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Photoprotection behaviors among patients during retinoid therapy

Authors:

1. Julia Czechowska - <https://orcid.org/0009-0003-4792-4091> , Medical University of Lublin, julia.czechowska97@gmail.com

2. Paulina Bronst - <https://orcid.org/0009-0008-5405-5660>, Wojewódzki Szpital Specjalistyczny im. Stefana Kardynała Wyszyńskiego Samodzielny Publiczny Zakład Opieki Zdrowotnej w Lublinie, Al. Kraśnicka 100, 20-718 Lublin, Poland, paulina.bronst@yahoo.com

3. Anna Szabrańska- <https://orcid.org/0009-0001-3470-5573> , Uniwersytecki Szpital Kliniczny im. Wojskowej Akademii Medycznej – Centralny Szpital Weteranów ul. Żeromskiego 113, 90-549 Łódź, amszabraska@gmail.com

4. Jakub Laskowski- <https://orcid.org/0000-0002-9547-0608>, Student Scientific Club at the Department of Hematology, Oncology and Children's Transplantology Medical University of Lublin Provincial Specialist Hospital in Lublin, j.laskowski0609@gmail.com

5. Klaudia Kister- <https://orcid.org/0000-0003-2058-5395>, Student Scientific Circle at the 1st Department of Psychiatry, Psychotherapy and Early Intervention Medical University of Lublin Provincial Specialist Hospital in Lublin, klaudia2178@gmail.com

6. Lidia Rosa - <https://orcid.org/0009-0009-1780-4113>, Samodzielny Publiczny Zakład Opieki Zdrowotnej Ministerstwa Spraw Wewnętrznych i Administracji w Łodzi ul. Północna 42 , 91-425 Łódź , lidka.rosa@gmail.com

7. Monika Zach-Żródlak- <https://orcid.org/0009-0005-3754-4903>, Wojewódzkie Wielospecjalistyczne Centrum Onkologii i Traumatologii im. M. Kopernika w Łodzi ul. Pabianicka 62, 93-513 Łódź, med.mzach@gmail.com

8. Aleksandra Małolepsza - <https://orcid.org/0000-0002-0645-7824>, Bonifraterskie Centrum Medyczne sp. z o.o Oddział w Krakowie, ul. Trynitaraska 11, 31-061 Kraków, ola.malolepsza@onet.pl

9. Natalia Rektor- <https://orcid.org/0009-0008-2910-9452>, Uniwersytecki Szpital Kliniczny im. Wojskowej Akademii Medycznej – Centralny Szpital Weteranów ul. Żeromskiego 113, 90-549 Łódź, nataliarektor@gmail.com

10. Magdalena Mazur-<https://orcid.org/0009-0004-8918-2468>, Provincial Hospital in Kielce, 45 Grunwaldzka Street, 25-736 Kielce, Poland , m.mazur.kielce@gmail.com

ABSTRACT

Aim: The aim of the study was to examine patients on dermatology retinoid treatment attitudes related to skin protection against UV radiation and to check the hypothesis whether patients using retinoids are more aware of the need for photoprotection.

Material and methods: Internet-based survey about attitudes associated with sun exposure and photoprotection was carried out between March and May 2023. 176 questionnaires were subject to statistical analysis.

Results: The study showed that 73% of the responders used an SPF cream every day. Only 3,8 % didn't use a UV protection cream. 38% used it on all the exposed body parts. 21% used it only on their face and necks and 10% used it only on their face. As many as 78% of respondents used a cream with protection SPF 50 or more. 40% of patients reapply SPF. Most of the patients use additional tools such as sunglasses, hats and caps. But only 16% use specialized UPF clothing.

Conclusion: Patients during their retinoid treatment show increased knowledge and attitude towards photoprotection. They are aware of the risks due to sensitization of their therapy and are trying to mitigate the negative effects of the UV radiation.

Keywords: photoprotection, UV radiation, retinoids, isotretinoin

INTRODUCTION

Ultraviolet (UV) radiation is a form of electromagnetic radiation that is present in sunlight and emitted by various artificial sources, such as tanning beds and some types of lamps. It is categorized into three types based on wavelength: UVA, UVB, and UVC.[3]

- ▼. UVA (320-400 nm): UVA radiation has the longest wavelength among the three types of UV radiation. It accounts for about 95% of the UV radiation that reaches the Earth's surface. UVA can penetrate the deeper layers of the skin and is associated with skin aging, wrinkles, and some forms of skin cancer.

- ⊙. UVB (280-320 nm): UVB radiation has a medium wavelength and is partially absorbed by the Earth's atmosphere. It is responsible for sunburns and is the primary cause of most skin cancers. UVB rays can also affect the immune system and contribute to the development of cataracts.
- ⊘. UVC (100-280 nm): UVC radiation has the shortest wavelength and is mostly absorbed by the Earth's atmosphere. It is extremely hazardous to living organisms and is typically used for germicidal purposes, such as disinfecting air, water, or surfaces in medical settings.

Excessive exposure to UV radiation can have harmful effects on human health. It is important to protect yourself from UV rays by taking precautions.[3]

Protection from UV radiation is especially important during dermatology treatments including retinoid therapy. Retinoids can increase the skin's sensitivity to UV radiation, making it more susceptible to sunburn. It is crucial to use sunscreen with a high SPF and wear protective clothing when using retinoids. Applying retinoids at night and using sunscreen during the day is a recommended approach.

Retinoids are a class of compounds that are derived from vitamin A and have been widely used in skincare for their various benefits.[12]

Retinoids are known for their ability to improve the appearance and health of the skin. They can help reduce the appearance of fine lines and wrinkles, stimulate collagen production, promote cell turnover, and improve skin texture and tone.[14]

Retinoids are also effective in treating acne by unclogging pores, reducing inflammation, and regulating oil production. Retinoids can cause some side effects, especially when used incorrectly or excessively. Common side effects include dryness, redness, peeling, and increased sensitivity to sunlight. It's important to start with a low concentration and gradually increase the frequency of use to allow the skin to adjust. Using a moisturizer and sunscreen can help mitigate these side effects.[12]

Overall, retinoids can be highly beneficial for improving the appearance and health of the skin when used appropriately and with proper sun protection. However, individual results may vary, and it's important to follow the instructions provided by your dermatologist or skincare professional.

Retinoids can be classified into two main types: over-the-counter retinol and prescription retinoids. Over-the-counter retinol is a milder form of retinoid that is available in various skincare products, while prescription retinoids include tretinoin, adapalene and tazarotene. Another form of retinoid treatment is oral isotretinoin which is primarily used in severe acne treatment.

PURPOSE

This study was conducted to test the knowledge, attitude and behavior of patients during treatments using retinoids.

MATERIAL AND METHODS

The study was conducted from March to May 2023 using an original questionnaire addressed to Polish men and women during retinoid treatment. Participation in the study was voluntary and anonymous. Participants were asked several questions including demographic data, questions about their treatment and UV protection behaviors. The questionnaire was available online. Data was collected, analyzed and also compared with the latest PubMed studies regarding UV protection behaviors.

201 questionnaires were fully completed. 7,5% of the respondents weren't on any retinoid treatment so this data was rejected (15 questionnaires). All questionnaires were fully completed.

The authors are aware of the limitations of using an online questionnaire as the basis for the study. However, the questionnaire was posted on many Facebook groups gathering patients using retinoid therapies. However, the problem may be that these groups are voluntary, so they gather people interested in improving their skincare and exchanging observations during therapy.

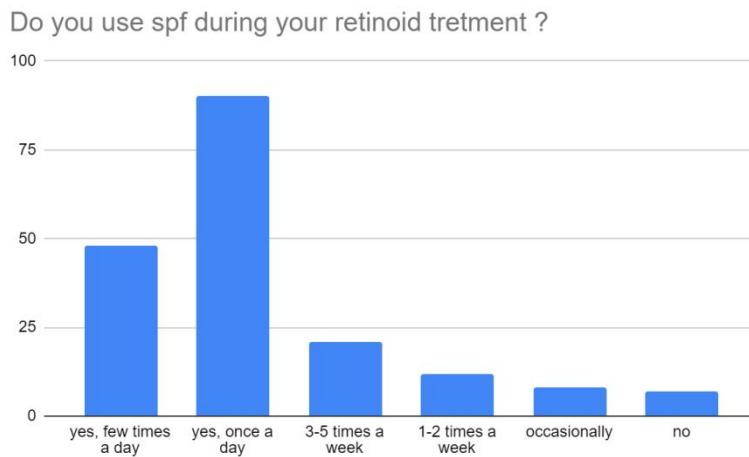
RESULTS

73% of responders were women. 72% of respondents were between the age of 18 to 30. 13% of responders were below the age of 18 and 14 % responders were above the age of 30. 50% of responders live in big cities above 300000 residents. Half of the responders have high education.

The study showed that 56 % of retinoid users were on oral isotretinoin therapy while 23% of them were on prescription retinoids used externally . Remaining 21% used non-prescribed products containing retinoids .

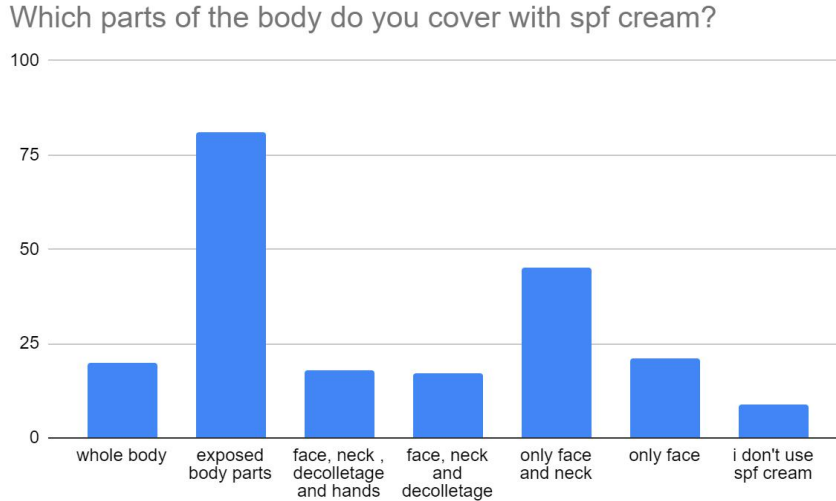
The study showed that 73% of the responders used an spf cream every day (25% more than once a day) . Only 3,8 % didn't used an UV protection cream and 4,3% used it only occasionally.

Chart 1.



Another topic discussed was the surface of the body on which the SPF cream was used. 9,5 of the responders used an SPF cream to cover their whole body. 38% used it only on the exposed body parts. 21% used it only on their face and necks and 10% used it only on their face.

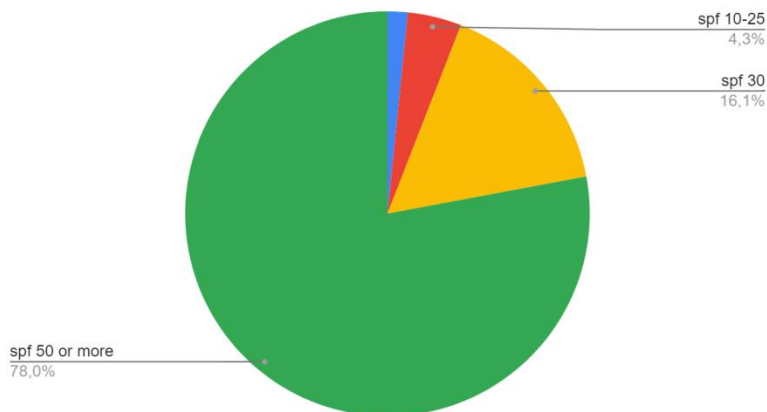
Chart 2.



An important issue is also the type of cream with the SPF filter and the protection it provides. During treatment with retinoids, it is important that the protection used is as high as possible. According to the results of the survey, as many as 78% of respondents used a filter with protection SPF 50 or more, which is the best widely available protection against UV radiation

Chart 3.

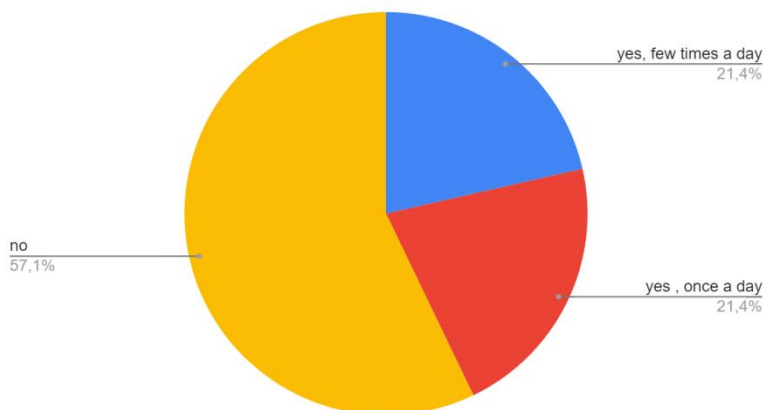
Which spf are you using ?



According to the recommendations of dermatologists reapplication of the cream is necessary to ensure high-level protection throughout the day. According to the responses, 40% of patients reapply SPF (half of them do it several times a day).

Chart 4.

Do you reapply your spf cream ?



Another way to reduce the effects of radiation is the use of specialized clothing or accessories with an UPF filter. There are more and more options available on the market. We can choose between t-shirts, scarves, caps, and hats, However the study shows that only 16% of patients use this type of sun protection.

It will be less effective to cover the body with materials not enriched with a UPF (Ultraviolet Protection Filter), but it is worth using. 72% of respondents try to cover the body, using hats and scarves that shade the face area.

If possible during therapy with drugs sensitizing to UV radiation, it is worth avoiding direct UV radiation in the hours of their greatest intensity. 85% of patients report that they try to avoid going outside between 10am and 2pm and stay in the shade if necessary.

During this treatment protecting your eyes from harmful UV radiation is crucial, even on cloudy days when UV rays can still penetrate cloud cover. By consistently wearing sunglasses with UV filters, you can safeguard your eye health and reduce the risk of UV-related eye conditions. During the study, a conclusion was drawn that 65% of respondents pay attention to the presence of a UV filter in sunglasses and wear sunglasses regularly.

Some dermatologists point out that if you are going on vacation or the amount of radiation you take on a certain day will be higher, you may not take the dose for that day to reduce the effects of increased sensitivity to radiation. Only 23% of patients use this option. However, this is not necessary if you protect yourself properly.

DISCUSSION

Photoprotection is the foundation of skin protection from harmful UV rays. It is crucial for preventing sunburn, reducing the risk of skin cancer, minimizing premature skin aging, protecting eye health, and maintaining overall well-being. By adopting photoprotection practices, it is possible to enjoy the sun safely while minimizing the harmful effects of UV radiation on your body.

This topic is especially important for patients undergoing radiation-sensitizing treatments such as retinoid treatment.

Awareness about sun protection has been increasing in recent years in the general population but especially in patients using dermatology treatment.

Women protected themselves from the sun more than men. In line with this observation, we found that women use sunscreen statistically more frequently than men. Compared with studies on the general Polish population[11], we noticed greater care for photoprotection in patients taking retinoids. A larger percentage of respondents used the SPF filter every day regardless of the weather, sunscreens selected included more protection (most of the respondents used SPF 50). Additionally, patients attached much more importance to reapplying sunblock and most of them applied it to all exposed body parts. More patients paid attention to additional methods of protection against radiation, which may include the use of specialized clothing with UPF filter, the use of sunglasses with a good filter quality (UV400 or category 3), staying in the shade during the hours of the greatest sunlight and covering the body and face with hats, caps and other clothes.

According to the study “Sun protection among university students in Poland: a survey of awareness and attitudes”[4] medical students were a group of people well aware of the consequences of UV radiation and they used UV protection. 47.7% students used sunscreen

only during summer holidays and 28.4% put on sunscreen during sunny days regardless of the season of the year, 18.9% of respondents used this kind of photoprotection every day during the year. 3.3% of students did not use sunscreen at all and 1.7% gave other responses.[4] While our study showed that as much as 73% of patients taking retinoids used sunscreen every day which is a high number and it shows that patients were aware of the risks this therapy brings. 3,8 % of the responders weren't using SPF cream at all so it is a similar result as in the quoted survey.

The topic of photoprotection has not yet been studied in detail and the amount of data on this subject is limited. It is worth considering doing more research to explore this issue.

CONCLUSION

Sunscreens have a variety of functions including skin protection from erythema and sunburn, and prevention of skin cancers, photoaging and immunosuppression. In order to be effective, sunscreens must be used correctly, and other photoprotection measures must be applied, such as avoiding excessive ultraviolet radiation exposure and wearing photoprotective clothing and sunglasses[2]. To ensure correct sunscreen use, it should be reapplied at least every 2 hours outdoors. The first application, according to most authors, should be approximately 20 minutes before going outside [1].

There are differences in pro-health attitudes regarding photoprotection between general population and patients on retinoid treatment. Patients showed a greater awareness of the harmfulness of solar radiation, which was manifested in more frequent use of products with higher SPF, sunscreen use all year round, as well as avoiding sun exposure around noon and using additional protective tools. However, some practices associated with sunscreen application should be improved in both groups. Particular attention should be paid to reapplication and avoiding direct sunlight around noon. Our study indicates that patients undergoing retinoid treatment in Poland are aware of the consequences of their treatment regarding UV radiation sensitization and are paying attention to behaviors that can protect them from sunburns.

DISCLOSURE

Charts:

All the charts (1,2,3,4) are based on authors' research.

Author's contribution:

Conceptualization, JC and PB; methodology JC; formal analysis MM, AM, JL; investigation JC, MZŻ, MM; resources PB,NR ; data storage JC; writing script KK, JL, AM; writing - review and editing JC, LR; visualization LR, AM; supervision AS, MZŻ; project administration LR; receiving financing, -

All authors read and agreed with the published version of the manuscript.

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Informed consent was obtained from all subjects participating in the study.

Data Availability Statement:

The data presented in this study are available upon explicit request from the first author of the paper.

Conflict of interest declaration:

The authors declare no conflict of interest.

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