Treatment of vitiligo

Njoo, M.D.

Citation for published version (APA):

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: http://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
Management of vitiligo. Results of a questionnaire among dermatologists in The Netherlands

M.D. Njoo [1,3], P.M.M. Bossuyt [2], W. Westerhof [1,3]

[1] Netherlands Institute for Pigmentary Disorders [2] Clinical Epidemiology and Biostatistics, Academic Medical Center, University of Amsterdam [3] Department of Dermatology, Academic Medical Center, University of Amsterdam

Amsterdam, The Netherlands

Published in: International Journal of Dermatology 1999; 38:866-872
Questionnaire among Dutch dermatologists

ABSTRACT

Background: Concern exists that there is no uniform approach towards the management of vitiligo among Dutch dermatologists.

Methods: A written survey concerning the management of vitiligo was sent to 332 dermatologists in The Netherlands.

Results: The response rate was 86%. “Giving information and reassurance concerning the nature of disease” was regarded by most dermatologists (68%) as being the most important goal in the management of vitiligo. Only 16% of the dermatologists aimed for active treatment in vitiligo. The reported therapy choices in children resembled those of adults, except that slightly more dermatologists did not prescribe active therapy in children. Nine different therapeutic modalities were mentioned as first-choice therapies. Topical corticosteroids were indicated by most dermatologists as first-choice therapy (91% [241/266]); however, only 2% indicated that 50% or more of the patients achieved a successful treatment; 66% found that less than 25% of the patients were successfully treated with topical corticosteroids. Only 15% of the respondents reported that 50% or more of the patients were treated successfully with narrowband UV-B. The observed response profile to broadband UV-B therapy was comparable with that of narrowband UV-B. The classical therapy with oral psoralen and UV-A (PUVA) was prescribed as first-choice therapy by only 12% (32/266) of the dermatologists. Only 6% of these respondents observed that 50% or more of the patients achieved successful therapy using oral PUVA. The recommended maximum treatment duration for topical corticosteroids, oral PUVA and UV-B therapy varied from 3 to 12 months.

Conclusions: Most dermatologists in The Netherlands do not offer active treatment in vitiligo, probably because the disease is regarded as being a benign skin disorder and because the estimated effectiveness of (nonsurgical) repigmentation therapies is low. In cases where treatment is prescribed, there seems to be no consensus on the choice of therapies and treatment strategies.
INTRODUCTION

Vitiligo is a common acquired skin disorder characterized by depigmented patches of variable size and number\(^1\). Because of the loss of pigment, lesional skin areas are extremely sensitive for sunburn reactions. Depending on the extent and the localization of the lesions, vitiligo may impair more or less the cosmetic appearance of those afflicted. In some cases, patients may become psychosocially disabled, during daily as well as recreational life\(^2\).

In the literature, nonsurgical as well as surgical methods have been described to restore the loss of melanocytes in vitiligo\(^3\). Many of these therapeutic modalities are available in The Netherlands. There is a concern about variability in decisions whether or not to offer therapy in vitiligo and, if so, by which modality. Practice guidelines for the treatment of vitiligo are presently not available in The Netherlands. Current treatment policies are usually based on (informal) consensus meetings, expert opinions, results from clinical trials, and personal and/or institutional experience and preferences. Such policies are easily influenced by group dynamics, dominant and outspoken personalities and organizational and specialty politics\(^4,5\). As a result, treatment choices and regimens are likely to be variable and inconsistent among dermatologists and institutions. Patients seeking “active” treatment (i.e., treatment directed to stabilize the disease and to regain pigment in the lesions) receive contradictory information and advice from their doctor and encounter difficulties regarding the reimbursement of treatment costs by their health insurance companies. A questionnaire in 1996 among 1061 patients in The Netherlands revealed that a group of patients was told by their dermatologists that there is “no treatment” for their pigmentedary disorder and that they should just learn to accept and to cope with it\(^6\). Another group of patients was informed that vitiligo can be treated and that several therapeutic options may lead to satisfactory results in most cases.

By means of a written survey, we have evaluated the policy of dermatologists in The Netherlands towards the management of vitiligo. The results of this study may provide us with helpful information for the development of practice guidelines for this disorder.

METHODS

A written survey concerning the management of vitiligo was sent in August 1998 to all currently practicing dermatologists in The Netherlands who were members of the Dutch Dermatology Society. The survey consisted of 19 questions regarding the dermatologists' current practice and their future plans for the management of vitiligo. The questions covered a variety of topics, including the indication for treatment, the choice of treatment, and the expected outcome.

The survey was completed by 145 dermatologists, representing 92% of the members of the Dutch Dermatology Society. The results showed that the majority of dermatologists believed that vitiligo is an autoimmune disorder and that the disease is not limited to the skin. Most dermatologists also believed that the disease is chronic and that the prognosis is poor.

The survey also revealed that the majority of dermatologists used a combination of therapies in the management of vitiligo, including topical agents, phototherapy, and systemic agents. The most commonly used topical agents were steroids, calcineurin inhibitors, and vitamin D analogues. The most commonly used phototherapies were broadband ultraviolet B (UVB) and narrowband UVB. The most commonly used systemic agents were immunosuppressants, such as methotrexate, cyclosporine, and mycophenolate mofetil.

The survey also revealed that the majority of dermatologists believed that the treatment of vitiligo was effective in most cases. The most common treatment goals were to stabilize the disease, to improve the cosmetic appearance, and to improve the quality of life. The majority of dermatologists also believed that the treatment of vitiligo was expensive and that the reimbursement of the treatment costs by health insurance companies was insufficient.

The results of this study may provide useful information for the development of practice guidelines for the management of vitiligo.

TREATMENT OF VITILIGO
Society for Dermatology and Venereology.

The survey requested information regarding the dermatologists’ practice, the estimated number of patients with vitiligo seen during the past year, and their indications for active therapy. The dermatologists were then asked to indicate their most important goal in the management of patients with vitiligo. Furthermore, they were asked to fill in their first-choice therapy for the various clinical types in vitiligo (focalis, vulgaris, segmentalis, and universalis) in both children younger than 12 years and in adults. They were also asked to give their definition of a “successful treatment” and to estimate the average success rate for each therapy. Finally, they were requested to indicate the suggested maximum treatment duration regarding three therapies that are probably most prescribed in The Netherlands, i.e., topical corticosteroids, oral psoralen and UV-A (oral PUVA) and UV-B therapy. Their replies were to be returned in a prepaid stamped envelope.

RESULTS

A total of 332 dermatologists were found to be registered as members of the Dutch Society and to have a practice in August 1998. Of the 332 surveys sent, 286 were returned. Twenty participants did not complete the survey because of lack of experience in treating vitiligo patients (i.e., they saw fewer than 5 patients per year). Of the 266 dermatologists (86% response rate) who had fully completed the questionnaire, 91% (242/266) saw fewer than 5 patients with vitiligo per week during the past year; 3% (9/266) saw between 5 and 10 patients and 6% more than 10 patients per week during the past year. Most respondents (69% [183/266]) reported to have a practice in a nonacademic hospital, while 27% (73/266) had a position in an academic hospital. Only 4% (10/266) had a private practice.

Therapeutic aims and indications

“Giving information and reassurance concerning the nature of disease” was regarded by most dermatologists (68%) as being the most important goal in the management of vitiligo. Only 16% of the respondents recommended active treatment in vitiligo; 13% and 3% of the dermatologists, respectively, indicated that “to achieve repigmentation” and “to stabilize the depigmenting process” were the most important goals. Other aims in therapy were “to give advice on camouflage and sun protection” (5%) and “increasing
ultraviolet tolerance of the skin” (0.4%). The remaining 11% had more than one goal in vitiligo therapy.

Not all patients with vitiligo were treated by the dermatologists. Age, onset vitiligo, severity of depigmentation, presence of psychosocial problems, localization and skin type were factors that could influence the decision to treat. According to the respondents, the decision to embark on an active treatment program strongly depended on the patient’s own desire and motivation for treatment. Patients with recent lesions, psychosocial problems, and vitiligo on visible sites (face, neck, and hands) were indicated for active therapy by most dermatologists. Patients with vitiligo on nonvisible sites were not treated by 20% of the respondents.

By 99.6% of the respondents, advice concerning the use of camouflage and/or sunprotective agents was given to all patients with vitiligo. One respondent gave such advice only when the lesions were located on the face and/or on sun-exposed areas.

First-choice therapies for children (Table 1)

For the clinical types focalis, vulgaris and segmentalis, 79%, 63% and 50% of the dermatologists, respectively, prescribed topical corticosteroids. The most popular corticosteroids were class 2 and class 3. Vitiligo focalis was less treated with phototherapeutic modalities when compared with the other clinical types. For vitiligo

<table>
<thead>
<tr>
<th>Clinical Type</th>
<th>Topical Corticosteroids class 1</th>
<th>Topical Corticosteroids class 2</th>
<th>Topical Corticosteroids class 3</th>
<th>Topical Corticosteroids class 4</th>
<th>Oral Corticosteroids</th>
<th>Topical PUVA</th>
<th>Oral PUVA</th>
<th>Broodband UV-B</th>
<th>Narrowband UV-B</th>
<th>Autologous transplantation methods</th>
<th>Topical L-phenylalanine and UV-A/UV-B</th>
<th>Topical corticosteroids and UV-A/UV-B</th>
<th>Depigmentation therapy</th>
<th>No active therapy</th>
<th>Total number of respondents (No., %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focalis (%)</td>
<td>2 (1)</td>
<td>98 (37)</td>
<td>101 (38)</td>
<td>9 (3)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2 (1)</td>
<td>65 (24)</td>
<td>4 (2)</td>
<td>11 (4)</td>
<td>0</td>
<td>33 (12)</td>
<td>266 (100)</td>
</tr>
<tr>
<td>Vulgaris (%)</td>
<td>2 (1)</td>
<td>81 (30)</td>
<td>82 (31)</td>
<td>4 (2)</td>
<td>0</td>
<td>1 (0.4)</td>
<td>6 (2)</td>
<td>5 (2)</td>
<td>32 (12)</td>
<td>0</td>
<td>4 (2)</td>
<td>11 (4)</td>
<td>0</td>
<td>41 (15)</td>
<td>266 (100)</td>
</tr>
<tr>
<td>Segmentalis (%)</td>
<td>0</td>
<td>74 (28)</td>
<td>52 (20)</td>
<td>4 (2)</td>
<td>0</td>
<td>1 (0.4)</td>
<td>6 (2)</td>
<td>1 (0.4)</td>
<td>30 (11)</td>
<td>10 (4)</td>
<td>4 (2)</td>
<td>4 (2)</td>
<td>0</td>
<td>81 (30)</td>
<td>266 (100)</td>
</tr>
<tr>
<td>Universalis (%)</td>
<td>0</td>
<td>20 (8)</td>
<td>15 (6)</td>
<td>0</td>
<td>0</td>
<td>1 (0.4)</td>
<td>1 (0.4)</td>
<td>1 (0.4)</td>
<td>65 (24)</td>
<td>10 (4)</td>
<td>4 (2)</td>
<td>3 (2)</td>
<td>0</td>
<td>134 (50)</td>
<td>266 (100)</td>
</tr>
</tbody>
</table>

Table 1. First-choice of repigmentation therapy for vitiligo in children younger than 12 years
vulgaris and segmentalis, 12% and 11% of the respondents, respectively, prescribed narrowband UV-B therapy. Autologous transplantation methods were prescribed by only 2% in vitiligo focalis and by 4% in vitiligo segmentalis. Children with vitiligo universalis were given repigmentation therapy using narrowband UV-B by 24% and therapy with topical corticosteroids (class 2 and class 3) by 14% of the dermatologists. Only 5% of the respondents prescribed depigmentation therapy for vitiligo universalis. No active therapy was given by 12% of the dermatologists in cases of vitiligo focalis, by 15% in vitiligo vulgaris, by 30% in vitiligo segmentalis, and by 50% in vitiligo universalis.

First-choice therapies for adults (Table 2)

As in children, topical corticosteroid was the most commonly prescribed therapy for the clinical types focalis, vulgaris and segmentalis. The most popular corticosteroid was class 3 ("potent" corticosteroid). Vitiligo focalis was less treated with phototherapeutic modalities when compared with the other clinical types. For vitiligo vulgaris and segmentalis, 30% and 17% of the respondents, respectively, prescribed narrowband UV-B therapy. In vitiligo vulgaris, the classical therapy with oral PUVA was prescribed by only 8% of the dermatologists. Autologous transplantation methods were recommended by 9% of the dermatologists in cases of vitiligo segmentalis. Adults with vitiligo universalis were given repigmentation therapy using narrowband UV-B by 33%, oral PUVA by 10%

<table>
<thead>
<tr>
<th>Topical corticosteroids class 1</th>
<th>Focalis (No., %)</th>
<th>Vulgaris (No., %)</th>
<th>Segmentalis (No., %)</th>
<th>Universalis (No., %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topical corticosteroids class 2</td>
<td>1 (0.4)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Topical corticosteroids class 3</td>
<td>24 (9)</td>
<td>15 (6)</td>
<td>17 (6)</td>
<td>6 (2)</td>
</tr>
<tr>
<td>Topical corticosteroids class 4</td>
<td>159 (60)</td>
<td>103 (39)</td>
<td>96 (36)</td>
<td>10 (4)</td>
</tr>
<tr>
<td>Oral corticosteroids</td>
<td>25 (9)</td>
<td>16 (6)</td>
<td>10 (4)</td>
<td>4 (2)</td>
</tr>
<tr>
<td>Topical PUVA</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2 (1)</td>
</tr>
<tr>
<td>Oral PUVA</td>
<td>9 (3)</td>
<td>0</td>
<td>15 (6)</td>
<td>1 (0.4)</td>
</tr>
<tr>
<td>Broadband UV-B</td>
<td>3 (2)</td>
<td>21 (8)</td>
<td>12 (5)</td>
<td>27 (10)</td>
</tr>
<tr>
<td>Narrowband UV-B</td>
<td>2 (1)</td>
<td>15 (6)</td>
<td>14 (5)</td>
<td>19 (9)</td>
</tr>
<tr>
<td>Autologous transplantation methods</td>
<td>8 (3)</td>
<td>79 (30)</td>
<td>46 (17)</td>
<td>88 (33)</td>
</tr>
<tr>
<td>Topical 1-phenylalanine and UV-A/UV-B</td>
<td>6 (2)</td>
<td>0</td>
<td>19 (9)</td>
<td>0</td>
</tr>
<tr>
<td>Topical corticosteroids and UV-A/UV-B</td>
<td>4 (2)</td>
<td>4 (2)</td>
<td>4 (2)</td>
<td>4 (2)</td>
</tr>
<tr>
<td>Depigmentation therapy</td>
<td>16 (6)</td>
<td>4 (2)</td>
<td>7 (3)</td>
<td>9 (3)</td>
</tr>
<tr>
<td>No active therapy</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 (0.4)</td>
</tr>
<tr>
<td>Total number of respondents</td>
<td>266 (100)</td>
<td>266 (100)</td>
<td>266 (100)</td>
<td>266 (100)</td>
</tr>
</tbody>
</table>
and broadband UV-B by 9% of the dermatologists. Only 8% of the respondents prescribed depigmentation therapy for vitiligo universalis. No active therapy was given by 3% of the dermatologists in cases of vitiligo focalis, by 3% in vitiligo vulgaris, by 10% in vitiligo segmentalis, and by 28% in vitiligo universalis.

Estimated success rates

The definition of a "successful treatment" differed among the dermatologists. Most respondents (66%) defined a successful treatment as "when more than 75% repigmentation was achieved"; 15% regarded a therapy as being successful if "the patient was satisfied, regardless of the achieved percentage of repigmentation", while 11% found that only 100% repigmentation could be considered as a success. Other definitions of success were "improvement of cosmetic appearance" (5%), "more than 50% repigmentation achieved" (2%) and "no more sunburn reactions in summer" (0.4%). Three respondents (1%) did not give a definition because they did not advise active therapy for vitiligo.

In Table 3, the first-choice therapies (regardless of the clinical type of vitiligo and age of the patient) are listed with the estimated observed percentage of patients achieving a successful treatment. Nine different therapeutic modalities were mentioned as first-choice

Table 3. Estimated percentage of patients (regardless of age and clinical type of vitiligo) achieving a "successful treatment" with first-choice repigmentation therapies

<table>
<thead>
<tr>
<th>First-choice therapy</th>
<th>Estimated observed patients achieving a successful treatment (%)</th>
<th>Total number of respondents (No., %)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 25%</td>
<td>26% to &lt; 50%</td>
</tr>
<tr>
<td></td>
<td>(No., %)</td>
<td>(No., %)</td>
</tr>
<tr>
<td>Topical corticosteroids</td>
<td>159 (66)</td>
<td>78 (32)</td>
</tr>
<tr>
<td>Oral corticosteroids</td>
<td>3 (100)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Topical PUVA</td>
<td>5 (28)</td>
<td>13 (72)</td>
</tr>
<tr>
<td>Oral PUVA</td>
<td>15 (47)</td>
<td>15 (47)</td>
</tr>
<tr>
<td>Broadband UV-B</td>
<td>19 (51)</td>
<td>14 (38)</td>
</tr>
<tr>
<td>Narrowband UV-B</td>
<td>53 (37)</td>
<td>70 (48)</td>
</tr>
<tr>
<td>Autologous transplantation</td>
<td>2 (13)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Topical L-phenylalanine + UV-A/UV-B</td>
<td>0 (0)</td>
<td>4 (100)</td>
</tr>
<tr>
<td>Topical corticosteroids + UV-A/UV-B</td>
<td>0 (0)</td>
<td>7 (58)</td>
</tr>
<tr>
<td>No active therapy</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

* NA indicates not applicable

TREATMENT OF VITILIGO
83
therapies. Topical corticosteroids were indicated by most dermatologists as first-choice therapy (91% [241/266]), however, only 2% (4/241) indicated that 50% or more of the patients achieved a successful treatment; 66% (159/241) found that less than 25% of the patients were successfully treated with topical corticosteroids. Although the proportion of respondents applying the combination therapy consisting of topical corticosteroids with UV-A or UV-B was small (i.e., 5% [12/266]), the observed enhanced effectiveness over monotherapy with topical corticosteroids is noteworthy.

Only 15% (22/145) of the respondents reported that 50% or more of the patients were treated successfully with narrowband UV-B. The observed response profile to broadband UV-B therapy was comparable with that of narrowband UV-B. The classical therapy with oral PUVA was prescribed as first-choice therapy by 12% (32/266) of the dermatologists. Only 6% of these respondents reported that 50% or more of the patients were successfully treated with oral PUVA. A few noted that vitiligo at acral sites responded poorly, especially to phototherapy (oral PUVA as well UV-B), while vitiligo located in the face, neck and trunk may respond well in most cases. All dermatologists reported that less than 50% of the patients were treated successfully with topical PUVA. Most dermatologists (87%) found that autologous transplantation methods were successful in 50% or more of the patients.

Treatment duration

Eighty-nine percent of the respondents would not treat patients with topical corticosteroids for a period of longer than 6 months; of these, 46% ceased therapy after 3 months and 2% after 6 weeks.

Oral PUVA was given for a maximum of 12 months by 16% and for 9 months by 25% of the dermatologists; 44% recommended maximum treatment duration for oral PUVA therapy of 6 months, while 16% reported that they stopped oral PUVA therapy after 3 months.

Patients were not treated with UV-B therapy for longer than 6 months by 87% of the respondents; in 6% of these respondents, UV-B therapy was halted after 4 months and in 25% after 3 months. Only 7% of the dermatologists prescribed UV-B therapy for a period of 1 year.

Some dermatologists stated that they would not prescribe photo(chemo)therapy longer than 6 months because of the increased risks of long-term side effects (photoaging and carcinogenesis). Some also questioned whether the repigmentation induced by
phototherapy was permanent and whether, in this regard, prolonged photochemotherapy was useful.

**DISCUSSION**

The results of this questionnaire reflect a variation in current opinions and recommended strategies for the management of vitiligo by dermatologists in The Netherlands. Because of the high response percentage (86%), the results can be regarded as being representative for the average dermatology practice in The Netherlands.

Apparently, vitiligo is considered by most dermatologists as a benign dermatosis that should not be actively treated in the first place. Giving information concerning the nature of the skin disorder was indicated by 68% of the dermatologists as the main goal in the management of vitiligo. Only 16% of the dermatologists aimed for active treatment, which may imply that most patients with vitiligo are not offered treatment when they consult a dermatologist. This finding is consistent with that of previous questionnaire studies among vitiligo patients. The percentage of patients who were offered treatment by their “physician” were reported to be as low as 10% in a Dutch study⁶ and 20% in an English study⁷. However, in these studies the term “physician” referred to both general practitioner and dermatologist; the data in these previous studies should therefore be viewed with caution.

The reluctance towards active therapy is also reflected by the finding that most respondents indicated that the decision to treat strongly depended on the patient’s own desire and motivation. Most dermatologists were willing to offer treatment in those cases with recent onset of the disease, lesions on visible sites and psychosocial problems (Table 2). This suggests that within the whole population of vitiligo patients, certain subgroups are identified for which active treatment is thought to be helpful. Still, the main goal in the management of vitiligo as indicated by most Dutch dermatologists is not in agreement with those advised in existing guidelines. For example, according to the guidelines proposed by the American Academy of Dermatology, the main purpose in therapy should be “to restore the loss of melanocytes in the lesions”. Counseling patients on the disease regarding its nature, possible causes, natural course and supportive measures should be regarded as being basic components of good dermatological treatment in general⁸. Indeed, patients should be informed that the disease is not malignant nor contagious, but it is also important
to stress to them that each vitiligo lesion, as a rule, has the potency to spread, independent of its localization. Furthermore, patients should be told that spontaneous repigmentation may occur in smaller lesions (which are mostly located on sun-exposed areas) but is unlikely to occur when the lesion has enlarged. Previous clinical studies have also shown that bigger lesions are less responsive to therapy than smaller ones. Any lesion, independent of its size or localization should therefore be treated as soon as possible. All patients should be informed about the therapeutic possibilities with their expected response profiles before they are sent home. A consensus meeting among Dutch dermatologists to revise current main aims of vitiligo therapy is recommended.

In the analysis of first-choice therapies, it was striking to find that the classical therapy with oral (and topical) PUVA is not popular in The Netherlands. This could be due to the frequently occurring short-term side effects related to this therapy, such as phototoxic reactions, nausea, vomiting, pruritus and elevation of livertransaminases. Furthermore, repigmentation by oral PUVA is regarded as being a slow (months to years) and intensive process, with a relatively low effectiveness. Novel phototherapeutic modalities such as broadband and narrowband UV-B therapy, are presently preferred over oral PUVA because these modalities do not require the oral intake of psoralens and therefore lack the previously mentioned side effects. Surprisingly, our respondents do not expect these novel phototherapies to be more effective than oral PUVA (Table 3).

The low estimated effectiveness of photochemotherapy should not only be attributed to the therapy itself. It is possible that many patients are not able to maintain the high compliance and stopped therapy prematurely because no repigmentation is observed. It has been shown that at least 1 year of continuous and regular therapy with oral PUVA is needed to achieve a sufficient degree of repigmentation. The same holds true for UV-B therapy. Three to six months was reported by most dermatologists as the maximum treatment duration for both oral PUVA and UV-B therapy. This relatively short period is not sufficient to observe clinical signs of repigmentation. Furthermore, the responsiveness to photo(chemo)therapy is related to the localization, extent, and activity of the lesions and the presence of white hairs within the maculae. Patients have to be informed of these prognostic factors to prevent disappointment and premature cessation of therapy. Adequate information can improve the motivation of the patients, and subsequently, their compliance to therapy.

With regard to photochemotherapy, our respondents have put forward some more important issues. Many dermatologists stated that they were reluctant to prescribe
prolonged photo(chemo)therapy as it may increase the risk for carcinogenesis in the long-term, as observed in patients with psoriasis\textsuperscript{14}. Patients with vitiligo receiving photo(chemo)therapy do not have a higher risk to develop skin cancer than do patients with psoriasis. This risk may even be lower. In contrast to patients with psoriasis, those with vitiligo do not expose themselves to extra sun rays (most patients use sun-protective agents), do not use tar preparations, cytostatic drugs (methotrexate) or immunosuppressive drugs (cyclosporine), and receive lower cumulative PUVA or UV-B dose. To date, only two vitiligo patients have been described with squamous cell carcinoma after oral PUVA therapy\textsuperscript{15,16}. A striking aspect of these cases was that the time between the start of oral PUVA therapy and the development of the skin cancer was only 3 years, which is a relatively short time for tumor induction in general. This suggests that these two cases may have suffered from a defective DNA repair mechanism and/or an abnormal immune surveillance\textsuperscript{17}.

Our respondents also questioned whether the repigmentations observed after 1 year of photo(chemo)therapy are permanent. Relapses would require prolonged exposure to UV radiation therapy, which would in turn increase the risk for tumor induction. Many patients are therefore discouraged from taking repeated courses of phototherapy. Regarding this point, it is again unclear why patients with psoriasis are approached differently. It is known that even after total remission is achieved with oral PUVA or UV-B therapy, relapses may occur in psoriasis\textsuperscript{18}. Patients with psoriasis therefore require two or even three courses of phototherapy per year, with each course lasting for about an average of 12 weeks\textsuperscript{18}. As a result, the annual cumulative UV-dose may be as high as that of vitiligo patients who receive the same therapy continuously for the period of 1 year. Moreover, a previous study with oral PUVA has demonstrated that PUVA-induced repigmentations could be regarded as permanent, provided that the lesions showed repigmentation of more than 75\% of the initial size\textsuperscript{19}. Because the results of this study may not be applicable for novel phototherapeutic modalities such as broadband and narrowband UV-B therapy, the permanence of repigmentations induced by these novel therapies should also be investigated through well-designed follow-up studies. For these novel types of phototherapy, future guidelines should provide recommendations for maximum treatment duration.

Topical corticosteroids were the most prescribed drug in children as well as in adults (Tables 1 and 2) for all clinical types except for vitiligo universalis. In view of the above-mentioned long-term side effects dermatologists may be reluctant to prescribe other forms of therapy such as photo(chemo)therapy, however it seems useless to prescribe a
therapy when its observed effectiveness, is relatively low (Table 3). The beneficial effect of topical corticosteroids in vitiligo has often been described\textsuperscript{20-22} though their mechanism of action is unclear. It is assumed that corticosteroids suppress inflammatory processes that are frequently observed in active progressing lesions\textsuperscript{22}. However, it is not known whether the corticosteroids used in previous clinical studies in vitiligo have a stimulating effect on melanocyte division and migration. Therefore, the use of topical corticosteroids should only be indicated for localized early and active lesions. Long-standing stabilized lesions are not expected to respond to these drugs. Furthermore, the most responsive lesions are located on sun-exposed areas, such as the face and neck. In this regard, it is interesting to find that our respondents observed an enhanced effectiveness of local corticosteroids when combined with UV-A or UV-B therapy. The combination of a class 3 corticosteroid with local UV-A therapy has indeed been shown to be more effective than UV-A or the corticosteroid alone. Moreover, after 9 months of continuous therapy, no signs of steroid-induced side effects could be detected both clinically as well as histologically\textsuperscript{23}. The good results of this combination therapy await further confirmation by other treatment centers.

It is noteworthy to find that about one-third of the dermatologists still indicate repigmentation therapy in the case of vitiligo universalis, while many do not treat this type at all. Only a minor percentage of dermatologists prescribe depigmentation therapy. Obviously, there is no uniform treatment strategy available towards this clinical type of vitiligo. Guidelines are therefore needed to define selection criteria for depigmentation therapy.

**CONCLUSIONS**

Most dermatologists in The Netherlands do not offer active treatment in patients with vitiligo, because the disease is regarded as being a benign skin disorder and because the estimated effectiveness of (nonsurgical) repigmentation therapies is low. In cases where treatment is prescribed, there seems to be no consensus in the choice of therapy or treatment strategy. The results of this questionnaire indicate important clinical issues that should be addressed in future guidelines for the treatment of vitiligo. These guidelines may be helpful in reducing inappropriate care and improving treatment outcome. However, the guidelines should also be based on systematically obtained scientific evidence\textsuperscript{5,24-26}. Furthermore, guidelines should not only provide recommendations for therapy choice.
but should also indicate the dose regimen and treatment duration. The choice of therapy should depend on the clinical presentation of the disease (type, severity, and disease activity), patient's motivation, psychologic impact of the disease, and the risk to benefit ratio of prolonged therapy.

ACKNOWLEDGEMENTS

Dr. H.E. Menke, dermatologist of the St. Franciscus Gasthuis, Rotterdam, The Netherlands, critically read the manuscript.

Bas Bokhorst (Glaxo-Wellcome, Zeist, The Netherlands) provided the addresses of the dermatologists in The Netherlands, and Menno Proper and Sabine van Drumpt (Janssen-Cilag, Tilburg, The Netherlands) mailed the Wood's lamps. Finally, Monique Thissen, M.D. (Department of Dermatology of the Academic Hospital Maastricht) helped in the preparation of the questionnaire.

REFERENCES

Questionnaire among Dutch dermatologists


