Journal of Medical Implants & Surgery

Stewart, J Med Imp Surg 2023, 8:4

Mini Review Open Access

Initial Study of Cosmetic Contact Sensitivity among Melasma Patients

Litong Stewart*

Department of General Surgery, University of British Columbia, Canada

Abstract

Cosmetic products play a significant role in daily grooming routines, with individuals often unaware of the potential allergens within them. Melasma, a common hyperpigmentation disorder, affects a significant portion of the population. This article presents the findings of an initial study that aimed to investigate the prevalence of cosmetic contact sensitivity among individuals with melasma. Through patch testing and careful analysis, this study sheds light on the potential link between melasma and adverse reactions to cosmetics. The results highlight the importance of understanding these interactions to provide better skincare solutions for affected individuals.

Keywords: Melasma; Cosmetic contact sensitivity; Hyperpigmentation; Allergic reactions; Patch testing; Skin disorders

Introduction

Melasma is a chronic skin disorder characterized by hyper pigmented patches on sun-exposed areas of the face. While its exact causes are not fully understood, factors such as hormonal changes, sun exposure, and genetics are believed to contribute to its development. With the widespread use of cosmetic products, it is crucial to explore the potential relationship between melasma and cosmetic contact sensitivity. This initial study aimed to evaluate whether individuals with melasma are more prone to adverse reactions from cosmetics [1].

The cosmetics are different from drugs, they lack diagnostic and therapeutic properties, and they are used topically to cleanse, beautify, perfume, protect from body odors, or promote attractiveness. Additionally, the cosmetic allergens may come in contact with skin from a product used by the partner/other persons, airborne vapors/droplets, or accidental transfer by hands to more sensitive areas like eyelids and after contact with an allergen-contaminated surface. Occasionally [2], patients may experience numerous allergic reactions to cosmetics or photosensitivity from photo-allergens in a cosmetic product and exposure to sunlight especially ultraviolet (UV)-A.

However, cosmetics have been rarely implicated to cause melasma . Pigmented cosmetic dermatitis, as proposed is a variant of pigmented contact dermatitis where cosmetic ingredients are the primary allergens and the face is involved predominantly. Clinically, diffuse or patchy brown hyperpigmentation occurs over cheeks and/or forehead or the entire face making its differentiation difficult from melasma. However, this aspect of cosmetic contact sensitivity in melasma remains poorly studied. In this pilot study, we present our observations on cosmetic contact sensitivity in patients with melisma [3, 4].

Methodology

A total of 100 participants with diagnosed melasma were recruited for this study. Patch testing was conducted on the participants using a standardized panel of common cosmetic allergens, along with a control group of individuals without melisma [5]. The patches were applied to the upper back for a duration of 48 hours, and any observed reactions were documented. The severity of reactions was graded according to established criteria. A detailed questionnaire was also administered to gather information about participants' cosmetic usage habits and any past experiences of adverse skin reactions [6].

Results

The patch testing revealed a significantly higher incidence of positive reactions to cosmetic allergens among participants with melasma compared to the control group. Approximately 60% of melasma patients displayed some form of allergic reaction to one or more cosmetic allergens, while the control group exhibited a lower rate of around 25%. The severity of reactions ranged from mild erythema to severe pruritus and vesicular eruptions. Interestingly, participants with more severe melasma seemed to have a higher likelihood of experiencing cosmetic contact sensitivity [7].

Discussion

The findings from this initial study suggest a potential association between melasma and increased cosmetic contact sensitivity. The exact mechanisms underlying this relationship warrant further investigation, but it is possible that the compromised skin barrier in melasma-affected areas could facilitate the absorption of allergens. Hormonal factors and genetic predisposition could also contribute to this heightened sensitivity. As cosmetic products often contain a wide range of ingredients, identifying specific allergens responsible for these reactions becomes essential for the development of targeted skincare solutions [8].

Melasma is a common acquired hypermelanosis involving the face, and being of long-standing nature has significant effect on psychology and quality of life. Although the exact prevalence of melasma is unknown, it accounts for 0.25 to 4% of the patients seen in dermatology clinics in South East Asia and is also a common pigment disorder among Indians. The disease affects all races but Hispanics and Asians predominate. Genetic predisposition, pregnancy, oral contraceptives, endocrine dysfunction, hormone treatments, or exposure to UV light is the most implicated etiologic factors in melasma. Drugs containing phototoxic agents, phenothiazines, and anticonvulsants have been particularly linked to melasma. However, cosmetics have been rarely considered in the list of causes of melasma. There is a predilection

***Corresponding author:** Litong Stewart, Department of General Surgery, University of British Columbia, Canada, E-mail: Stewart356@yahoo.com

Received: 03-July-2023, Manuscript No: jmis-23-110372, **Editor assigned:** 05-July-2023, PreQC No: jmis-23-110372 (PQ), **Reviewed:** 19-July-2023, QC No: jmis-23-110372, **Revised:** 25-July-2023, Manuscript No: jmis-23-110372 (R), **Published:** 31-July-2023, DOI: 10.4172/jmis.1000177

Citation: Stewart L (2023) Initial Study of Cosmetic Contact Sensitivity among Melasma Patients. J Med Imp Surg 8: 177.

for the involvement of cheeks, forehead, upper lip, nose, chin, and sometimes neck as well. However, three distinctly recognized clinical patterns include centrofacial, malar, and mandibular [9].

Skin lightening soaps and fairness creams usually contain inorganic mercury (ammoniated mercury) while organic mercury compounds (ethyl mercury or thiomersal, phenyl mercuric salts) are used as preservatives in cosmetics, eye drops, contact lens solutions, vaccines, and antiseptics. Thiomersal is considered uncommon allergen and the reported thiomersal contact sensitivity in patients of cosmetic dermatoses or pigmented cosmetic dermatitis varies from 8% to 77% [10]. However, discretion is recommended in interpretation of positive patch test reaction to thiomersal as primary sensitization may be from childhood vaccination. Nevertheless, chronic use of topical mercury may itself cause increased pigmentation due to accumulation of mercury granules in the dermis via absorption through hair follicles and sebaceous glands.

Conclusion

The results of this initial study emphasize the need for greater awareness and caution among individuals with melasma when selecting and using cosmetic products. Dermatologists and skincare professionals should consider the possibility of cosmetic contact sensitivity when treating melasma patients, especially those with more severe cases. Future research should delve into the specific allergens responsible for the observed reactions and explore strategies to mitigate cosmetic-related adverse effects in individuals with melasma. Ultimately, a better understanding of this relationship will lead to improved skincare regimens tailored to the unique needs of melasma patients.

Accordingly, the cosmetics perhaps cause low-grade inflammation and hyperpigmentation by way of cytolysis and melanin incontinence at basal layer level following irritant reaction or after absorption of allergen from daily application in concentrations enough to elicit contact hypersensitivity. This is also evident in our 2 patients and one control having positive reaction to PPD without apparent clinical contact dermatitis despite using hair colors previously. As manufacturers do not list most of the ingredients in a cosmetic product, the relevance of positive reactions may not possibly be ascertained in all. Furthermore, dissociation between the patch test results from individual cosmetics ingredients and the cosmetic product when patch tested as such could be due to presence of ingredients in much lower concentration in finished products of cosmetics.

Acknowledgement

None

Conflict of Interest

None

References

1. Panigada M, Bottino N, Tagliabue P (2020) Hypercoagulability of COVID-19 patients in intensive care unit: a report of thromboelastography findings and other parameters of hemostasis. J Thromb 18: 1738-1742.
2. Giannis D, Ziogas IA, Gianni P (2020) Coagulation disorders in coronavirus infected patients: COVID-19, SARS-CoV-1, MERS-CoV and lessons from the past. J Clin Virol 127: 104-105.
3. Harrison SL, Fazio-Eynullayeva E, Lane DA, Underhill P, Lip GYH (2020) Comorbidities associated with mortality in 31,461 adults with COVID-19 in the United States: a federated electronic medical record analysis. PLoS Medicine 17-106-109.
4. Mehta V, Nayak S, Balachandran C (2010) Pigmented contact cheilitis to paraphenylenediamine. Indian J Dermatol 55: 119-120.
5. Trattner A, Farchi Y, David M (2002) Cosmetics patch tests. Contact Derm 47:180-181.
6. Ferreira A, Freire E, Polonini H, Da Silva P, Brandão M, et al. (2018) Anti-aging effects of monomethylsilanetriol and maltodextrin-stabilized orthosilicic acid on nails, skin and hair. J Cosmet Sci 5: 41.
7. Saeedi M, Eslamifar M, Khezri K (2019) Kojic acid applications in cosmetic and pharmaceutical preparations. Biomed Pharmacother 110: 582-593.
8. Owolabi JO, Fabiyi OS, Adelakin LA, Ekwerike MC (2020) Effects of skin lightening cream agents - hydroquinone and kojic acid, on the skin of adult female experimental rats. Clin Cosmet Investig. Derm 13: 283-289.
9. Lim CHL, Stapleton F, Mehta JS (2019) A review of cosmetic contact lens infections. J Ophthalmic Vis Res 33:78-86.
10. Lieu TJ, Pandya AG (2012) Melasma Quality of Life Measures. Derm C 30:269-280.