World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(RESEARCH ARTICLE)

Check for updates

Retrospective evaluation of epidemiological and clinical data of patients diagnosed with vitiligo in our outpatient clinic

Mert Baran [1], Alper Alyanak [2,*] and İlgül Bilgin [2]

[1] *Department of Dermatology, Turgutlu State Hospital, Manisa, Turkey.*
[2] *Department of Dermatology, Izmir Katip Çelebi University, Medical Faculty, Atatürk Research and Education Hospital, Izmir, Turkey.*

World Journal of Advanced Research and Reviews, 2024, 21(01), 1844–1850

Publication history: Received on 07 December 2023; revised on 15 January 2024; accepted on 17 January 2024

Article DOI: https://doi.org/10.30574/wjarr.2024.21.1.0208

Abstract

Objective: It was aimed to evaluate retrospectively the epidemiological and clinical data of patients who applied to our clinic and were diagnosed with vitiligo. Epidemiological and clinical evaluation guide the progression, choice of treatment, and diagnosis of the comorbidities of the disease.

Methods: 327 patients evaluated as non-segmental vitiligo were included in the study. Demographic characteristics of the patients (age and gender), age at onset of vitiligo, treatments used for vitiligo, clinical type of vitiligo, location of lesions, and accompanying autoimmune thyroid disease data were evaluated.

Results: Of 327 patients, 169 (51.7%) were male and 158 (48.3%) were female. The male/female ratio was found to be 1,1:1. The mean age of the patients was 37.26±18.07 years, and the mean age according to gender was 37.44±18.19 years in females and 37.08±18 years in males. The mean age of onset of the disease was 29.17±15.79 years, and the mean age of onset by gender was 29.13±16.46 years in females and 29.2±15.15 years in males. Regarding onset of the disease, 54% of the patients were <30 years old, and 46% of the patients were 30 years or older. Generalized vitiligo (58.8%) and acrofacial vitiligo (29.9%) were the most common clinical types. Head and neck (68.9%) and extremities (64%) were the most common locations of the lesions. Concomitant autoimmune thyroid disease was seen in 13.5% of the patients. Accompanying autoimmune thyroid disease according to gender was 19.5% in females and 7.4% in males, and there was a statistically significant difference between the groups. It was observed that 89.5% of the patients received treatment for vitiligo, and 10.5% did not receive any treatment. The most commonly used treatments were found to be topical treatment (76.1%) and topical treatment+phototherapy (14.6%).

Conclusion: The epidemiological and clinical characteristics of the patients in our study were similar to other studies in the literature. Concerning the highest prevalence of generalized vitiligo in our study, phototherapy and/or systemic therapy use should have been considered when their use was indicated, and factors precluding their more widespread use could be investigated in other studies.

Keywords: Vitiligo; Epidemiology; Autoimmune Thyroid Disease; Vitiligo Treatment.

1. Introduction

Vitiligo is a skin disease with sharply demarcated depigmented macules that develop as a result of progressive loss of melanocytes in the skin and mucous membranes.[1] The worldwide prevalence of vitiligo is 0.5-2%, and it is the most common depigmentation disease.[2]–[4] The most recent classification for vitiligo was made at the Vitiligo Global Issues

* Corresponding author: Alper Alyanak

Consensus Conference held in 2011.[5] Segmental vitiligo was classified separately due to the difference in course and prognosis, and the term vitiligo was defined to include all types of non-segmental vitiligo. Non-segmental vitiligo is the most common type in both children and adults.[1], [6], [7] The etiopathogenesis of vitiligo is still not fully elucidated.[1], [8], [9] Vitiligo significantly affects patients cosmetically and psychosocially.[10] Vitiligo can negatively affect the quality of life and social relations, and it has been shown that the disease is associated with emotions such as shame, insecurity, and sadness.[10] In this study, we investigated the epidemiological and clinical characteristics of vitiligo patients, treatment choices, and whether autoimmune thyroid disease was accompanied.

2. Methods

In our study, in the hospital database, between 01.01.2020 and 31.12.2021, patients diagnosed with vitiligo with the ICD code L80 and clinically evaluated as "non-segmental vitiligo" were retrospectively evaluated. For the non-segmental vitiligo clinical type classification, the most recent classification, the General Consensus Conference on Vitiligo, which took place in 2011, was used.[5] Demographic characteristics of patients (age and gender), age of onset of vitiligo, treatments used for vitiligo (topical treatment, topical+systemic treatment, topical treatment+phototherapy, topical+ systemic treatment+phototherapy), vitiligo clinical type (focal, generalized, universal, acrofacial, mucosal), localization of lesions (head-neck, trunk, extremity, genital, mucosal), accompanying autoimmune thyroid disease data were analyzed. As a systemic treatment, patients used systemic corticosteroids. The patient's medical history and laboratory findings were examined for accompanying autoimmune thyroid disease. In data analysis, the age of onset was categorized as <30 years and ≥30 years

2.1. Statistical analysis

Variables were expressed using mean ± standard deviation, percentage, and frequency values. Variables were evaluated after controlling for the normality (Shapiro-Wilk test) and homogeneity of variances (Levene Test). Student's t-test was used for the comparison of two groups, and Mann Whitney-U test was used when variables did not distribute normally and there was no homogeneity of variances. Categorical data were analyzed with Fisher's Exact Test and Chi-Square test. A p-value of <0.05 was accepted for the statistically significant test results.

2.2. Ethics committee approval

Ethics committee approval was obtained with the decision of İzmir Katip Çelebi University Non-Invasive Clinical Research Ethics Committee dated 20.01.2022 and numbered 0027.

3. Results

330 patients diagnosed as “vitiligo” with the ICD code of L80 were identified. Clinically, segmental vitiligo was detected in 3 patients, and non-segmental vitiligo was detected in the remaining 327 patients. The age range of the patients at presentation ranged from 2-90 years, with a median age of 37 years and a mean age of 37.26±18.07 years. Of the 327 patients in the study, 169 (51.7%) were male and 158 (48.3%) were female (male/female ratio 1.1:1). The mean age according to the gender of the patients was 37.44±18.19 years in women and 37.08±18 years in men. The median age of women was 38.5, and the median age of men was 34. There was no statistically significant difference between males and females regarding age (p>0.05). After excluding individuals who did not have data on the age of onset of the disease, the age of onset ranged from 1-72 years in the analysis conducted with 237 patients, with a median age of 27 and a mean age of 29.17±15.79 years. When the age of onset of the disease was divided into two groups <30 years old and ≥ 30 years old, it was seen that 128 (54%) of the patients were <30 years old, and 109 (46%) of the patients were 30 years and above. After excluding individuals who did not have data on vitiligo clinical type, 274 patients were analyzed of which 161 (58.8%) patients had generalized vitiligo, 82 (29.9%) had acrofacial vitiligo, 13 (4.7%) had focal vitiligo, 12 (4%) universal vitiligo, and 7 (2.6%) mucosal vitiligo.

After excluding individuals who did not have data on the treatments they used, it was observed that 280 (89.5%) of the patients received treatment for vitiligo, and 33 (10.5%) did not receive any treatment at all. Of the patients using treatment, 213 (76.1%) received topical treatment, 41 (14.6%) topical treatment+phototherapy, 24 (8.6%) topical+ systemic treatment, and 2 (0.7%) received topical+systemic treatment+phototherapy. After excluding individuals who did not have data on concomitant autoimmune thyroid disease, in the analysis performed with 297 patients, 40 (13.5%) of the patients were found to have concomitant autoimmune thyroid disease. When the distribution ratio of the lesions was analyzed, it was seen that the head-neck involvement was 68.9%, the extremity involvement was 64%, the trunk was 31.8%, the genital area was 24.6%, and the mucosal involvement was 4.9%. The descriptive properties of the variables evaluated within the study were given in Table 1.

Table 1 Descriptive statistics of the variables in the study

		n	%
Sex	**Female**	**158**	**48.3**
	Male	169	51.7
Disease onset age	Below 30 years old	128	54.0
	30 years old and older	109	46.0
Treatment	Yes	280	89.5
	No	33	10.5
	Topical treatment	213	76.1
	Topical+ Systemic treatment	24	8.6
	Topical treatment+ Phototherapy	41	14.6
	Topical+ Systemic treatment+ Phototherapy	2	0.7
Vitiligo clinical type	Focal	13	4.7
	Generalized	161	58.8
	Universal	11	4.0
	Acrofacial	82	29.9
	Mucosal	7	2.6
Vitiligo distribution	Head and neck		68.9
	Extremity		64
	Trunk		31.8
	Genital area		24.6
	Mucosa		4.9
Concomitant autoimmune thyroid disease		40	13.5
		Mean± standard deviation	Median (Min.-Max.)
Age		37.26±18.07	37 (2-90)
Disease onset age		29.17±1.79	27 (1-72)

n: patient number

The relationship between the gender of the patients and the age of onset of the disease, the clinical type of vitiligo, and the accompanying autoimmune thyroid disease was analyzed. The presence of concomitant autoimmune thyroid disease was observed in 29 female patients (19.5%), and 11 male patients (7.4%), and a statistically significant difference was found between the groups (p=0.02) (Table 2).

Table 2 The relationship between the gender of the patients and the age of onset of the disease, the clinical type of vitiligo, and the accompanying autoimmune thyroid disease

		Female		**Male**		**X^2**	**p**
		n	**%**	**n**	**%**		
Age of onset of disease	Under 30 years old	59	49.6	69	58.5	1.887	0.170
	30 years and older	60	50.4	49	41.5		
Vitiligo clinical types	Focal	9	6.6	4	2.9	2.096	0.148
	Generalized	74	54.4	87	63.0	2.106	0.147
	Universal	7	5.1	4	2.9	0.899	0.343
	Acrofacial	45	33.1	37	26.8	1.287	0.257
	Mucosal	1	0.7	6	4.3	3.591	0.120
Autoimmune thyroid disease	Yes	29	19.5	11	7.4	9.221	**0.002**
	No	120	80.5	137	92.6		

Pearson Chi-Square, Fisher's Exact test

The relationship between the age of onset of the disease and the presence and types of treatment, clinical type of vitiligo, and accompanying autoimmune thyroid disease was analyzed. There was no statistically significant difference between the groups ($p>0.05$) (Table 3).

Table 3 The relationship between the age of onset of the disease and the presence and types of treatment, clinical type of vitiligo, accompanying autoimmune thyroid disease

		Age of onset				**X^2**	**p**
		Below 30 years old		**30 years old and above**			
		n	%	n	%		
Treatment	Yes	116	92.1	96	88.9	0.688	0.407
	No	10	7.9	12	11.1		
Topical treatment		83	71.6	75	78.1	1.196	0.274
Topical+Systemic treatment		11	9.5	4	4.2	2.258	0.133
Topical treatment+Phototherapy		20	17.2	17	17.7	0.008	0.929
Topical+Systemic treatment+Phototherapy		2	1.7	-	-	1.671	0.502
Vitiligo Clinical Type	Focal	3	2.7	8	7.7	2.754	0.097
	Generalized	65	58.6	59	56.7	0.073	0.786
	Universal	5	4.5	3	2.9	0.393	0.723
	Acrofacial	33	29.7	33	31.7	0.101	0.751
	Mucosal	5	4,5	1	1.0	2.484	0.214
Accompanying Autoimmune Thyroid Disease	Yes	13	11.5	17	16.5	1.127	0.289
	No	100	88,5	86	83.5		

Pearson Chi-Square, Fisher's Exact test.

4. Discussion

The mean age of vitiligo patients varies between 23.27-36.8 in the literature.[11], [12] In a retrospective study conducted with 669 vitiligo patients in Brazil in 2014, the mean age was reported to be 33.6±18.6 years (1-84 years).[13] In a study conducted in Germany, 363 vitiligo patients who were hospitalized and treated at the clinic were examined and they reported that the mean age was 43.50±13.4.[14] In a population-based study conducted with 1432 vitiligo patients in Taiwan, the mean age of the patients was 47.08±16.42.[15] In our study, the age range of the patients at presentation ranged between 2-90 years, in line with the studies in our country, and the median age was 37, and the mean age was 37.26±18.07.

Considering the gender distribution of vitiligo patients, a higher prevalence was found in female patients in general.[16] On the other hand, in studies conducted in China, India, and Korea, no significant difference was found between the two sexes according to age.[17]–[20] There are also studies in which the male-female ratio is reported to be higher in favor of males.[21], [22] Of the 327 patients in our study, male patients were 169, and female were 158 (M/F=1.1:1).

In the study of Patil et al., in which the mean age according to gender was examined, the mean age was found to be 28.4 years in male patients and 30 years in female patients, and no statistically significant difference was reported to be observed.[6] In our study, the mean age of women was 37.44±18.19 years, and the mean age of men was 37.08±18 years, and there was no statistically significant difference between the groups, consistent with the literature ($p>0.05$).

Although vitiligo can start at any age, it more often occurs in childhood and young adulthood, the peak period is between the ages of 10-30.[23], [24] In the study of Liu et al. in China with 3742 patients, the mean age of onset of the disease was 18.88; in another study from the same country, it was reported as 20.1.[11], [25] In a large epidemiological study conducted on Bornholm Island, Denmark, it was reported that vitiligo appeared after the age of 40 in half of the patients.[3] Birlae et al. interpreted the difference in age of onset between populations as the effect of geographically variable environmental factors in genetically susceptible individuals.[26] In our study, the age of onset ranged from 1-72 years, with a median age of 27 and a mean age of 29.17±15.79, and there was no statistically significant difference between the males and females ($p>0.05$).

Generalized and acrofacial vitiligo were the most common subtypes in the literature.[27] In our study, the most common types of vitiligo were generalized (58.8%) and acrofacial (29.9%) types, which was consistent with the literature. While vitiligo exhibits mostly periorbital and perioral involvement in the face area, it prefers the wrist, knee, elbow flexor face, ankle dorsum, and legs in extremities; these regions are thought to be the most common areas of involvement due to repeated trauma and friction exposure.[28], [29] In our study, it was seen that the most frequently affected areas are head-neck and extremities, which is compatible with the literature.

Vitiligo is associated with many diseases and syndromes, especially autoimmune diseases; autoimmune thyroid diseases are the most common diseases that accompany vitiligo.[2], [9], [30] Screening for thyroid function and thyroid autoantibodies was recommended for patients with vitiligo.[31] In our study, the examination of concomitant autoimmune thyroid disease revealed that 13.5% of the patients had concomitant autoimmune thyroid disease, consistent with the literature. In the study by Lazzeri et al., the age of onset was divided into <12 years and >40 years of age; in the analysis, the rate of comorbid autoimmune thyroid disease was found to be higher in the >40 age group.[32] In the study conducted by Kanwar et al., the age of disease onset was divided into early-onset vitiligo aged <30 years and late-onset vitiligo aged 30 years and above, and in the comparative analysis performed according to age of onset, it was found that there was no significant difference between the groups in terms of accompanying autoimmune disease.[33] When the relation between age of onset and accompanying autoimmune thyroid disease was examined in our study, concomitant autoimmune thyroid disease was observed in 13 (11.5%) of those whose disease onset age was <30 years and in 17 (16.5%) of those whose disease onset age was 30 years and above; although there was a difference between them, a statistically significant difference was not found ($p>0.05$). In our study, the statistically significant difference in the presence of autoimmune thyroid disease in women compared to men ($p = 0.02$) was consistent with the literature.[34] Hormonal theory has been suggested as the reason for this difference; estrogens were thought to be strong autoimmunity stimulators, while androgens were thought to be protective in this respect.[35]

For the treatment of vitiligo, if the disease is rapidly progressing, systemic steroid therapy together with narrow-band ultraviolet B phototherapy (NB-UVB) was recommended.[31], [36] If the disease involves greater than 3% of the body surface area and whether it is stable or rapidly progressive, NB-UVB was recommended.[36] In our study, among the reasons why topical treatment alone (76.1%) was used more than other treatments could be the limited availability of systemic treatment options, the patients' and physicians' concerns about the side effects of systemic therapy, the inability to make detailed evaluations with the patient due to short examination times, and the low number of

phototherapy units and the difficulties in reaching existing phototherapy units. Reasons for not widespread use of phototherapy and/or systemic therapy could be investigated in other studies to identify causes that can be corrected or improved.

The strength of our study is the relatively high number of patients and a heterogeneous population. Its limitation is that it is retrospective.

5. Conclusion

The epidemiological and clinical characteristics of the patients in our study are similar to other studies in the literature. Phototherapy and/or systemic treatment use for the patients should be considered when necessary.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare that they have no conflict of interest.

Statement of ethical approval

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the ethics committee of the Izmir Katip Çelebi University Ethics Committee (approval date 20.01.2022 and number 0027).

References

[1] C. P. dos S. Martins, A. Hertz, P. Luzio, P. Paludo, and L. Azulay-Abulafia, Clinical and epidemiological characteristics of childhood vitiligo: a study of 701 patients from Brazil, *Int. J. Dermatol.*, vol. 59, no. 2, pp. 236–244, 2020, doi: 10.1111/ijd.14645.

[2] Alikhan, A., Felsten, L. M., Daly, M., & Petronic-Rosic, V. (2011). Vitiligo: a comprehensive overview Part I. Introduction, epidemiology, quality of life, diagnosis, differential diagnosis, associations, histopathology, etiology, and work-up. Journal of .

[3] Howitz, J., Brodthagen, H., Schwartz, M., & Thomsen, K. (1977). Prevalence of vitiligo. Epidemiological survey on the Isle of Bornholm, Denmark. Archives of dermatology, 113(1), 47–52.

[4] Krüger, C., & Schallreuter, K. U. (2012). A review of the worldwide prevalence of vitiligo in children/adolescents and adults. International journal of dermatology, 51(10), 1206–1212.

[5] K. Ezzedine *et al.*, issues : the Vitiligo Global Issues Consensus Conference, *Pigment Cell Melanoma Rseearch*, vol. 25, no. 3, pp. 1–28, 2013, doi: 10.1111/j.1755-148X.2012.00997.x.Revised.

[6] Patil, S., Gautam, M., Nadkarni, N., Saboo, N., Godse, K., & Setia, M. S. (2014). Gender differences in clinicoepidemiological features of vitiligo: a cross-sectional analysis. ISRN dermatology, 2014, 186197.

[7] Handog EB, Enriquez-Macarayo MJ, Melasma and Vitiligo In Brown Skin. eds. New Delhi, India: Springer, 2017.

[8] Zhang Y, Cai Y, Shi M, et al. The prevalence of vitiligo: A meta-analysis. PLoS ONE. 2016;11(9).

[9] Alkhateeb A, Fain PR, Thody A ve ark. Epidemiology of vitiligo and associated autoimmune diseases in Caucasian probands and their families. Pigment Cell Res. 2003;16(3):208-14.

[10] Lee YB, Lee JH, Lee SY, Yu DS, Han K do, Park YG. Association between vitiligo and smoking: A nationwide population-based study in Korea. Scientific Reports. 2020;10(1)..

[11] Liu JB, Li M, Yang S, Gui JP, Wang HY, Du WH, Zhao XY, Ren Q, Zhu YG, Zhang XY. Clinical profiles of vitiligo in China: an analysis of 3742 patients. Clin Exp Dermatol. 2005; 30 :327-331.

[12] Paravar T, Lee DJ. Vitiligo in an urban academic setting. Int Dermatol J. 2010; 49: 39-43.

[13] de Barros JC, Machado Filho CD, Abreu LC, de Barros JA, Paschoal FM, Nomura MT, et al. A study of clinical profiles of vitiligo in different ages: an analysis of 669 outpatients. Int J Dermatol 2014 Jul;53 (7):842-8.

[14] Schmid-Ott G, Künsebeck HW, Jecht E, Shimshoni R, Lazaroff I, Schallmayer S, et al. Stigmatization experience, coping and sense of coherence in vitiligo patients. J Eur Acad Dermatol Venereol 2007 Apr;21 (4):456-61.

[15] Chen CY, Wang WM, Chung CH, Tsao CH, Chien WC, Hung CT. Increased risk of psychiatric disorders in adult patients with vitiligo: A nationwide, population-based cohort study in Taiwan. J Dermatol 2020 May;47 (5):470-475.

[16] Kyriakis KP, Palamaras I, Tsele E, Michailides C, Terzoudi S. Case detection rates of vitiligo by gender and age. Int J Dermatol. 2009; 48: 328-329.

[17] Lu T, Gao T, Wang A, Jin Y, Li Q, Li C. Vitiligo prevalence study in Shaanxi Province, China. Int J Dermatol. 2007; 46: 47-51.

[18] Hu Z, Liu JB, Ma SS, Yang S, Zhang XJ. Profile of childhood vitiligo in China: an analysis of 541 patients. Pediatr Dermatol. 2006; 23: 114-116.

[19] Cho S, Kang HC, Hahm JH. Characteristics of vitiligo in Korean children. Pediatr Dermatol. 2000; 17: 189-193.

[20] Dogra S, Parsad D, Handa S, Kanwar AJ. Late onset vitiligo: a study of 182 patients. Int J Dermatol. 2005; 44: 193-196..

[21] Handa S, Kaur I. Vitiligo: clinical findings in 1436 patients. J Dermatol. 1999; 26: 653-657..

[22] Henning SW, Fernandez MF, Mahon JP, Duff R, Azarafrooz F, Guevara-Patino JA, et al. HSP70iQ435A-encoding DNA repigments vitiligo lesions in Sinclair swine. J Invest Dermatol. 2018 Dec; 138(12): 2531–9..

[23] Halder RM, Chappell JL. Vitiligo update. Semin Cutan Med Surg 2009; 28: 86–92..

[24] Halder RM, Grimes PE, Cowan CA, et al. Childhood vitiligo. J Am Acad Dermatol 1987; 16: 948–954..

[25] Zhang Z, Xu SX, Zhang FY, Yin XY, Yang S, Xiao FL, et al. The analysis of genetics and associated autoimmune diseases in Chinese vitiligo patients. Arch Dermatol Res. 2009;301(2):167–73..

[26] Birlea SA, Fain PR, Spritz RA. A Romanian population isolate with high frequency of vitiligo and associated autoimmune diseases. Arch Dermatol. 2008 Mar; 144(3): 310–6..

[27] Picardo M, Dell'Anna ML, Ezzedine K, et al. Vitiligo. Nat Rev Dis Primers. 2015;1:15011..

[28] Bolognia Jean L, Schaffer Julie V, Cerroni L., 2018, Dermatology, fourth edition, Elsevier..

[29] Özdemir Ş. Vitiligo'nun Kliniği. Turkiye Klinikleri Journal of Dermatology Special Topics. 2009;2(1):14-7..

[30] Laberge G, Mailloux CM, Gowan K, et al. Early disease onset and increased risk of other autoimmune diseases in familial generalized vitiligo. Pigment Cell Res 2005; 18: 300–305..

[31] V. Eleftheriadou *et al.*, British Association of Dermatologists guidelines for the management of people with vitiligo 2021*, *Br. J. Dermatol.*, vol. 186, no. 1, pp. 18–29, 2022, doi: 10.1111/bjd.20596.

[32] Lazzeri, L., Colucci, R., Cammi, A., Dragoni, F., & Moretti, S. (2016). Adult Onset Vitiligo: Multivariate Analysis Suggests the Need for a Thyroid Screening. BioMed Research International, 2016, 8065765..

[33] Kanwar, A. J., Mahajan, R., & Parsad, D. (2013). Effect of Age at Onset on Disease Characteristics in Vitiligo. Journal of Cutaneous Medicine and Surgery, 17(4), 253–258..

[34] van Geel, N., Speeckaert, M., Brochez, L., Lambert, J., & Speeckaert, R. (2014). Clinical profile of generalized vitiligo patients with associated autoimmune/autoinflammatory diseases. Journal of the European Academy of Dermatology and Venereology : JEADV.

[35] Gey A, Diallo A, Seneschal J, et al. Autoimmune thyroid disease in vitiligo: multivariate analysis indicates intricate pathomechanisms. Br J Dermatol 2013; 168: 756–761..

[36] M. Böhm *et al.*, S1 Guideline: Diagnosis and therapy of vitiligo, *JDDG - J. Ger. Soc. Dermatology*, vol. 20, no. 3, pp. 365–378, 2022, doi: 10.1111/ddg.14713.