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Original Article

Socioeconomic status of patients with pemphigus vulgaris

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ABSTRACT

Background & Aim: Pemphigus vulgaris (PV) with painful blisters and erosions on skin and mucosa can significantly impair patient's social life. There are few studies that have focused on the socioeconomic status (SES) of these patients. The aim of this study was to evaluate the SES of newly diagnosed PV patients who were referred to our clinic.

Methods & Materials: A total of 153 patients with PV participated in this case–control study. Among them, 58 patients had the disease for < 1 year. The control group was 70 patients without immunobullous diseases who were selected from general clinic. A Persian questionnaire was used for evaluation of SES along with demographic characteristics and disease-related information.

Results: Level indicator of the family socioeconomic was 13.10 ± 6.08 (range 6-28) and 19.32 ± 6.24 (range 9-33) in the case and control groups, respectively. The difference between these two groups was statistically significant ($P < 0.00100$). There was an association between socioeconomic level and forbearing of some of their diagnostic or treatment process ($P = 0.00900$). Comparison between patients from urban and rural area showed that patients from rural area had significantly lower level of socioeconomic ($P = 0.00698$). Comparing new onset PV patients with those with disease > 1 year did not show any significant difference ($P = 0.41000$) .

Conclusion: SES of PV patients was significantly lower than controls, and this difference was not related to disease duration. This situation was more significant in rural patients. Hence, by recognizing these groups, we could help them more effectively.

Introduction

Pemphigus vulgaris (PV) is a rare autoimmune, blistering, and mucocutaneous disorder which is characterized by autoantibodies directed against keratinocytes cell surface antigens and leads to loss of epidermal cell-to-cell adhesion (acantholysis) (1). Clinically, disease manifests by painful and non-healing mucosal and cutaneous blisters and erosions that can be localized or generalized. Pemphigus is a severe chronic disorder with a mortality rate of about 10% and a rather high morbidity due to treatment with high doses of corticosteroids. The incidence rates have been estimated to vary from 0.8 to 34 per million inhabitants per year, depending on geographic and ethnic factors (2). The cause of the disease remains unknown, but the great variations of incidence rates, clinical features, and demographic characteristics among countries lead to a suspicion of different risk factors (3).

In Iran, according to the study of Chams-Davatchi (4), it is estimated that PV is

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the most common type of autoimmune blistering disorders (81.2%) followed by bullous pemphigoid (11.6%). The major clinical form of PV reported was mucocutaneous variant (69%), followed by mucosal (19%) and cutaneous (12%).

Painful and oozing lesions along with the resulting difficulty in eating significantly reduce the quality of life (QOL). Systemic glucocorticoids and adjuvant immunosuppressive drugs are the mainstay of therapy for PV. It is known that long-term use of these therapeutic modalities plus chronic disease course is associated with an additional negative impact on patients' QOL (5, 6).

The altered physical appearance of a patient caused by treatment, fatigue, pain, or squeals of disease activity may give rise to substantial concerns and influence daily life and can result in rejection and discrimination, leading to feelings of stigmatization, loss of self-confidence, and social withdrawal (7).

In recent years, studies in the field of socioeconomic status (SES) have been growing, and there are increasing evidences showing SES as one of the strongest predictors of health status (8). Socioeconomic inequalities in the context of health have been defined as differences between populations with high and low socioeconomic situations in outbreak or prevalence of health problems (9, 10). Indeed, socioeconomic situation was an important predictor of people's mortality and morbidity in various dermatological and non-dermatological diseases, especially in autoimmune disorders (11, 12). For instance, socioeconomic inequalities have affected stage of diagnosis, patient's survival and mortality of cancers such as melanoma in spite of increasing knowledge of reducing cancer risk factors and improvement of sooner cancer diagnosis and treatment (13).

Although number of researchers has been performed previously to delineate patients' QOL, no one was aimed exclusively to study SES of them. Just some determinants of SES were studied secondarily and incompletely to show the economic side effect of the disease in few cases. To evaluate the SES of PV patients, we conducted a study on patients with newly diagnosed PV (< 1 year disease duration) who were referred to our autoimmune bullous disease clinic. Furthermore, patients with PV for longer duration were included to evaluate the effect of disease duration on SES.

Methods

In this case–control study, level of SES of patients with new onset PV was evaluated and compared with a control group from September 2014 to March 2015. The cases were patients who were suffering from immunobullous diseases referred to Pemphigus clinic, Autoimmune Bullous Diseases Research Center, Razi Hospital, Tehran University of Medical Sciences, Tehran, Iran. The control group consisted of patients with skin disease other than immunobullous disease, who were referred to general dermatology clinic of Razi Hospital. The research protocol was approved by the Ethics Committee at Tehran University of Medical Sciences.

The questionnaires consisted of two parts: The first part was questions about demographic characteristics and disease-related information including gender, age, marital status, disease duration, mean cost for diagnosis, and treatment of skin disease per month and the effect of their disease on their family SES. The second part included questions related to SES. It was filled by the physician through interviewing the patients and using their medical records.

We used a Persian questionnaire for evaluation of SES. The questioner was adapted from an article entitled "socioeconomic in Tehran: a study of measurements index (14)." The authors had developed the questioner for measuring family SES and its relationship with various health outcomes that its reliability and validity has been measured. Determiner variables regarding family SES in this questionnaire were the head of household's education (1-15 scores), educational level of spouse (1-17 scores), residential property (1-5 scores), housing area per person (1-5 scores), the cost of each square meter of house (1-5 scores), welfare convenience such as owning personal car (1-3 scores) and computer (1-3 scores), history of at least one abroad trip in the family (1-3 scores), and reading a newspaper regularly (1-3 scores). Calculated SES based on this questionnaire ranged between 8 and 54.

We used mean and standard deviation for continuous variables. Pearson correlation tests were used to detect the linear relationships between quantitative variables. Independent samples t-test was employed to assess the differences between means of quantitative variables in two groups. Chi-square test and Fisher exact test were used to detect the relationship between categorical variables. All tests applied were two-sided, and the significance level was set at 0.05. Statistical analyses were performed with statistical software SPSS (version 17, SPSS Inc., Chicago, IL, USA).

Results

In this study, a total of 153 cases with PV were included. Among them, 58 patients had the disease for < 1 year. The control group was 70 patients without immunobullous diseases. From 58 cases with new onset PV, 47 were female (81%), and 11 were male (19%). The mean age of the patients was 50.4 ± 15.1 years. In control group, 42 females (60%) and 28 males (40%) with a mean age of 35.00 ± 11.98 were included. Other demographic and SES findings of 58 cases and 70 controls are listed in table 1.

Table 1. Comparison of socioeconomic characteristic of patient and control groups

Variable	**Case group n = 58 (%)**	**Control group n = 70 (%)**	**P-value**
Age[1]	50.4 ± 15.1	35.00 ± 11.98	-
(min-max)	(27-91)	(14-68)	
Sex			
Male	11 (19)	28 (40)	
Female	47 (81)	42 (60)	-
Residential area			
Tehran	25 (43.1)	30 (42.9)	
Cities other than Tehran	14 (24.1)	17 (24.3)	-
Rural area	19 (32.8)	23 (32.9)	
Education of householder/his or her spouse			P < 0.001
Illiterate	16 (27.5)/21 (36.2)	3 (4.2)/6 (8.5) 10 (14.2)/9 (12.8)	P < 0.001
Elementary school	17 (29.3)/12 (20.6)	10 (14.2)/10 (14.2)	
Middle school	6 (10.3)/8 (13.7)	24 (34.2)/24 (34.2)	
High school	13 (22.4)/15 (25.8)	11 (15.7)/8 (11.4)	
Associate	1 (1.7)/2 (3.4)	11 (15.7)/9 (12.8)	
Bachelor	5 (8.6)/-	1 (1.4)/4(5.7)	
Master	-/-		
Housing area per person (m^2)			
Mean±SD	34.5 ± 24.8	33.8 ± 41.5	
(min-max)	(8-120)	(2.4-300)	0.917
The cost of each square meter of house			
< 285$	41 (70.7)	20 (28.6)	
285-571$	9 (15.5)	31 (44.3)	< 0.001
> 571$	8 (13.8)	19 (27.1)	
Owning personal car			
Yes	14 (24.1)	34 (48.6)	
No	44 (75.9)	36 (51.4)	0.004
Owning personal computer			
Yes	20 (34.5)	47 (67.1)	
No	38 (65.5)	23 (32.9)	< 0.001
History of traveling abroad			
Yes	7 (12.1)	16 (22.9)	
No	51 (87.9)	54 (77.1)	0.114
Regular reading of at least one newspaper			
Yes	17 (29.3)	29 (41.4)	
No	41 (70.75)	41 (58.6)	0.155
Level indicator of family SES	13.10 ± 6.08	19.32 ± 6.24	
(min-max)	(6-28)	(9-33)	< 0.001

[1] Mean ± SD; SD: Standard deviation; SES: Socioeconomic status

Level indicator of the family socioeconomic which obtained by summing scores of each item were 13.10 ± 6.08 (range 6-28) and 19.32 ± 6.24 (range 9-33) in the case and control groups, respectively. The difference between these two groups was statistically significant ($P < 0.00100$), and patients group had a lower level of SES.

Besides evaluating SES, our study aimed to study other contributing economic factors and their alterations during the disease course. For example, we asked questions about an average of monthly disease costs and history of forbearing therapeutic or diagnostic procedures due to their fees. From 58 cases of new onset PV, 48 answered the question regarding mean cost for diagnosis and treatment of their skin disease per month and the mean cost was 82.2 ± 68.2$ with the range of 5.7-286 per month. 47 patients (81%) mentioned that cost of their diseases affected their family' SES. 18 patients (31%) reported that they had to cancel some of their diagnostic or treatment process because of the heavy burden of the procedure on their family.

We also examined the association between socioeconomic level and the idea of the patient about the effect of patients diseases on their family SES ($P = 0.45000$) and forbearing of some of their diagnostic or treatment process ($P = 0.00900$).

By considering the residential area, the mean socioeconomic level of patients from Tehran was 17.93 ± 7.10 and in patients from cities other than Tehran and rural area were 16.74 ± 6.07 and 12.56 ± 5.36, respectively. Comparison between patients from Tehran and rural area ($P = 0.00698$), between patients from cities other than Tehran and rural area ($P = 0.01060$) and patients from Tehran and cities other than Tehran ($P = 0.36700$) showed that patients from rural area had significantly lower level of socioeconomic (Bonferroni correction significant level is 0.01670). Patients from the rural area had also reported a higher level of effect of their diseases on their family SES ($P = 0.01000$) in comparison with patients from urban areas. In addition, we analyzed the relationship between patient habitant and forbearing of medical services which the odds ratio of forbearing of medical services was 3 (odds of forbearing in urban area is 0.667 and the odds of rural area is 2), also according to $P = 0.06100$ it was not statistically significant.

To evaluate the relationship between disease duration and SES, we compared new onset PV patients with those with disease > 1 year. The level of family SES in the first group was 13.10 ± 6.08 and in the second group was 13.5 ± 6.9 which did not show any significant difference ($P = 0.41000$).

Discussion

The goal of this study was to evaluate the importance of socioeconomic factors in patients with newly diagnosis PV and its relation to the duration of disease. To our knowledge, the detrimental impact of bullous dermatoses especially PV on QOL has been evaluated in various studies, but no one was aimed exclusively to study SES of them (5, 6). Just some determinants of SES were studied secondarily and incompletely to show the economic side effect of the disease in few cases. Expensive costs of diagnostic, therapeutic procedures from one side and massive impacts of the disease on patients' QOL, and their economic potency on the other side has been always assumed to put great strains on the patients (15). This study was the first which examined the socioeconomic characteristics of newly diagnosed PV patients in Iran and also, the effect of disease cost on patients' SES. The most important finding of this study was that SES of patients with newly diagnosis of PV is significantly lower than the control group.

This finding could be an important clue in diagnosis the predisposing factors and environmental exposures which increases the disease susceptibility. This method was previously implemented to find the risk factors of diabetes mellitus (16) and multiple sclerosis (17). In fact, environmental factors especially childhood exposure is referenced as main contributing factors to adulthood health state and several diseases (18). For instance, in a study by Mashayekhi-Ghoyonlo et al. (19) in Iran, it was revealed that many people in leishmaniasis endemic areas are suffering from low protein - energy diet, Vitamin A, iron, and zinc deficiencies; and malnutrition is considered as a significant risk factor in the progression of mucocutaneous and visceral leishmaniasis.

Level indicator of the family socioeconomic was 13.10 ± 6.08 in the patients group compared to 19.32 ± 6.24 in the controls group which showed that patients group had a lower level of SES. Besides, 81% mentioned that cost of their diseases affected their family' SES and 31% reported that they had to cancel some of their diagnostic or treatment process because of the burden of the procedure on their family SES. In the study by Masahiro et al., (15) 42% of patients mentioned that their income fell down as a result of reducing workability which 60% of them had severe disease. Furthermore, 58% of them reported themselves in poor social condition.

In our study, the first two variables affecting SES were education of householders and their spouses (patients had significantly lower scores), which is similar to the study of Garmaroudi and Moradi (14) (α = 0.67). Other variables which were significantly different between patients and controls were cost of each square meter of their house, owning personal car, and owning personal computer.

According to the study of Masahiro et al., (15) PV patients' social properties based on their educational level were lower than controls. In another study regarding possible environmental factors which are associated with Tunisian pemphigus, they have observed a significant association between pemphigus and the traditional Tunisian lifestyle, e.g., contact with ruminants, cutting up raw poultry, Turkish baths, and cosmetics. Nevertheless, their case and control groups did not show any significant difference in the type of area (urban vs. rural), living conditions and education (3).

By considering the residential area, the comparison of mean socioeconomic level of patients from Tehran, cities other than Tehran and rural area showed that patients from the rural area had significantly lower level of socioeconomic and they also reported a higher level of effect of their diseases on their family SES. In terms of forbearing of medical services, the odds of forbearing of medical services in rural area were 3 times of the odds of forbearing of medical services in urban area, but it was not statistically significant.

Conclusion

Conclusively, introducing vulnerable groups of patients who are at risk of therapeutic failures due to the economic impact of PV could help to allocate resources more efficiently. For instance, rural patients are found to be at risk of such problems. This could be the result of lower SES, more additional costs or even lack of enough basic information about the disease. By recognizing these groups and probable causes, we could help them more effectively.

Conflict of Interests

Authors have no conflict of interests.

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