Brief Report

Disease Stability in Segmental and Non-Segmental Vitiligo

Abstract

Introduction: Some therapeutic decisions in vitiligo depend on the likelihood of the disease remaining stable and inactive. **Aim:** To determine a period of disease stability in vitiligo following which reactivation was unlikely. **Materials and Methods:** This cross-sectional descriptive study was carried out in 200 patients where a detailed clinical history of the disease activity and stability over the course of vitiligo was recorded. **Results:** There were 167 (83.5%) patients with non-segmental vitiligo and 33 (16.5%) with segmental vitiligo. For every 1-year increase in the duration of the disease, stable and active periods increased by 0.7 and 0.3 years, respectively in non-segmental vitiligo and by 0.9 and 0.1 years in segmental vitiligo ($P < 0.01$). When segmental vitiligo was stable for at least 2 years, it was five times less likely to re-activate than the disease that was stable for less than 2 years ($P = 0.16$). However, in non-segmental vitiligo, we found no association between the duration of stability and risk of reactivation. **Conclusions:** Segmental vitiligo usually becomes inactive after the disease has been stable for 2 years. Non-segmental vitiligo is prone to reactivation even after prolonged periods of stability.

Keywords: *Stability, vitiligo, reactivation*

Neha Taneja, V. Sreenivas[1], Kanika Sahni, Vishal Gupta, M. Ramam

Departments of Dermatology and Venereology, [1]Biostatistics, All India Institute of Medical Sciences, Ansari Nagar, New Delhi, India

Introduction

Disease stability in vitiligo is important in making therapeutic decisions and in informing patients of the prognosis. This is particularly important in deciding when to undertake surgery and different groups have provided different guidelines regarding the duration of stability required before surgical intervention ranging from 6 weeks[1] to 3 years.[2] However, the evidence for these guidelines is unclear. We studied the disease course in 200 patients with vitiligo and tried to determine the duration of stability following which disease reactivation might be unlikely.

Materials and Methods

This was an additional analysis of a previously reported cross-sectional observational study assessing spontaneous repigmentation in patients with vitiligo attending the outpatient department of our hospital from June 2015 to June 2017.[3] Consecutive patients with a clinical diagnosis of vitiligo, irrespective of their age and gender, who could recall the course of their disease, were recruited. Detailed clinical history was taken with an emphasis on the disease course including periods of stability and activity. A period was defined as stable if there were no new lesions or progression of existing lesions for at least 3 months (with or without treatment). We asked about the site of the last new lesion, and when it was noticed, number of new lesions in the past 1 and 3 months, number of stable periods, when different stable periods occurred, and the duration of each stable period, and whether the stable period was associated with or without treatment. The total duration of the stable periods was calculated as the sum of all individual stable periods. The average duration of a stable period was calculated as the total duration of stable periods divided by the number of stable periods. The proportion of stable period for a patient was calculated as the sum of the duration of all stable periods divided by the total duration of the disease, expressed as a percentage.

The descriptive data of the patients was summarized. The continuous variables were summarized as mean ± standard deviation (SD) and/or median. The categorical variables were expressed as absolute numbers, frequency, and proportions (%). For

How to cite this article: Taneja N, Sreenivas V, Sahni K, Gupta V, Ramam M. Disease stability in segmental and non-segmental vitiligo. Indian Dermatol Online J 2022;13:60-3.

Received: 05-Mar-2020. **Revised:** 05-Apr-2021. **Accepted:** 09-Apr-2021. **Published:** 02-Aug-2021.

Address for correspondence:
Dr. M. Ramam, Department of Dermatology and Venereology, All India Institute of Medical Sciences, New Delhi - 110029, India.
E-mail: mramam@hotmail.com

Access this article online

Website: www.idoj.in

DOI: 10.4103/idoj.IDOJ_154_21

Quick Response Code:

comparative analysis, *P* value was calculated by using two-sample *t* test (parametric test) or Wilcoxon rank sum test (non-parametric test), when the data was quantitative and continuous, or by using the Chi-square test for categorical data. *P* value < 0.05 was considered significant. Statistical analysis was done using the Stata Version 14.1 Software (StataCorp. 2015. Stata Statistical Software: Release 14. College Station, TX: StataCorp LP).

Results

Two hundred patients were recruited [Table 1]. The average duration of active and stable periods was 2.2 ± 4.2 years (median 0.75) and 2.6 ± 3.7 years (median 1), respectively in patients with non-segmental vitiligo and 1.6 ± 1.8 years (median 0.75) and 4 ± 4.6 years (median 2.75), respectively in patients with segmental vitiligo [Figure 1a and b]. Of the total disease duration, the proportion of active and stable periods in non-segmental vitiligo were almost similar (45.8 and 54.2%, respectively) while the proportion of stable periods was relatively higher (71.4%) than the active periods (28.6%) in segmental vitiligo. The relationship between the total duration of their disease and active and stable periods of the disease was assessed. For every 1-year increase in the duration of the disease, stable and active periods increased by 0.7 and 0.3 years, respectively in non-segmental vitiligo ($P < 0.001$) and by 0.9 and 0.1 years in segmental vitiligo ($P < 0.001$).

In patients with segmental vitiligo, 30.8% of the patients with longer than 2 years of stability had disease reactivation while reactivation was as high as 72.7% in the patients with less than 2 years of stability. Thus, patients with more than 2 years of stable disease were one-fifth less likely to develop reactivation of the disease as compared to the patients who had less than 2 years of stable disease (odds ratio = 0.2, $P = 0.004$). [Table 2]

On the other hand, reactivation was seen in 80 to 100% of patients with non-segmental vitiligo, irrespective of the duration of stable disease ($P = 0.072$). [Table 2]. Consequently, we could not define any duration of stability in non-segmental vitiligo beyond which reactivation was unlikely.

Discussion

Stability in vitiligo has important implications for treatment and prognosis and has consequently received much attention. However, the behavior of the disease with time for long periods has not been studied. We found that the duration of stability and activity in vitiligo varied with the duration of the disease. As expected, both the duration of active as well as the stable periods increased

Table 1: Clinical profile of patients

Clinical characteristics of patients	
Clinical aspect	**Patients (*n*=200)**
Sex distribution	Males - 114 (57%)
	Females- 86 (43%)
Age at presentation	2 to 64 years (mean, 25.7±14.8 years)
Age of onset	3 months to 60 years (mean, 16.8±13.5 years)
Duration of disease	1.5 months to 50 years (mean, 8.9±9.5 years)
Body surface area	1% to 98% (mean, 6.3±13.9%)
Type of vitiligo	Non-segmental vitiligo in 156 (78%)
	Acrofacial vitiligo in 114 (57%)
	Generalized vitiligo in 33 (16.5%)
	Focal vitiligo in 7 (3.5%)
	Universal vitiligo in 2 (1%)
	Segmental in 33 (16.5%)
	Uni-segmental vitiligo in 25 (12.5%)
	Bi-segmental vitiligo in 5 (2.5%)
	Multi-segmental vitiligo in 3 (1.5%)
	Mixed in 11 (5.5%)
Koebner's phenomenon	Present in 90 (45%)
Leukotrichia	107 (53.5%)
Associated cutaneous and other diseases	Atopy or atopic diathesis in 34 (17%)
	Premature graying of hair in 22 (11%)
	Psoriasis, alopecia areata and urticaria in 2 (1%) each
	Hypothyroidism in 9 (4.5%)
	Hyperthyroidism in 2 (1%)
Family history of vitiligo	Positive in 54 (27%)

Table 2: Reactivation of disease after phase of stability in patients with non-segmental and segmental vitiligo

Non-segmental vitiligo			
Duration of stable period (years)	**Total no. of patients**	**Patients who developed activity after stable period**	**Percentage**
<1	145	116	80%
1-2	48	45	93.8%
2-3	27	23	85.2%
3-4	19	19	100%
4-5	12	11	91.7%
5-6	10	10	100%
≥6	40	35	87.5%
Segmental vitiligo			
Duration of stable period (years)	**Total no. of patients**	**Patients who developed activity after stable period**	**Percentage**
<1	15	9	60%
1-2	7	7	100%
2-3	4	1	25%
3-4	2	0	0%
4-5	2	0	0%
5-6	3	1	33.3%
≥6	15	6	40%

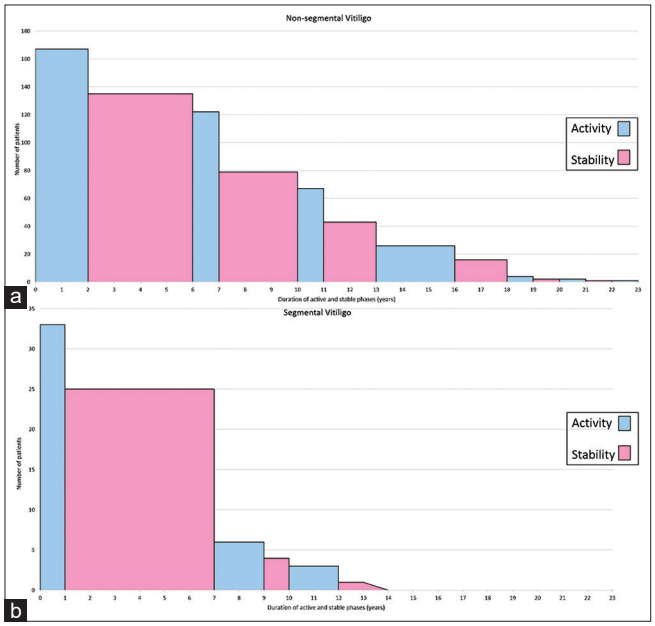

Figure 1: (a and b) Course of disease in patients with non-segmental and segmental vitiligo

with increasing duration of the disease, but the increase in stable periods was significantly more than the increase in active periods. For every 1-year increase in the duration of the disease, stable and active periods increased by 0.7 and 0.3 years, respectively in non-segmental vitiligo and by 0.9 and 0.1 years in segmental vitiligo ($P < 0.001$). These findings indicate that as the duration of the disease progresses, the patients spend more time of their disease being stable. This can be reassuring for the patient with long-standing disease.

Others have noted similar findings. Park *et al.*[4] found that 55 (63.2%) of the 87 patients with segmental vitiligo had stable disease at presentation. New macules and/or progression of existing macules were noted in the other 32 patients; in 13 (14.9%) between 2 and 4 years after and in 19 (21.8%) patients more than 4 years after the onset of the disease. Thus, even patients with segmental vitiligo may experience reactivation of the disease many years into the condition, though this is uncommon.

Long-term follow up studies in the therapy of non-segmental vitiligo are in concordance with our findings and indicate that patients may relapse even long after successful repigmentation with either medical or surgical treatment. Awad *et al.*[5] observed recurrence of disease in every 1 of 20 patients with non-segmental vitiligo who underwent successful epithelial grafting after a mean of 3.5 years. Similarly, Sitek *et al.*[6] noted relapse of disease 2 years following narrow band ultraviolet-B therapy in 6 (55%) of 11 patients with generalized vitiligo.

Current guidelines recommend surgery for both segmental and non-segmental vitiligo after at least 1 year of stable disease. In contrast, our data indicates that stability of at least 2 years may be required in segmental vitiligo for the disease to remain quiescent thereafter. In non-segmental vitiligo, we could not determine any duration of stability after which the chances of reactivation decrease meaningfully.

Our study has limitations. We relied entirely on the patients' recollection of the course of their disease and the hospital setting of the study may have selected patients with more active disease. A large longitudinal cohort study in the community would help provide more reliable data on this important aspect of vitiligo.

Conclusion

Our data indicates that disease stability is likely in patients with segmental vitiligo after a period of 2 years of inactivity.

However, the risk of reactivation in non-segmental vitiligo does not change significantly with the period of inactive disease.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Moellmann G, Klein-Angerer S, Scollay DA, Nordlund JJ, Lerner AB. Extracellular granular material and degeneration of keratinocytes in the normally pigmented epidermis of patients with vitiligo. J Invest Dermatol 1982;79:321-30.
2. Falabella R, Escobar C, Borrero I. Treatment of refractory and stable vitiligo by transplantation of *in vitro* cultured epidermal autografts bearing melanocytes. J Am Acad Dermatol 1992;26:230-6.
3. Taneja N, Sreenivas V, Sahni K, Gupta V, Ramam M. A cross-sectional study of spontaneous repigmentation in vitiligo. Indian J Dermatol Venereol Leprol 2020;86:240-50.
4. Park JH, Jung MY, Lee JH, Yang JM, Lee DY, Park KK. Clinical course of segmental vitiligo: A retrospective study of eighty seven patients. Ann Dermatol 2014;26:61-5.
5. Awad SS. Depigmentation during vitiligo activity spares epithelial grafted areas. J Cosmet Dermatol 2016;15:383-6.
6. Sitek JC, Loeb M, Ronnevig JR. Narrowband UVB therapy for vitiligo: Does the repigmentation last? J Eur Acad Dermatol Venereol 2007;21:891-6.