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The importance of the correct use of sunscreen in patients with Melasma

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ABSTRACT
Melasma is a hyperpigmentation disorder that mainly affects women, in its pathogenesis factors such as chronic exposure to ultraviolet radiation, visible light, hormonal stimulation and genetic factors have been identified. It is characterized by reticulated, irregular, brown patches on areas of the skin exposed to the sun. The methodology used was a literature review with an exploratory qualitative approach, using academic platforms and bibliographies: SCIELO, PUB MED and GOOGLE ACADEMICO. The inclusion criteria were articles from the last few years in Portuguese and English. The correct use of sunscreens can prevent the onset of melasma, which in turn prevents skin cancer. Sunscreen helps block solar radiation, preventing dyschromic spots caused by ultraviolet rays on the skin, and for each skin type there are different factors; Always reapply every two hours and it is important to know that the use of sunscreen begins in childhood, as the damage accumulates on the skin, bringing complications in adulthood, such as skin cancer. It can be concluded that the use of accessories such as hats, parasols, sunscreens help in the prevention of dyschromias.

Keywords: Melasma, Hyperpigmentation, Sunscreen.

INTRODUCTION

Each year the ozone layer gets thinner, allowing solar radiation and ultraviolet (UV) radiation to pass through. This produces short-term lesions, such as sunburn or tanning, and long-term blemishes, ageing and dermal cancer.

Pigmentary disorders, such as melasma, often occur due to this cause. The hyperpigmentation that develops can have an impact on the patient's quality of life, especially when exposed areas, such as the face, are involved.

Melasma is a dermatosis whose facial hyperpigmentation pattern is produced by hypermelanosis, it originates from several causes; Its color varies from light to dark brown, tends to be symmetrical, and is prevalent in women from equatorial areas, especially those with Fitzpatrick III, IV, and V.

Frequent in women of childbearing age, where a prevalence of 90% is evident in relation to men; The frequency increases in equatorial areas and in countries with high Fitzpatricks such as Asia, Latin America, and Africa. In pregnant women, it predominates in 66%, where it decreases or disappears in the postpartum period (chloasma), in 33% it remains indefinitely; It is also seen in menopausal women. This pathology becomes more evident during and after photoexposure, especially in the summer months.

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It is stimulated by photoexposure and UV radiation. Studies indicate that it may originate from molecular mechanisms related to tissue pigmentation, including the expression of melanocyte integrins (α-6-integrin); Other stimuli were also investigated, associated with E-cadherins and increased transfer of melanosomes to keratinocytes, along with an increase in the cytoplasm of prostaglandins (E2, D2 and 2α), which intervene as recognition molecules in melanocytic dendrites.

It is evident as hyperchromic macules with delimited and regular borders, whose pigmentation varies from light to dark brown, symmetrically located in photoexposed areas such as the forehead, cheeks, nose, mustache, neck and décolleté. According to its clinical distribution, the lesions of facial melasma are: central and peripheral. The centrofacial type is observed in the center of the face, i.e., in the glabellar, frontal, nasal, zygomatic, upper lip, and chin regions. In the peripheral type, the frontotemporal, preauricular and mandibular branch areas are affected.

Prevention are measures applied to prevent damage or its progression, and can be carried out through the implantation of devices, as well as the use of medications. Regarding the prevention of dermal lesions by photoexposure, there is the proper use of clothing and the use of sunscreen or photoprotection.

Sunscreens are chemicals capable of reducing or preventing dermal lesions caused by exposure to UV radiation, attenuating it through dispersion and absorption.

OBJECTIVE

To analyze studies on the importance of the correct use of sunscreen in patients with Melasma.

METHODOLOGY

This scientific work is a narrative literature review with an exploratory qualitative approach, where data will be collected from bibliographic productions already published. According to Cruz (2023), bibliographic research is a method based on existing materials such as books and scientific articles. In some studies, research often focuses only on bibliographic sources. In addition, studies that aim to analyze ideologies and different perspectives on issues are often carried out based solely on documentary sources.

According to Sousa, Oliveira, Alves (2021), bibliographic research aims to improve knowledge through scientific investigation, being a survey or review of published works on the theory, and guides the researcher who will analyze the published works on the subject.

The selection of a qualitative method is based on the specific characteristics it has, which allows us to present an approximate view of the reality being studied. Köche (2012) defines bibliographic research as "indispensable to any type of research", because in it the researcher explores and analyzes the main theories and existing contributions on the subject. The descriptors used were: Melasma. Dyschromias. Sunscreen.

The selection of the studies involved four stages: the first consists of reading the titles of the articles; the second, in the selection of articles based on the information contained in the abstracts according to inclusion and exclusion criteria; in the third, the articles were fully analyzed for the selection of potentially relevant articles.

As an inclusion criterion, original articles published in Portuguese, English, from the year 2020 onwards published in SCIELO, PUBMED and GOOGLE SCHOLAR in Portuguese and Spanish were considered. Exclusion criteria were defined as studies and documents published outside the chosen period (with the exception of books and legislation), unavailable in the full version or incomplete, studies that do not correspond to the proposed objectives, and duplicate publications, with only one being selected.

The reviewed articles were analysed and compared in terms of study design, treatment protocol, outcome parameters, efficacy measures and outcomes to assess the strength of the current evidence.

RESULTS AND DISCUSSIONS

The search of the databases resulted in 36 studies, including scientific articles and books. Above in the methodology, the search terms used and the inclusion and exclusion criteria for data collection are presented. After the first evaluation of the captured studies, applying the inclusion criteria, 23 studies resulted in 23 studies and were selected for analysis.

Melasma is an acquired hyperpigmentation disorder that mainly affects women between 30 and 40 years of age, with a higher frequency of high phototypes. The prevalence varies between 8.8 and 40% and varies according to the population. The pathogenesis of melasma has not been fully elucidated, but factors such as chronic exposure to ultraviolet (UV) radiation and visible light, as well as hormonal stimulation and genetic factors have been identified.

Morphologically, melasma presents as symmetrical reticulated hyperpigmented patches with irregular borders in the centrofacial region, malar cheeks, mandible, and, rarely, upper chest and extremities. While melasma is known to most commonly affect darker skin types, it can occur on all skin types. On dermoscopic examination, pronounced hyperpigmentation can be seen on the pseudorectic ridges of the skin. Using a Wood lamp, hyperpigmentation can be accentuated when the pigment is epidermal. However, this accentuation can be observed with dermal or mixed melasma.

Confocal reflectance microscopy (RCM) has also been used to evaluate melasma at the cellular level. In the epidermis, it showed an increase in hyperrefractory cobblestone cells that corresponded to hyperpigmented basal keratinocytes on histology.

The goals in the management of melasma are: to decrease the intensity of the pigment, decrease the area of the spot, prevent recurrence, and improve the patient's quality of life. For this, we have first-line treatment that includes the use of depigmenting agents, until then considered the gold standard, alone or in

combination to create synergy; then how to avoid aggravating factors such as intense exposure to UVA, UVB, infrared and visible light radiation, use of hormonal contraceptives and photosensitizing drugs.

Photoprotection is the cornerstone of treatment and prevention, as visible light in patients with melasma has been shown to promote hyperpigmentation through opsin 3 in melanocytes, in addition to UV light, which induces not only increased pigmentation, but also chronic photodamage and increased vascularization. It is recommended to use inorganic sunscreens – such as titanium dioxide and zinc oxide – that also contain iron oxide, such as colored sunscreens, instead of organic agents that do not protect against visible light damage.

Tofetti e Oliveira 15 points out that it is necessary to make the correct use of sunscreen, always apply the sunscreen 20 to 30 minutes before exposing yourself to the sun, so that it absorbs and develops its protective effect, apply the sunscreen to all exposed areas, do not apply it to the Challenges and Research in Health Sciences: A Multidisciplinary Approach The importance of the correct use of sunscreen in patients with Melasma eyes, if there is contact with the eyes, wash them quickly, and you need to reapply sunscreen every 2 hours.

It is also important to remind the patient that changing habits and using accessories such as a hat, glasses and umbrella are necessary to prevent melasma.

According to Oliveira and Gomes17, the greater the intensity, duration and excessive exposure to solar radiation in fair skin, the greater the damage caused by the sun's rays. This type of skin needs greater attention, as it is necessary to use higher protection factors, which can be a factor of 15 on a daily basis and in greater exposure to the sun such as bathing in a pool or beach it is necessary to double the protection factor.

Fátima et al., published a research article that aimed to evaluate the use of sunscreens in melasma in patients with black skin to illustrate the importance of photoprotection in the management of pigmentary disorders. It was a systematic review that included 9 articles with keywords "sun protection", "melasma" and "post-inflammatory hyperpigmentation". These studies detailed the results of more than 600 patients on the use of sunscreens in melasma and postinflammatory hyperpigmentation. They found that the use of sunscreen can play a significant role in melasma therapy by stabilizing and improving patients' hyperpigmentation. It also had a positive influence on self-esteem and quality of life.

Kelm et al., published a research article that aimed to evaluate the efficacy of sunscreen use in the treatment of melasma. It was an open-label clinical trial that included 10 women who were given broad-spectrum SPF-45 sunscreen twice daily for 12 weeks during the summer months (July to September). The main results were that all subjects showed an improvement in hyperpigmentation of 33.7%. 70% showed improvement in skin tone uniformity (redness) and, among these individuals, the average improvement

was 33.3%. The mean overall aesthetic improvement score was 2.0 (greatly improved). They concluded that the use of sunscreen with a high protection factor helps in the management of melasma.

The SPF to be used should be in the high to ultra range, and should be renewed every 2 hours depending on the exposure and UV radiation of the site. The skin covering the face, neck and décolleté tends to be more sensitive to photodamage, so it needs very high to ultra SPF depending on the person's Fitzpatrick.

The proper use of sunscreen or sunscreen consists of putting it on 30 minutes before sun exposure and renewing it every 2 hours, preferably not using water-resistant sunscreens, as they cause other damage to the skin. It should be placed even under an umbrella as it filters only 15% of UVA radiation and 90% of UVB radiation. Challenges and Research in Health Sciences: A Multidisciplinary Approach The importance of the correct use of sunscreen in patients with Melasma.

The three main component categories required in sunscreens are UV filters, emollients, and emulsifiers; secondary components are photostabilizers, film formers, enhancers, and sensory enhancers.

Photosensitive conditions like melasma are aggravated by exposure to ultraviolet (UV) rays and visible light, making the use of sunscreen an essential component of treatment. Sarkar et al., 21 who compared the role of sunscreen in the improvement of melasma and identified an objective and subjective improvement of melasma after 12 weeks of sunscreen use in terms of MASI, and also demonstrated that the use of sunscreen significantly improved the quality of life of patients with melasma. Therefore, it is not surprising that the results of the study showed better results in the MASI value in participants with a history of sunscreen use. Sunscreen is an important adjunctive therapy to prevent the exacerbation of melasma and improve the onset of these conditions.

Additionally, advice on the proper use and application of sunscreens, as well as the development of better broad-spectrum sunscreens, is necessary to maximize results. Controlled trials on the use of sunscreen in melasma are necessary. Zhang et al., in 2019, conducted a study to evaluate improvements in melasma with a combination of herbs in a master formulation in China.

Boukari et al., published an article aimed at evaluating the protective properties against melasma recurrences of a sunscreen that protects against UVA/UVB rays and shorter wavelengths of visible light compared to a sunscreen with UVA/UVB protection but without protection against visible light. It was a randomized controlled trial that included 40 patients diagnosed with melasmas who were randomly assigned to receive either Formula A or Formula B. The median increase in MASI score from baseline to month 6 was more significant with Formula B (interquartile range 2.43; 0.45 to 3.68) than with Formula A (interquartile range 0.45; 0.0 to 1.65) ($p = 0.027$). Eight patients in the Formula B group wore makeup during the study. This subgroup that combined the use of uncolored sunscreen and makeup had no fewer

relapses than those who used only sunscreen. They concluded that the results should be confirmed in larger samples.

CONCLUSIONS

Melasma is a condition that significantly affects the quality of life of patients, mainly due to its chronic behavior with the presence of frequent relapses. This article provides an update on the management of melasma, as we have compiled the best treatment and prevention most widely used and with evidence of results in recent years.

Taking into account the above, we can conclude that the management of melasma continues to be a challenge, since none of the currently available therapeutic options had a rapid, 100% effective or sustained response. Challenges and Research in Health Sciences: A Multidisciplinary Approach The importance of the correct use of sunscreen in patients with Melasma.

We conclude that the use of sunscreen for patients with melasma is extremely important and effective for them.

REFERENCES

Arenas, R. (2013). Capítulo 1: La piel. In Dermatología: atlas, diagnóstico y tratamiento. México D.F.: Editorial Mc Graw Hill.

Fátima, S., Braunberger, T., Mohammad, T., Kohli, I., & Hamzavi, I. (2020). The role of sunscreen in melasma and postinflammatory hyperpigmentation. Indian Journal of Dermatology, 65(1), 5-10. Retrieved from https://www.e-ijd.org/article.asp?issn=0019-5154;year=2020;volume=65;issue=1;spage=5;epage=10;aulast=Fatima

Mohammad, T., & Hamzavi, I. (2016). Practice and Educational Gaps in Abnormal Pigmentation. Dermatologic Clinics. Retrieved from https://doi.org/10.1016/j.det.2016.02.005

Cuadra, R., & Dávila, E. (2015). Melasma en trabajadores de maquilas textiles [Tesis de grado, Facultad de Ciencias Médicas, Universidad Nacional Autónoma de Nicaragua]. Retrieved from http://riul.unanleon.edu.ni:8080/jspui/bitstream/123456789/3618/1/220107.pdf

Navarro, R. (2013). Revisión sistemática de la literatura de los métodos de evaluación del melasma. Estudio comparativo entre la luz de Wood y la dermatoscopia [Tesis de grado, Universidad CEU San Pablo]. Retrieved from https://repositorioinstitucional.ceu.es/bitstream/10637/5673/1/TFM_Bella%20Navarro,%20Rebeca.pdf

Demirkan, S., Gündüz, Ö., & Sayan, C. (2017). Retrospective Analysis of Endemic Melasma Patients. Dermatology Reports, 9(1). Retrieved from https://doi.org/10.4081/dr.2017.7027

Ogbechie, O., & Elbuluk, N. (2017). Melasma: An Up-to-Date Comprehensive Review. Dermatology and Therapy. Retrieved from https://doi.org/10.1007/s13555-017-0194-1

Castro, C. (2017). Medidas preventivas sobre cáncer de piel [Tesis de grado, Facultad de Enfermería, Universidad Nacional del Altiplano]. Retrieved from http://repositorio.unap.edu.pe/bitstream/handle/UNAP/6011/Castro_Zarate_Cecilia_Lizbeth.pdf?sequence=3&isAllowed=y

Ballón, V., & Zúñiga, Y. (2014). Conocimientos y prácticas de medidas de prevención frente a la exposición de radiación solar en trabajadores agrícolas [Tesis de grado, Escuela Profesional de Enfermería, Universidad Nacional de San Agustín]. Retrieved from http://bibliotecas.unsa.edu.pe/bitstream/handle/UNSA/2339/ENbacuv.pdf?sequence=1&isAllowed=y

McKesey, J., Tovar-Garza, A., & Pandya, A.G. (2019). Melasma treatment: an evidence-based review. American Journal of Clinical Dermatology.

Tamega, A.A., Miot, L.D.B., Bonfietti, C., Gige, T.C., Marques, M.E.A., & Miot, H.A. (2013). Padrões clínicos e características epidemiológicas do melasma facial em mulheres brasileiras. Journal of the European Academy of Dermatology and Venereology.

Kang, H.Y., Candiani, J.J.O., Castellanos, M.A.R., Silva, M.A.J., Aguilar, L.E., & Becerra, Y.O. (2012). A microscopia confocal de refletância in vivo detecta alterações pigmentares no melasma em uma resolução de nível celular. Experimental Dermatology.

Arellano Mendoza, I., et al. (2017). Guías de diagnóstico y manejo de melasma. Dermatología cmq.

Lyons, A.B., Trullas, C., Kohli, I., Hamzavi, I.H., & Lim, H.W. (2020). Photoprotection beyond ultraviolet radiation: a review of tinted sunscreens. Journal of the American Academy of Dermatology.

Tofetti, M.H.F.C., & Oliveira, V.R. (2015). A importância do uso do filtro solar na prevenção do fotoenvelhecimento e do câncer de pele. Retrieved from http://publicacoes.unifran.br/index.php/investigacao/article/view/183/137

Kwon, S.H., Hwang, Y.J., Lee, S.K., & Park, K.C. (2016). Heterogeneous pathology of melasma and its clinical implications. International Journal of Molecular Sciences.

Oliveira, A.L., & Gomes, S. (2014). Envelhecimento da pele. In L. M. Lacrimant et al. (Eds.), Curso didático de Estética (2nd ed., pp. 199-203). São Caetano do Sul, São Paulo: Yendis.

Kelm, R., Zahr, A., Kononov, T., & Ibrahim, O. (2020). Effective lightening of facial melasma during the summer with a dual regimen: A prospective, open-label, evaluator-blinded study. Journal of Cosmetic Dermatology.

Bustinza, J. (2018). Estimación del nivel de conocimientos, actitudes y prácticas sobre protección solar en el personal de tropa de la Guarnición Militar Arequipa [Tesis de grado, Facultad de Medicina, Universidad Nacional de San Agustín]. Retrieved from http://repositorio.unsa.edu.pe/bitstream/handle/UNSA/6763/MDbuhujc2.pdf?sequence=1&isAllowed=y

Osterwalder, U., Sohn, M., & Herzog, B. (2014). Global state of sunscreens. Photodermatology, Photoimmunology & Photomedicine. Retrieved from https://onlinelibrary.wiley.com/doi/epdf/10.1111/phpp.12112

Sarkar, R., Ghunawat, S., Narang, I., Verma, S., & Dua, R. (2019). Role of broad-spectrum sunscreen alone in the improvement of melasma area severity index (MASI) and Melasma Quality of Life Index in melasma. Journal of Cosmetic Dermatology.

Zhang, Q., Tu, Y., Gu, H., Sun, D., Wu, W., Man, M.-Q., et al. (2019). A cream of herbal mixture to improve melasma. Journal of Cosmetic Dermatology, 18. Retrieved from https://onlinelibrary.wiley.com/doi/full/10.1111/jocd.12938

Boukari, F., Jourdan, E., Fontas, E., Montaudié, H., Castela, E., & Lacour, J. (2014). Prevention of melasma relapses with sunscreen combining protection against UV and short wavelengths of visible light: A prospective randomized comparative trial. Journal of the American Academy of Dermatology. Retrieved from https://pubmed.ncbi.nlm.nih.gov/25443629/