

Evaluation between Association of Psoriasis and Vitiligo

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Background: Although the occurrence of psoriasis and vitiligo is reported in a few studies, no proper relationship has been found between these two diseases.

Objective: The aim of this study was to identify the frequency of the coincidence of these two diseases.

Method: A descriptive and cross-sectional study was conducted on 6,200 patients referred to dermatology clinics from September 2004 to June 2005.

Results: Among these patients, 219 and 154 patients suffered from psoriasis (3.53%) and vitiligo (2.48%), respectively, and 12 patients (0.19%) had psoriasis and vitiligo simultaneously. The coincidence in the psoriasis group was 5.48% and in the vitiligo group was 7.79%, so the coincidence of both diseases was greater than the incidence of each alone. This association was significant ($p = .004$).

Conclusion: Coincidence of these two diseases was seen, but more studies should be done to find common genetic and immunologic factors.

Contexte: Certes, on fait mention dans un petit nombre d'études de la coexistence du psoriasis et du vitiligo, mais aucune relation appropriée n'a été établie entre ces deux affections.

Objectif: L'étude visait à déterminer la fréquence de la coexistence de ces deux maladies.

Méthode: Une étude descriptive et transversale a été menée chez 6,200 patients dirigés vers des centres de dermatologie, de septembre 2004 à juin 2005.

Résultats: Sur ce nombre, 219 patients et 154 autres souffraient respectivement de psoriasis (3.53%) et de vitiligo (2.48%), et 12 patients (0.19%) souffraient à la fois de psoriasis et de vitiligo. La coexistence dans le groupe de psoriasis s'élevait à 5.48% et celle dans le groupe de vitiligo, à 7.79%; la coexistence de ces deux maladies est donc plus élevée que l'incidence de chacune d'elles. L'association entre les deux maladies est significative ($p = .004$).

Conclusion: Une coexistence a été observée entre ces deux maladies, mais il faudrait mener d'autres études afin de découvrir des facteurs génétiques et immunologiques communs.

PSORIASIS AND VITILIGO are common causes of skin diseases referred to clinics. The prevalence of psoriasis is reported between 1.5 and 4.8%¹ and for vitiligo is between 0.1 and 2% in different communities.² There are numerous reports about the coexistence of psoriasis

and vitiligo in the medical literature, but the relationship between the two diseases is not well known.

There is considerable evidence to justify this association, including the role of genetics, the immune system, cytokines, and common neuropeptide in the pathogenesis of these diseases. Recognition of this association can lead to better understanding of the etiologies, pathogenesis, and treatment of these diseases.

A patient with both diseases may have greater concern about one of them (for cosmetic reasons or extent of involvement). So with this background, we review our patients with complaints of either vitiligo or psoriasis who were referred to dermatology clinics.

Materials and Method

This descriptive and cross-sectional study was performed in the dermatology clinics of Ghaem Hospital and

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Table 1. Demographic Characteristics of Patients

Characteristic	Psoriasis Group	Vitiligo Group	Psoriasis and Vitiligo Coexistence Group
Age (yr)	29.53 ± 17.27	26.68 ± 15.92	30.33 ± 16.19
Sex, n (%)			
Male	107 (51.7)	73 (51.4)	7 (58.3)
Female	100 (48.3)	69 (48.6)	5 (41.7)
Duration of disease (yr)	5.2 ± 6.83	4.5 ± 5.93	Psoriasis = 3.47 ± 2.38 Vitiligo = 4.10 ± 5.18

Hashemi-Nezhad Hospital of Mashhad, Iran, from September 2004 to June 2005. Patients affected by psoriasis and/or vitiligo were introduced to the study. Subsequently, variables such as age, gender, extent of disease, family background, duration of disease, and the coincident disease were studied. The information was completed with the patient's history and physical examination results. For making comparison among the groups, chi-square, Mann-Whitney *U* test, and Student *t*-tests were used. The 95% confidence interval was used for determining the ratio of the coincidence of these two diseases.

Results

Among 6,200 patients referred to the dermatology clinics of Ghaem Hospital and Hashemi-Nezhad Hospital from 2004 to 2005, 361 cases were enrolled in the study, which consisted of 207 (57.3%) cases of psoriasis, 142 (39.4%) cases of vitiligo, and 12 (3.3%) cases of coexisting psoriasis and vitiligo. The prevalence of each among the total cases (6,200) referred to our clinics was as follows: psoriasis, 3.34%; vitiligo, 2.29%; and coexisting psoriasis and vitiligo, 0.19%. The demographic characteristics of these three groups are shown in Table 1.

A total of 219 patients had psoriasis; among these, 12 (5.48%) patients also had vitiligo at the same time. A total of 154 patients had vitiligo, and 12 (7.79%) of these patients had psoriasis simultaneously.

Concerning the extent of the disease, with regard to the results obtained from the Mann-Whitney *U* test, no

significant difference was observed in the two groups who had psoriasis with the patients who suffered from both diseases simultaneously ($p = .62$). Concerning the extent of the disease and the chance of coincidence, there was a relationship between the patients who suffered from vitiligo and vitiligo accompanied with psoriasis with regard to the results obtained from the Mann-Whitney *U* test ($p = .034$) (Table 2).

Among 361 cases, 115 (31.8%) had a positive family history. A positive family history of psoriasis or vitiligo in three groups of patients was as follows: 69 (33.3%) cases of psoriasis, 38 (26.7%) cases of vitiligo, and 8 (66.7%) cases with coexistence of both diseases (Table 3). The results were statistically significant by chi-square test ($p = .014$).

Discussion

Previously, an association of vitiligo and psoriasis in case reports was frequently mentioned. The evidence suggested for this association is considerable. The role of the immune system in the pathogenesis of both diseases is known. The association of vitiligo with autoimmune diseases, including autoimmune thyroid disease, Addison disease, diabetes mellitus, alopecia areata, pernicious anemia, and systemic lupus erythematosus, has been reported, and considerable evidence for the role of humoral and cellular immunity against melanocytes has been determined.³⁻⁷ Psoriasis as a disease with an autoimmune basis and the role of T cells in its pathogenesis are known.⁸

Table 2. Extent of Disease in Each Group

Disease	Mean ± SD (% of body surface area involvement)	Mann-Whitney U Test Results
Psoriasis	4.94 ± 11.65*	$Z = 0.49$
Psoriasis and vitiligo coexistence	2.91 ± 5.4*	$p = .62$
Vitiligo	4.85 ± 13.03†	$Z = 2.1$
Vitiligo and psoriasis coexistence	9 ± 19.6†	$p = .034$

*Mean ± SD of psoriasis surface area.

†Mean ± SD of vitiligo surface area.



Table 3. Family History in Three Groups of Patients

Family History	Psoriasis	Vitiligo	Coexistence of Psoriasis and Vitiligo	Total	Result of Chi-Square Test
Positive, <i>n</i> (%)	69 (33.3)	38 (26.7)	8 (66.7)	115 (31.8)	$p = .014 \chi^2 = 8.6$
Negative, <i>n</i> (%)	138 (66.7)	104 (73.3)	4 (33.3)	246 (68.2)	
Total, <i>n</i> (%)	207 (100.0)	142 (100.0)	12 (100.0)	361 (100.0)	

In one case report of two patients whose psoriasis appeared in areas of vitiliginous skin, it was postulated that lymphocytic infiltrate in the vitiliginous area led to the development of psoriasis mediated by tumor necrosis factor α (TNF- α) and interferon- γ in patients with a genetic background.⁹

It is known that cytokines have a major role in the pathogenesis of psoriasis, including interleukin-2, interferon- γ , and TNF- α , and in the pathogenesis of vitiligo, interleukin-2R, interleukin-6, interleukin-8, TNF- α , and interferon- γ R.^{10–12}

Fernandez-Obregon described a patient who presented with vitiligo and psoriasis and was treated with efalizumab.¹³

The genetic background is well understood in psoriasis. Several human leukocyte antigens (HLAs), including B13, B37, B46, B55, CW1, CW6, DR7, and DQ9, are associated with psoriasis, but the strongest association in whites is HLA-CW6.¹⁴ Genetic factors also play a role in vitiligo. Studies have shown some HLA in relation to vitiligo including A2, DR4, DR7, and CW6.² The role of neuropeptide has also been shown in both diseases,^{15,16} and the Koebner phenomenon in both diseases has been well defined.^{2,14}

In one study from Brazil of 261 patients with vitiligo who were referred for phototherapy, in 9 (3.06%) patients, the coexistence of psoriasis and vitiligo was diagnosed.¹⁷ In another study, the prevalence of this association in 821 vitiligo patients was 2.67%.¹⁸

Alkhateeb and colleagues, in a study of 2,624 vitiligo cases in North America and England, found the frequency of vitiligo in their siblings was 6.1%, but there was no association with psoriasis in them or a first-degree relative.³

A survey by Laberge and colleagues in 2005 of 133 families with generalized vitiligo found that several family members were affected by vitiligo, and the frequency of psoriasis and some autoimmune diseases was high.¹⁹ In a study of 6,516 vitiligo cases, the prevalence of psoriasis was elevated in generalized vitiligo cases and in first-degree relatives.²⁰

In 2004, Sandhu and colleagues, in a retrospective study of 4,700 psoriasis patients referred to clinics in India, observed vitiligo in 38 cases, and the authors found that the coincidence of both diseases did not increase in comparison with the general population.²¹

The present study suggests that the existence of psoriasis or vitiligo in a patient may be a predictor of the potential tendency for the other disease (vitiligo or psoriasis) in the same patient or his/her family.

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