

A Importância dos Testes Epicutâneos e Foto-epicutâneos no Estudo das Fotodermatoses Idiopáticas

Patch and Photo-Patch Testing are Important in Patients with Idiopathic Photodermatoses

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This number of the *Revista da Sociedade Portuguesa de Dermatologia e Venereologia* contains two articles dedicated to idiopathic photodermatoses, for which autoimmune reactions to an unknown endogenous chromophore are suspected to be involved – polymorphous light eruption, actinic prurigo, hydroa vacciniforme, chronic actinic dermatitis, and solar urticarial.^{1,2} Many of these and other photodermatoses have a very clear clinical presentation, while others may mimic allergic contact dermatitis (ACD) or photo-allergic contact dermatitis (PhACD), a classical T cell-mediated or delayed type IV hypersensitivity reaction to an exogenous chromophore applied on the skin in the presence of, or followed by exposure to ultraviolet (UV) or visible light.^{3,4} Allergic contact reactions can be followed by persistent photosensitivity and chronic actinic dermatitis, such as in cases of chronic ACD from certain plants, e.g., *Compositae* that are rich in sesquiterpene lactones,⁵ fragrances, lichens, and colophony,⁴ or in PhACD or photo-aggravated ACD from drugs like ketoprofen, etofenamate, and chlorproethazine, or even other contact allergens, such as tosylamide/formaldehyde resin, fragrances, and thiourea derivatives.⁴ The long persistence of these chemicals in the epidermis (for up to at least 17 days in the case of ketoprofen),⁶ or the formation of endogenous photosensitizers might perhaps explain the progression to chronic actinic dermatitis.⁴

In patients with idiopathic photodermatoses the use of sunscreens is mandatory, however, the sensitization risk from these chemicals may be enhanced by the previous skin inflammation and the need for repeated application for long periods.⁷ UV filters, which are chromophores that capture UV light, are among the most frequent causes of PhACD,⁸⁻¹¹ namely benzophenones, dibenzoylmethane derivatives, octocrylene, and cinammates.^{9,10,12-14} Although more recent UV filters seem to be more photostable and less prone to induce PhACD,³ a few cases have been described,⁹ for example, from polysilicone-15 (ParsoI®SLX).¹⁵ With regard to methylene

bis-benzotriazolyl tetramethylbutylphenol (syn. bisoctrizole or Tinosorb® M), ACD from it is due to the surfactant decyl glucoside, in particular, which is added in order to stabilize the sunscreen molecule.^{16,17}

Topical drugs, such as the non-steroidal anti-inflammatory ketoprofen, piketoprofen, suprofen, etofenamate, piroxicam, and benzydamine,¹⁸ as well as phenothiazine derivatives, i.e., promethazine or chlorproethazine, and isothipendyl chlorhydrate¹⁹ are frequent causes of ACD/PhACD, either by direct application or by transfer from other individuals in close contact (consort or connubial dermatitis). Moreover, some of these chemicals, particularly ketoprofen, exhibit cross-reactions with UV filters, i.e., benzophenone(s) and octocrylene, the latter containing benzophenone residues. Also fenofibrate, a systemic drug, shares the benzophenone ring and can cross react with ketoprofen and related molecules.^{3,20} Furthermore, patients with PhACD from ketoprofen present with concomitant reactions to the perfume ingredient cinnamic alcohol, reactions that at present are difficult to explain by cross-reactivity.²¹

Therefore, patch and photo-patch testing are highly recommended in patients with idiopathic and autoimmune photodermatoses, as well as in all other diseases aggravated by sunlight, in order to detect and avoid exposure to possible aggravating factors, and particularly to UV filters. Recently, recommendations for diagnostic patch testing have been issued by the European Society of Contact Dermatitis (ESCD),²² and in a cooperative effort of the ESCD and European Society of Photodermatology (ESPD), an agreement was not only reached regarding standardized protocols for photo-patch testing,²³ but also on the list of 20 allergens to be included in the European baseline photo-patch tests series and an additional extended series including certain classical photo-allergens.²⁴ Last but not least, photo-patch tests with all the patient's own topical products and systemic photosensitizers to which the patients is exposed are strongly recommended as well, since

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the outcome may further contribute to the relevance of positive reactions observed, or avoid "false"- negative reactions obtained by testing standardized allergens only.²⁴

REFERENCES

1. Coelho de Sousa V, Ramos Pinheiro R, Rocha Páris A, Apetato M, Marques Pinto G. Fotodermatoses Auto-ímmunes - fisiopatologia e diagnóstico. *Rev Soc Port Dermatol Venereol.* 2017;75.
2. Ramos Pinheiro R, Coelho de Sousa V, Rocha Páris F, Apetato M, Marques Pinto G. Fotodermatoses Auto-ímmunes - manifestações clínicas e terapêutica. *Rev Soc Port Dermatol Venereol.* 2017;75.
3. Gonçalves M. Photoreactions and phototesting. In: Johansen JD, Lepoittevin J-P, Thyssen JP, editors. *Quick Guide to Contact Dermatitis.* Berlin: Springer-Verlag; 2016. p. 4-7.
4. Goossens A. Photoallergic contact dermatitis. *Photo-derm Photoimmunol Photomed.* 2004;20:121-5.
5. Hawk J. Chronic actinic dermatitis. *Photoderm Photoimmunol Photomed.* 2004;20:312-4.
6. Guy R, Kuma H, Nakanishi M. Serious photocontact dermatitis induced by topical ketoprofen depends on the formulation. *Eur J Dermatol.* 2014;24:365-71.
7. Gonçalves M, Ruas E, Figueiredo A, Gonçalves S. Contact and photocontact sensitivity to sunscreens. *Contact Dermatitis.* 1995;33:278-80.
8. Bryden A, Moseley H, Ibbotson S, Chowdhury M, Beck M, Bourke J, et al. Photopatch testing of 1115 patients: results of the U.K. multicentre photopatch study group. *Brit J Dermatol.* 2006;155:737-47.
9. EMCPPS Taskforce, Kerr A, Ferguson J, Haylett A, Rhodes L, Adamski H, et al. A European multicentre photopatch test study. *Br J Dermatol.* 2012;166:1002-9.
10. Sheuer E, Warshaw E. Sunscreen allergy: A review of epidemiology, clinical characteristics, and responsible allergens. *Dermatitis.* 2006;17:3-11.
11. Cardoso JC, Canelas MM, Gonçalves M, Figueiredo A. Photopatch testing with an extended series of photoallergens: a 5-year study. *Contact Dermatitis.* 2009;60:325-9.
12. Heurung A, Raju S, Warshaw E. Adverse reactions to sunscreen agents: epidemiology, responsible irritants and allergens, clinical characteristics, and management. *Dermatitis.* 2014;25:289-326.
13. Haylett A, Chiang Y, Nie Z, Ling T, Rhodes L. Sunscreen photopatch testing: a series of 157 children. *Br J Dermatol.* 2014;171:370-5.
14. Warshaw E, Wang M, Maibach H, Belsito D, Zug K, Taylor J, et al. Patch test reactions associated with sunscreen products and the importance of testing to an expanded series: retrospective analysis of North American Contact Dermatitis Group data, 2001 to 2010. *Dermatitis.* 2013;24:176-82.
15. Sarre M, Guérin-Moreau M, Lepoittevin J, L M, Avenel-Audran M. Allergic contact cheilitis caused by polysilicone-15 (Parsol® SLX) in a lipcare balm. *Dermatitis.* 2014;70:119-21.
16. Andersen K, Goossens A. Decyl glucoside contact allergy from a sunscreen product. *Contact Dermatitis.* 2006;54:349-50.
17. Pereira N, Coutinho I, Andrade P, Gonçalves M. The UV filter tinosorb M, containing decyl glucoside, is a frequent cause of allergic contact dermatitis. *Dermatitis.* 2013;24:41-3.
18. Canelas MM, Cardoso JC, Gonçalves M, Figueiredo A. Photoallergic contact dermatitis from benzydamine presenting mainly as lip dermatitis. *Contact Dermatitis.* 2010;63:85-8.
19. Bibas N, Sartor V, Bulai Livideanu C, Bagheri H, Nougé J, Giordano-Labadie F, et al. Contact photoallergy to isothipendyl chlorhydrate. *Dermatology.* 2012;224:289-91.
20. Matthieu L, Meuleman L, Van Hecke E, Blondeel A, Dezfoulian B, Constandt L, et al. Contact and photocontact allergy to ketoprofen. The Belgian experience. *Contact Dermatitis.* 2004;50:238-41.
21. Avenel-Audrun M, Dulatre H, Goossens A, Jeanmougin M, Comte C, Bernier C, et al. Octocrylene, an emerging photoallergen. *Arch Dermatol.* 2010;146:753-7.
22. Johansen JD, Aalto-Korte K, Agner T, Andersen KE, Bircher A, Bruze M, et al. European Society of Contact Dermatitis guideline for diagnostic patch testing - recommendations on best practice. *Contact Dermatitis.* 2015;73:195-221.
23. Bruynzeel D, Ferguson J, Andersen K, Gonçalves M, English J, Goossens A, et al. Photopatch testing: a consensus methodology for Europe. *J Eur Acad Dermatol Venereol.* 2004;18:679-82.
24. Gonçalves M, Ferguson J, Boneville A, Bruynzeel D, Giménez-Arnau A, Goossens A, et al. Photopatch testing: recommendations for a European photopatch test base-line series. *Contact Dermatitis.* 2013;68:239-43.