



CONTACT DERMATITIS AND OCCUPATIONAL DERMATOSES

ASTAXANTHIN EFFECT ON THE ELICITATION OF ALLERGIC CONTACT DERMATITIS TO HAIR DYE CONTAINING P-PHENYLENEDIAMINE

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Background: Hair dyes containing p-phenylenediamine constitute a significant cause of allergic contact dermatitis. Application of antioxidant substances, such as astaxanthin, which possesses a potent antioxidant activity, as pretreatment, could reduce allergic reactions.

Objectives: We compared the results of skin reactions to p-phenylenediamine in sensitized subjects when treated with astaxanthin and placebo.

Materials and Methods: Thirteen subjects with contact allergy to p-phenylenediamine, who had a history of skin reactions to hair dye and a positive patch test to p-phenylenediamine were tested. Skin areas on the upper back were exposed to an astaxanthin emulsion and an astaxanthin-free emulsion, and then to 1% p-phenylenediamine. Skin reactions were interpreted on D2, D3, and D7.

Results: On D2, pretreatment with astaxanthin emulsion resulted in a reaction in 5 of 12 patients (p = 0.025); this result was statistically significant. On D7, pretreatment of skin sites with astaxanthin reduced the cutaneous allergic reaction to p-phenylenediamine in 2 of 12 patients (p = 0.046) as compared with skin treated with astaxanthin-free emulsion. There were no serious adverse effects with patch testing.

Conclusions: Astaxanthin emulsion pretreatment could reduce reactions to pphenylenediamine in sensitized subjects. It can help dermatologists to know and understand more about the biological activities of astaxanthin, which possibly leads to the pretreatment in allergic contact dermatitis to p-phenylenediamine.





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