Research Article

HLA – B association in psoriasis

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Abstract

Background: Psoriasis is a common skin disorder with prevalence varying from 0% to 11.8% in different population. HLA association with psoriasis is well established with very little information about Indian Population. **Aim:** To determine the HLA-B pattern and its association in psoriasis patients. **Materials and Methods**: Fifty cases and 50 controls were enrolled in the study. HLA-B typing was done by PCR-SSP method and the results was analyzed and interpreted. **Results:** The alleles that were found in higher frequency in the cases than in the controls were – HLA-B*35 (34%), HLA-B*15 (26%), HLA-B*40 (26%) and HLA-B*18 (14%). **Conclusion**: HLA-B*18 and HLA-B*40 show a strong association with psoriasis.

Keywords: HLA-B, Psoriasis, Relative Risk, Association.

Introduction

Psoriasis is a common skin disorder with prevalence varying from 0% to 11.8% in different population [1]. Psoriasis is derived from the Greek word 'PSORA' meaning scale. The disease psoriasis was first described by Robert William in the early 19th Century [2]. Psoriasis is an immune mediated skin disorder with the characteristic features of T cell mediated hyper proliferation of the keratinocytes [3]. Genetic factors particularly the HLA plays an important role in the etiology of Psoriasis. Psoriasis has been reported to be significantly associated with HLA – A*01, HLA – A*02, HLA – B*13, HLA – B*17, HLA – B*39, HLA – B*57. This relationship however tends to vary between patients of different racial and ethnic backgrounds. Studies showing HLA association with psoriasis from the Indian population are very little [4,5]. This study was undertaken to determine and evaluate the HLA – B association with psoriasis.

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Aim

To determine the HLA – B pattern and its association in Psoriasis patients.

Methods

This study was conducted in the Department of Transfusion Medicine, and in the Department of Human genetics at a tertiary care University Hospital. The study period was from April 2014 – March 2016. Fifty psoriasis patients attending the Dermatology OPD at our hospital and 50 healthy controls (voluntary blood donors) from the Department of Transfusion Medicine were taken up for the study. This study was approved by the Institutional Ethics Committee and the blood samples were drawn after obtaining informed consent. HLA – B typing was performed in 50 cases and 50 controls by PCR – SSP method using BAG health care GmbH kits. HLA – B results were determined and statistical analysis was used to determine the relative risks(RR), P value, Odds ratio (OR) and 95% confidence interval (CI) for the HLA-B alleles.

Results

HLA-B alleles found in increased frequency were HLA-B*35 (17/50 patients), HLA-B*15 (13/50 patients), HLA-B*40 (13/50 patients) and HLA-B*18 (7/50 patients. These antigens were found in higher frequency than in the controls. HLA-B alleles that were found in higher frequency among the controls are HLA-B*51 (10/50) and HLA-B*13 (6/50). HLA-B 27 was found in 5 out of 8 patients who had Psoriatic arthropathy. HLA-B* 18 was found in 2 Psoriatic arthropathy patients and HLA-B*51 was found in 1 patient.

Significant findings of the study.

Sl. No	HLA-B alleles	Cases		Controls		p Value	Odds Ratio (OR)	Relative Risk (RR)	95% confidence interval
		Number (n)	Percentage	Number (n)	Percentage				
1	HLA-B*35	17	34%	14	28%	0.60	1.32	1.14	0.5659 – 3.101
2	HLA-B*15	13	26%	13	26%	0.90	1.00	1.00	0.4092 – 2.444
3	HLA-B*40	13	26%	5	10%	<0.05	3.16	1.60	1.032 – 9.685
4	HLA-B*18	7	14%	1	2%	<0.05	7.97	1.89	1.15 – 184.5
5	HLA-B*51	7	14%	10	20%	0.50	0.65	0.80	0.2262 – 1.875
6	HLA-B*13	1	25	6	12%	0.11	0.14	0.26	0.01733 – 1.292

Discussion

The significant findings of the study are HLA-B*40 and HLA-B*18 have an increased association with Psoriasis. HLA-B*40 had a relative risk of 1.6 and odds ratio of 3.16 with a P value of <0.05 (statistically significant). HLA-B*18 had a relative risk of 1.89 and odds ratio of 7.97 (P value of <0.05). HLA-B*51 and HLA-B*13 showed a decreased association with Psoriasis with relative risk of 0.80 and 0.26 respectively.

HLA association with Psoriasis was first reported by Russel et al. in 1972[6]. He showed HLA-B*13 and HLA-B*17 association with psoriasis vulgaris. He further studied and showed HLA-Cw*16 had a stronger association than HLA-B*13 and HLA-B*17. Chablani et al. showed HLA-B*17 to be associated with Psoriasis but HLA-B*13 was not found in that study [7]. This study had included psoriasis patients from Indian population (North India). Comparing this study with my results HLA-B*40 and HLA-B*18 showed positive association with the disease. HLA-B*13 was found only in 1 out of 50 patients (2%) and in 6 out of 50 controls (12%). My study shows HLA-B*13 to be found in lesser frequency in the cases when compared with the controls. HLA-B*13 had a relative risk of 0.26 and odds ratio of 0.14 thereby implying HLA-B*13 has a decreased association with Psoriasis. HLA-B*17 was not found in my study. A study from India showed HLA-B*13, HLA-B*17, HLA-B*39 and HLA-B*57 to have a strong association with psoriasis [8,9,10]. In my study HLA-B*39 and HLA-B*57 was not found among the cases and HLA-B*57 was found in 2 controls.

Another study from western India reported HLA-B*8 and HLA-B*17 to be associated with Psoriasis [11]. HLA-B*8 had a odds ratio of 5.647 (p value of less than 0.001) and HLA-B*17 had a odds ratio of 5.45 (p value of <0.001) implying HLA-B*8 and HLA-B*17 has strong association with Psoriasis. HLA-B*5 and HLA-B*12 showed a negative association with the disease with HLA-B*5 having a odds ratio of 0.059 and HLA-B*12 having odds ratio of 0.051 (p value <0.002). A study from North India showed HLA-B*17 and HLA-B*35 more common in patients and HLA-B*13 more common in the controls [12]. HLA-B*17 and HLA-B*35 had a relative risk of 2.09 and 2.32 respectively. In my study HLA-B*17 was not found and HLA-B*35 was found in 17 cases and in 14 controls (odds ratio

1.32 and relative risk of 1.14). A study from the Brazilian population showed HLA-B*13, HLA-B*57 and HLA-B*39 in higher frequencies in the cases when compared with the controls [13]. The study concluded HLA-B*13 p value of <0.05 had increased susceptibility to Psoriasis.

A study from the Oman population showed HLA-B*52 to be associated with plaque psoriasis [14]. In my study HLA-B*52 was not found among the cases and HLA-B*52 was found only in 1 healthy control. HLA association tends to differ between patients of various national and ethnic backgrounds.

Conclusion

This study ascertains that certain HLA B alleles have a stronger association with psoriasis and differs between ethnic populations. HLA-B*18 and HLA-B*40 shows a strong association with psoriasis in this study.

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