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Analysis of Factors Influencing Clinical Types of Psoriasis Vulgaris

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Background: Psoriasis is a chronic relapsing disorder which is influenced by various external factors. Korean psoriasis vulgaris are characterized by smaller sized plaques than those of Western population and this type of psoriasis was reported to be small plaque(SP) psoriasis. However there are also some Korean psoriasis patients with large plaque(LP) type similar to Western psoriasis patients, although the numbers are less than SP psoriasis. Therefore Korean psoriasis patients were able to be divided into the LP type and the SP type according to the size of the plaque. It is necessary to investigate the correlations between risk factors and these two clinical types of psoriasis vulgaris.

Objective: The purpose of this study is to investigate external factors differentially correlated with LP and SP psoriasis vulgaris.

Methods: A retrospective analysis was conducted with 106 psoriasis patients seen between 2003 and 2004 in Youngdong Severance Hospital. Psoriasis vulgaris was classified according to the size of the plaque.

Results: 55.6% of the SP psoriasis patients experienced aggravation with alcohol intake while 84% of the LP psoriasis patients did. Among the external factors investigated, only alcohol intake as an aggravating factor showed statistically significant difference between SP and LP psoriasis.

Conclusion: Our results suggest that susceptibility to aggravation by alcohol seems to be associated with phenotypic appearance of lesion size in psoriasis vulgaris.

Key Words: Psoriasis vulgaris, Small plaque type, Large plaque type, Alcohol

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INTRODUCTION

Psoarisis is a chronic relapsing disease which is influenced by various external factors, and the etiology has not been elucidated yet. It has been shown that factors exacerbating psoriasis are trauma, infection, seasonal changes, exposure to sunlight, psychological stress, and pregnancy in women, etc.[1] Until recently, many clinical studies on psoriasis performed in Korea have investigated the influence of these external factors on psoriasis and analyzed the influences of these factors based on the extent of involvement, morphologic patterns, or disease activity.[2] However, in our study, we classified psoriasis vulgaris based on the size of the plaque and examined whether there is any statistically significant difference in the influence of variable external factors according to the lesion size. To our knowledge, this is the first investigation concerning the influence of external factors based on the lesion size.

METHODS

106 plaque type of psoriasis vulgaris patients were selected to be analyzed among the out-patients who visited Yongdong Severance Hospital, Seoul, Korea during the period from March 2003 to February 2004. We classified the plaque type of psoriasis vulgaris on the basis of lesion size as small plaque(SP) type, large plaque(LP) type and other type. Other types including circinate type were excluded for analysis.

1. Classification of the plaque type of psorisis vulgaris depending on the lesion size

1) Small plaque(SP) type: less than 2 cm in the most of lesions, and all lesions are not larger

than 5 cm
2) Large plaque(LP) type: at least one lesion is larger than 5 cm
3) Other type: Cases that do not belong to the above cases

2. Analysis of the factors affecting psoriasis phenotypes

We performed a questionnaire survey concerning the influence of external factors including onset age, family history, history of pulmonary tuberculosis, history of BCG vaccination, and aggravating factors including stress, fatigue, pruritus, alcohol intake, and smoking. Based on the fact that in West where BCG vaccine inoculation has not been performed generally, severe phenotype of psoriasis is more prevalent, and in Korea where BCG vaccine inoculation has been performed generally, mild phenotype of psoriasis is more prevalent with good therapeutic response, the influence of the history of BCG vaccination on psoriasis was examined as well as the history of pulmonary tuberculosis.

3. Statistical analysis

The patients were divided into two types namely the LP type and the SP type. Fisher's exact test was used to test the statistical significance of the difference between LP and SP types. Less than < 0.05 in p value was considered to be significant.

RESULTS

1. Patients' age and sex

The mean age of psoriasis patients was 39 ± 15.54 years. Regarding their gender, the male was 59 patients(55.7%), which was slightly more prevalent than the female 47 patients(44.3%). However, a statistical difference was not shown.

2. Frequency of the patients depending on psoriatic lesion size

Among total psoriasis patients, the SP type group was 60 patients(56.6%), the LP type group was 42 patients(39.6%), and other type was 4 patients(3.8%) (Fig. 1).

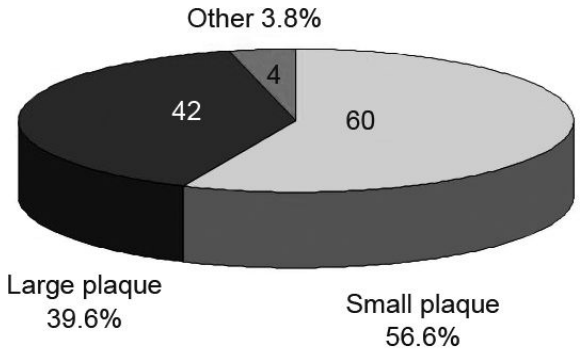

Fig. 1. Percentage of patients according to clinical types of psoriasis vulgaris.

3. Age of onset and the psoriatic lesion size

The mean age of onset was 27.68 ± 14.58 years in the SP psoriasis, and was 28.29 ± 15.08 years in the LP psoriasis. However, a statistical difference was not shown(Table 1).

4. Family history and the psoriatic lesion size

Psoriasis family history was observed in 25% of the SP psoriasis patients, and 26.2% of the LP psoriasis patients, but the difference was not significant(p=1.0) (Table 1).

5. The past history of BCG vaccine inoculation or tuberculosis and the psoriatic lesion size

BCG vaccination or pulmonary tuberculosis history was observed in 76.7% of the SP psoriasis patients and 64.3% of the LP psoriasis patients, but the difference was not significant(p=0.1881) (Table 1).

6. Pruritus and the psoriatic lesion size

40% of the SP psoriasis patients and 59.5% of the LP psoriasis patients present pruritus, but the difference was not significant(p=0.0701) (Table 1).

7. Stress or fatigue and the psoriatic lesion size

75% of the SP psoriasis patients and 88.1% of the LP psoriasis patients replied that their lesions tend to aggravate after a event of stress or fatigue, but the difference was not significant(p=0.1308) (Table 1).

8. Alcohol intake and the psoriatic lesion size

In the SP psoriasis, the cases answered that alcohol

Table 1. Relation between variable external factors and clinical types of psoriasis vulgaris

Factors	Types of psoriasis	
	SP(n=60)	LP(n=42)
Age of onset(yr)	27.68 ± 14.58	28.29 ± 15.08
Family history		
Y	15(25%)	11(26.2%)
N	45(75%)	31(73.8%)
BCG or tuberculosis history		
Y	46(76.7%)	27(64.3%)
N	14(23.3%)	15(35.7%)
Pruritus		
Y	24(40%)	25(59.5%)
N	36(60%)	17(40.5%)
Stress/Fatigue as an aggravating factor		
Y	45(75%)	37(88.1%)
N	15(25%)	5(11.9%)
*Alcohol as an aggravating factor		
Y	25(55.6%)	21(84%)
N	20(44.4%)	4(16%)
Smoking as an aggravating factor		
Y	0(0%)	2(11.8%)
N	20(100%)	15(88.2%)

SP, small plaques; LP, large plaque; Y, yes; N, no.
*p=0.0193

intake aggravated psoriatic lesions were 25 patients (55.6%) and the cases answered unrelated were 20 patients(44.4%). On the other hand, in the LP psoriasis, the cases answered that alcohol intake was associated with the exacerbation of psoriasis were 21 patients(84%) and the cases answered unrelated were only 4 patients(16%). Regarding the examination of the association with alcohol intake, non- drinkers were excluded from the statistics. The difference between the two groups was statistically significant(p=0.0193). Therefore, it is thought that alcohol intake is associated with the psoriatic lesion size(Table 1).

9. Smoking and the psoriatic lesion size

None of SP psoriasis patients experienced aggravation with smoking while 11.8% of LP psoriasis patients did, but the difference was not significant (p=0.2042) (Table 1).

DISCUSSION

Among the 106 plaque type psoriasis vulgaris patients involved in this study, there were no sexual predominance, and patients in their twenties were most common. These results are consistent with those of the previous epidemiological studies about psoriasis performed in Korea.[2] The mean age(mean ± SD) was 39 ± 15.54 years. Classification of the clinical features of psoriasis has been variable with different clinical significance. In our study, we classified psoriasis vulgaris patients on the basis of the size of

the plaque, and this classification should be distinguished from that according to the morphological features of the plaque. Previous clinical studies on psoriasis in Korea have classified psoriasis into nummular type, large plaque type, and guttate type based on the morphological features and reported that the most common type was nummular type which consists of more than half of the cases, followed by large plaque type, and guttate type.[1] However, it is possible that nummular type may include eczematous psoriasis, thus a new term that could distinguish them is required.[3] Previously we have reported that psoriasis vulgaris in Korean, different from that of Caucasians, is primarily composed of smaller sized plaques and less severe, thus, it was termed as small plaque(SP) psoriasis.[4] We also have demonstrated the differences in immune-related or inflammatory genes between SP psoriasis occurring in Korean patients, and large plaque(LP) psoriasis occurring in North American patients.[4] In our study, patients with psoriasis vulgaris were classified according to the lesion size, and the correlation between the subtype of psoriasis classified according to the lesion size and various external factors known to improve or worsen psoriasis was examined.

Previous studies had shown that summer, sunlight, and pregnancy are factors that improve psoriasis, on the other hand, winter and stress are factors that aggravate psoriasis.[1,2] In our study, among the external factors investigated, only alcohol intake as an aggravating factor showed statistically significant difference between SP and LP psoriasis, and in the LP psoriasis patients, in comparison with the SP psoriasis patients, alcohol intake aggravated psoriatic lesions(p=0.0193). Despite that the biological mechanism of alcohol intake mediating adverse effects on psoriasis has not been elucidated yet, in many previous studies, alcohol has been shown to be a risk factor of the development of psoriasis or a deterioration factor. The incidence of psoriasis in alcohol addicts has been reported to be varied from three to ten times higher than that of the control group. Particularly in men, there has been found to be a strong association between the amount of alcohol intake and the development of psoriasis, however, in women, the association between alcohol intake and the development of psoriasis has not been elucidated yet.[5] Several studies have demonstrated that the correlation of psoriasis and alcohol intake is higher in men than women, which is thought to be related to the fact that the alcohol consumption rate in men is relatively higher than women.[6,7] However, there was no significant difference between the SP and LP psoriasis when the subjects of our study were analyzed according to their alcohol consumption amount(data not shown). Alcohol intake has been reported to not only influence the onset of psoriasis but also to be a factor exacerbates the pre-existing psoriasis in both males and females.[6-7] Several studies[7-9] have shown that the alcohol intake is associated with the severity of psoriatic lesions, and in such studies, the severity was classified by the extent of involvement. It was also shown that heavy drinkers tend to have more severe and more extensive disease and alcohol intake may contribute to patient morbidity through treatment resistance.[7-9]

Alcohol intake could influence psoriasis via a variety of mechanisms. Proposed hypotheses to explain the association between alcohol intake and psoriasis have included suppression of cell-mediated immunity,[10,11] induction of hyperproliferation of epithelial cells,[7,11,12] increase of the infiltration of neutrophils due to the dilation of blood vessels and increased permeability, alteration of lipid metabolism in the epithelium,[7] and selenium deficiency.[13] In previous clinical studies on psoriasis which classified psoriasis according to the severity based on both the extent of involvement and the disease activity, it has been reported that the nummular type was more prevalent in the mild and moderate psoriasis, while the LP type was more prevalent in the severe forms of psoriasis.[14,15] Form these findings, we postulate that the positive correlation between alcohol intake and the exacerbation of psoriasis in the LP psoriasis which is considered to be a severe form can be explained by two possible hypotheses. One possibility is that the psoriatic lesion size becomes different depending on the drinking habit. Another possibility is that there may be genetic differences between the SP and LP psoriasis resulting in the different influence of alcohol on the disease course. However,

further studies to investigate the causes of these different responses to alcohol between the SP and LP psoriasis are needed.

In conclusion, the fact that the incidence of the exacerbation by alcohol intake is higher in the LP psoriasis than the SP psoriasis is thought to suggest the fact that sensitivity of the exacerbation of lesion by alcohol is associated with the clinical phenotype classified by the lesion size of psoriasis vulgaris.

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