between urban and rural communities is different. The patients from the urban area also have severe symptoms and a higher incidence of anxiety, depression, and sleeping disorders than those in rural areas. These differences may contribute to the further research and treatment of globus and we should pay more attention to them.

Acknowledgments

We would like to thank Prof. Chun-yan Zhu (Department of Public Health, Guangzhou Medical University) for her useful

comments and her guidance in epidemiological investigations and Dr. Jian Xu (Department of Psychology, Guangzhou Nansha Central Hospital) for his guidance with regard to the use of the anxiety and depression scales.

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