

CLINICAL PROFILES OF VITILIGO WITH NARROWBAND UVB AND TOPICAL CORTICOSTEROID THERAPY AT DR. SOETOMO HOSPITAL

Profil Klinis Vitiligo dengan Pengobatan Narrowband-UVB dan Kortikosteroid Topikal di RSUD Dr. Soetomo

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ABSTRACT

Background: Vitiligo is a depigmenting disorder that causes a loss of melanocytes in the epidermis. Treatment preferences are based on the characteristics of the vitiligo lesions. **Purpose:** This study evaluates the clinical profiles of vitiligo treated with narrowband UVB (NB-UVB) radiation and topical corticosteroid therapy in Dr. Soetomo Hospital in 2017. **Methods:** This study is a retrospective study that uses data from the medical records of vitiligo patients who were treated with NB-UVB radiation and topical corticosteroids in Dr. Soetomo Hospital in 2017. The dependent variable was vitiligo treated with NB-UVB radiation or topical corticosteroids, while the independent variables were disease onset, precipitating factor, duration, stability, amount, affected area, location, and type of vitiligo. **Results:** Thirty-seven patients (19 females) were included, four of whom had been treated with NB-UVB radiation and 33 with topical corticosteroids. In the NB-UVB radiation group, 75% had stable lesions, 50% had a single lesion, 50% had multiple lesions, 75% had an affected area <10cm², 40% had lesions around their face, 40% had lesions on their extremities, and 75% had focal vitiligo. In the topical corticosteroids group, 75.76% had active lesions, 81.82% had multiple lesions, 81.82% had an affected area <10 cm², 28.21% had lesions around their upper extremities, 28.21% had lesions around their lower extremities, and 45.45% had segmental vitiligo. **Conclusion:** Treatment preference in Dr. Soetomo Hospital 2017 was indicated by the patients' clinical profiles.

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ABSTRAK

Latar Belakang: Vitiligo adalah gangguan depigmentasi karena hilangnya sel melanosit di epidermis. Pemilihan terapi harus didasarkan pada profil klinis pasien berupa karakteristik lesi vitiligo. **Tujuan:** Penelitian ini bertujuan untuk mengetahui profil klinis

vitiligo dengan pengobatan Narrowband Ultraviolet B (NB-UVB) radiation dan kortikosteroid topikal di RSUD Dr. Soetomo Surabaya tahun 2017. Metode: Penelitian ini merupakan penelitian retrospektif yang melakukan pengambilan data dengan sampel. Data sampel dikumpulkan dari data rekam medis pasien vitiligo tahun 2017 yang termasuk kriteria inklusi, yaitu mendapat pengobatan berupa NB-UVB radiation, dan kortikosteroid topikal, serta memiliki rekam medis lengkap, terdiri dari faktor pencetus, lama sakit, jumlah lesi, lokasi lesi, luas lesi, dan tipe vitiligo di RSUD Dr. Soetomo Surabaya tahun 2017. Variabel terikat penelitian ini adalah vitiligo yang mendapat NB-UVB radiation dan kortikosteroid topikal. Variabel bebas penelitian ini adalah onset penyakit, faktor pencetus, lama sakit, stabilitas, jumlah, luas, lokasi lesi dan tipe vitiligo. **Hasil:** Penelitian ini mendapatkan 37 sampel (18 laki-laki dan 19 perempuan) dengan pengobatan NB-UVB radiation 4 pasien dan kortikosteroid topikal 33 pasien. Pada NB-UVB radiation didapatkan 75% lesi stabil, 50% tunggal dan 50% multipel, 75% luas lesi < 10 cm², 40% lokasi lesi wajah dan 40% ekstremitas bawah (40%), dan 75% termasuk tipe vitiligo focal. Pada kortikosteroid topikal didapatkan 75,76% lesi aktif, 81,82% multipel, 81,82% luas lesi < 10 cm², 28,21% lokasi lesi ekstremitas atas dan 28,21% bawah, dan 45,45% tipe vitiligo segmental. **Kesimpulan:** Pemilihan pengobatan di RSUD Dr. Soetomo Surabaya pada tahun 2017 disesuaikan dengan profil klinis vitiligo.

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INTRODUCTION

Vitiligo is a depigmentation disorder characterized by the loss of melanocyte cells in the epidermis without texture changes or changes in other parts of the skin (George, 2017). Vitiligo lesions are usually white due to the loss of skin pigment, especially in sun-exposed areas of the skin (Ghafourian et al., 2014). It occurs worldwide with an incidence rate of 0.10–2%, affects both genders, and mostly appears between the ages of 10 and 30 years, although it can occur at any age (Wolff et al., 2008). Spontaneous repigmentation only occurs in 15–25% of patients (James, Berger, Elston, & Neuhaus, 2015).

One hundred and eighty-eight new vitiligo patients were evaluated at the Medical Cosmetics Division of the Dermatology and Venerology Outpatient Unit in Dr. Soetomo Hospital between 2012 and 2014, which accounted for 1.10% of the total visits to the Medical Cosmetics Division and 0.2% of the total visits to the Dermatology and Gynecology Outpatient Unit (Rahmayanti & Rahmadewi, 2016).

Many therapeutic and treatment options are available for patients with vitiligo. Various

therapies are used for repigmentation or to stabilize the depigmentation process. Treatment options include sunscreen, cosmetics, systemic corticosteroids, topical corticosteroids, topical immunomodulators, topical calcipotriol, pseudocatalase, psoralen and ultraviolet A light therapy, narrowband ultraviolet B (NB-UVB) radiation, excimer laser, monobenzone, autologous thin Thiersch grafting, suction blister grafts, autologous mini-punch grafts, and melanocyte cell transplants. The treatment used is based on the vitiligo's characteristics, for example, if the lesion area is <20% of the body surface area, the treatment of choice is topical corticosteroid or calcipotriol, then phototherapy if the results are not satisfactory (Wolff et al., 2008). Phototherapy like NB-UVB radiation or PUVA can be used to treat lesions >20% of the body surface area.

This study determines the clinical profile of vitiligo in patients receiving NB-UVB radiation or topical corticosteroid treatment in the Medical Cosmetics Division of the Dermatology and Venerology Outpatient Unit at Dr. Soetomo Hospital in Surabaya in 2017.

METHODS

This is a retrospective study that uses medical records and descriptive statistics to identify the clinical profiles of vitiligo in patients receiving NB-UVB radiation or topical corticosteroid treatment. Approval for this study was received from the Medical Cosmetics Division of the Dermatology and Venerology Outpatient Unit at Dr. Soetomo Hospital in Surabaya.

Fifty new vitiligo patients were seen in the Dermatology and Venerology Outpatient Unit between January and December 2017 which 37 of whom met the inclusion criteria of having received treatment in the form of NB-UVB radiation or topical corticosteroids and having a complete medical record including precipitating factors, duration of illness, number of lesions, location of lesions, area of lesions, and type of vitiligo. NB-UVB radiation is a type of vitiligo therapy that uses 311nm UVB radiation, while topical corticosteroids are corticosteroids in the form of ointments, creams, lotions, sprays, or gels.

This study also looked at the patients' age, sex, first onset of vitiligo, precipitating factors, duration of illness, and lesion stability, as well as number of lesions, area of the lesions, location of the lesions, and type of vitiligo. Age was divided into several categories. There are 9–18 years, 19–44 years, 45–59 years, and 60–74 years. Onset of the disease was defined as the patient's age when they first came to the hospital minus the reported disease duration. Precipitating factors were defined as possible factors that could cause vitiligo. Duration of illness was the amount of time between the onset of the disease and the patient first going to the hospital. Lesion stability was differentiated based on the development of the lesion within 1 year. Vitiligo lesions are stable if there are no new lesions or development in the old lesions and if no Koebner phenomenon has been found during the past year. Vitiligo lesions are active if lesions have appeared within the past year, has the color of trichrome lesions, and obtained Koebner phenomenon (Benzekri & Gauthier, 2017). The number, locations, and area of the lesions were recorded by the doctor in charge, while the type of vitiligo was decided based on the distribution pattern of the vitiligo lesions (Verma, Gidwani, & Kaur, 2017).

Descriptive data is presented in the form of narratives and tables. Descriptive statistical components, such as percentages, are used to describe the data. This research has been examined

by the Health Research Ethics Committee at Dr. Soetomo General Hospital 0659/KEPK/IX/2018.

RESULTS

The majority of new onset vitiligo patients were aged 20–44 years (32%) or 45–59 years (32%). Interestingly, the onset of the disease occurred most frequently between the ages of 60 and 74 years (32%) (Table 1).

Table 1

Characteristics of vitiligo patients in the Dermatology and Venerology Outpatient Unit at Dr. Soetomo Hospital between January and December 2017

Characteristics	Total	%
Age (years)		
1–9	4	10.81
10–19	6	16.22
20–44	12	32.43
45–59	12	32.43
60–74	3	8.11
Gender		
Male	18	48.65
Female	19	51.35
Disease onset (years)		
1–9	9	24.32
10–19	5	13.51
20–44	8	21.62
45–59	12	32.43
60–74	3	8.11
Total	37	100.00

Clobetasol propionate 0.05% was the topical corticosteroid used for vitiligo treatment. Two of the patients treated with NB-UVB radiation therapy had genetic precipitating factors and two did not. In contrast, in the topical corticosteroid therapy group, the majority of patients (17; 51.52%) had no family history of vitiligo (Table 2).

Table 2

Type of vitiligo therapy used in the Medical Cosmetics Division of the Dermatology and Venerology Outpatient Unit at Dr. Soetomo Hospital between January and December 2017

Therapy	Total	%
NB-UVB Radiation	4	10.81
Topical Corticosteroids	33	89.19
Total	37	100.00

The patients given NB-UVB radiation therapy had had vitiligo for 0–6 months (50%) or for more than 24 months (50%), whereas the majority of those given topical corticosteroid therapy had had vitiligo for 0–6 months (60%) (Table 3). In the NB-UVB radiation group, their lesions tended to be characterized as single (50%) or multiple (50%), stable (75%), and with areas less than 10 cm² (75%) (Table 3). In contrast, the patients given topical corticosteroid therapy were more likely to have multiple lesions (82%) that were active (76%) and less than 10 cm² in area (82%).

The most common locations for lesions in the NB-UVB radiation group were face (40%) and upper limb (40%), and the most common type of vitiligo was focal (75%), however for patients given topical corticosteroid therapy, the most common location of their lesions was their upper limbs (28%) and lower limbs (28%), and the most common type of vitiligo was segmental (46%) (Table 3).

DISCUSSION

Patient Characteristics

The majority of vitiligo patients were aged 20–44 years or 45–59 years, and the first onset of vitiligo was mostly found at 45–59 years of age. It's contrast with Suseno et al (2018) study that reported that vitiligo patient were mostly found in age group 21–30 years followed by 31–40 years. This difference due to vitiligo treatment management (Rahmayanti & Rahmadewi, 2016). Vitiligo has a negative impact on quality of life, and many vitiligo patients feel stressed because the appearance of a person's skin has a central role in many aspects of life (Anna, Hamzavi, Harris, & Parsad, 2015). This is why vitiligo patients, especially women, tend to seek treatment immediately.

Vitiligo Patient Therapy

For lesions greater than 20% of the body surface area, phototherapy like NB-UVB radiation or Psoralen and Ultraviolet A (PUVA) should be used. This could explain why this study showed fewer patients receiving NB-UVB radiation treatment. It's because of the majority of vitiligo cases have lesion <10 cm.

Clinical Overview of Vitiligo Patients

There was no family history of vitiligo found in this study. Other precipitating factors can include emotional stress, physical trauma or burns, exposure to sunlight, and exposure to chemicals

(Jeon et al., 2014). A history of trauma to the skin can trigger the formation of the Koebner phenomenon, which increases the risk of vitiligo. For example, Khurram, AlGhamdi, Bedaiwi, & AlBalahi (2017) found that 28% of vitiligo patients had the Koebner phenomenon. Other studies have suggested that the presence of the Koebner phenomenon in active lesions does not always indicate the severity of vitiligo, however vitiligo can also occur due to genetic factors (Dwiyanita et al., 2017; Wolff, Johnson, Saavedra, & Roh, 2017). In this study, two of the new vitiligo patients who received NB-UVB radiation therapy and four who received topical corticosteroid therapy had genetic triggers.

The majority of new vitiligo patients who were given NB-UVB radiation therapy had been suffering from the disease for 0–6 months or more than 24 months, while the majority of those given topical corticosteroid therapy had been suffering for 0–6 months. The duration of illness and onset of pain are greatly influenced by the patient's decision to seek treatment. Some patients want to be treated immediately because their lesions are visible, while others may delay treatment because their lesions are painless, hidden, and do not interfere with their daily activities (Feily, 2014). Other studies have shown variation in the duration of vitiligo, e.g. less than 2 months (Suseno et al., 2018) and more than 1 year (Anaba, George, & Ogunbiyi, 2018).

The vitiligo patients given NB-UVB radiation therapy had single or multiple lesions that tended to be stable, whereas the patients given topical corticosteroid therapy were more likely to have multiple, active lesions. Multiple lesions can develop due to enlargement of old macules or development of new macules (Wolff, Johnson, Saavedra, & Roh, 2017)

In the current study, lesions were defined as active if they had appeared with the past year, were trichrome in color, and if there was evidence of the Koebner phenomenon (Benzekri & Gauthier, 2017). In contrast, research in India defined lesions as active if new ones had appeared or old ones had developed within the past 3 months (Agarwal, Ojha, & Gupta, 2014).

The area of the lesions in the current study tended to be less than 10 cm², which is consistent with Wolff et al (2008) theory that lesions tend to be less than 20% of the body surface area. The most common vitiligo lesion locations for patients who had had NB-UVB radiation therapy were the face and the lower extremities, whereas the most common locations for patients given topical

corticosteroid therapy were the upper extremities and lower extremities. This is in line with Bae et al (2017) finding that NB-UVB radiation showed the best repigmentation response on the face and neck.

Based on the clinical features and characteristics of the lesions, vitiligo can be classified into several different types. There are focal, segmental, generalized, and universal (Verma, Gidwani, & Kaur, 2017).

Table 3

Clinical profiles of vitiligo patients in the Dermatology and Venerology Outpatient Unit at Dr. Soetomo Hospital between January and December 2017

Variabel	<i>NB-UVB Radiation</i>		Kortikosteroid Topikal	
	n	%	n	%
Precipitating factor				
Genetic	2	50.00	4	12.12
No history	2	50.00	17	51.52
Autoimmune	0	0.00	2	6.06
Trauma	0	0.00	6	18.18
Emotional stress	0	0.00	0	0
Genetic + emotional stress	0	0.00	1	3.03
Genetic + trauma	0	0.00	2	6.06
Trauma + emotional stress	0	0.00	1	3.03
Duration (months)				
0–6	2	50.00	20	60.61
7–12	0	0.00	5	15.15
13–18	0	0.00	0	0.00
19–24	0	0.00	2	6.06
>24	2	50.00	6	18.18
Number of Lesions				
Single	2	50.00	6	18.18
Multiple	2	50.00	27	81.82
Stability of Lesions				
Active	1	25.00	25	75.76
Stable	3	75.00	8	24.24
Area of Lesions (cm²)				
<10	3	75.00	27	81.82
11–20	1	25.00	3	9.09
21–30	0	0.00	2	6.06
>30	0	0.00	1	3.03
Location of Lesion*				
Face	2	40.00	19	24.36
Neck	0	0.00	5	6.41
Chest	0	0.00	7	8.97
Stomach	0	0.00	1	1.28
Back	0	0.00	2	2.56
Upper extremities	1	20.00	22	28.21
Lower extremities	2	40.00	22	28.21
Type of Vitiligo				
Focal	3	75.00	14	42.42
Segmental	1	25.00	15	45.45
Mucosal	0	0.00	0	0.00
Generalized	0	0.00	4	12.12
Universalis	0	0.00	0	0.00
Total	4	100.00	33	100.00

Note: *One patient might have >1 lesion

In this study, the most common type in the NB-UVB radiation therapy group was focal vitiligo. This makes sense as Majid (2014) stated that NB-UVB radiation therapy is especially effective at treating localized vitiligo, and focal vitiligo is a subtype of localized vitiligo (Verma, Gidwani, & Kaur, 2017). Another study by Proshutinskaia, Volnukhin, & Katunina (2014) also showed that NB-UVB radiation had a high success rate in patients with non-segmental vitiligo.

For the vitiligo patients given topical corticosteroid therapy, the most common types of vitiligo were segmental and focal. This slight difference in results shows that almost all types of lesions with an area smaller than 20% of the body surface area respond well to topical corticosteroids. The characteristics of segmental vitiligo include unilateral macules with dermatome distribution, and it is not related to autoimmune disease (James et al., 2015).

Indications for NB-UVB Radiation and Topical Corticosteroid Treatment

Topical corticosteroid treatment being given to newly diagnosed vitiligo patients follows the vitiligo therapy scheme. According to the vitiligo therapy scheme Wolff et al (2008), treatment choice is based on the extent of the lesions. If a lesion is less than 20% of the body surface area, topical corticosteroids or calcipotriol should be used, followed by phototherapy if the results are not satisfactory.

The topical corticosteroid used for vitiligo treatment in the Dr. Soetomo Hospital was clobetasol propionate (a highly potent corticosteroid) 0.05%. This is in accordance with Ezzedine, Whitton, & Pinart (2016), who showed that potent corticosteroids were effective at treating localized and stable lesions.

NB-UVB radiation is a type of phototherapy that targets the lesion while the rest of the skin stays covered, and it is usually combined with oral or systemic therapy (Majid, 2014). The advantage of targeted phototherapy is that normal skin remains protected and a large amount of energy can be used to achieve a rapid therapeutic effect.

NB-UVB radiation treatment used to newly diagnosed vitiligo patients (10.81%). Li, Qiao, Wang, Zhao, & Sun (2017) was found that there was no difference between the administration of NB-UVB radiation combination therapy and NB-UVB radiation monotherapy.

In this study, one vitiligo patient who received NB-UVB radiation treatment had

segmental vitiligo, which includes localized lesions and a lesion area of 10 cm². Majid (2014) found that segmental vitiligo had a poor therapeutic response to NB-UVB radiation regardless of the location of the lesion, however other indications also show a suitable result, which is no history of vitiligo, 0–6-month duration of illness with mostly active lesions, and lesions located in the upper and lower limbs. The clinical features and characteristics of these lesions mostly match those of segmental vitiligo.

A mismatch of topical corticosteroid administration was found for one patient with generalized vitiligo. As this patient's lesion was active and 21–30 cm² in size, systemic corticosteroid treatment would have been more appropriate than topical corticosteroid treatment.

Research Limitations

The main limitation of this study was having to exclude some of the medical records because the data was incomplete. This meant only 37 patients were analyzed, making this a relatively small sample.

CONCLUSION

For patients given NB-UVB radiation treatment at Dr. Soetomo Hospital in Surabaya in 2017, the most common illness durations were 0–6 months and under 24 months. Their lesions tended to be single or multiple, stable, and have an area under 10 cm². The most common locations of their lesions were the face and the lower extremities, and the most common type of vitiligo was focal.

The vitiligo patients treated with topical corticosteroids showed no previous history of vitiligo and the most common illness duration was 0–6 months. Their lesions tended to be active and multiple and have an area under 10 cm². The most common locations of their lesions were the upper and lower extremities, and the most common type of vitiligo was segmental.

CONFLICT OF INTEREST

The authors declare that no conflict of interest in this study.

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