

Medical > In Vivo > Inflammatory Disease Research

68

Confocal histopathology of irritant contact dermatitis in vivo and the impact of skin color (black vs white).

Hicks SP, Swindells KJ, Middelkamp-Hup MA, Sifakis MA, González E, González S.; J Am Acad Dermatol. 2003 May;48(5):727-34.

ABSTRACT

BACKGROUND: The pathogenesis of irritant contact dermatitis and its modulation according to skin color is not well understood. Reflectance confocal microscopy (RCM) enables high-resolution, real-time, in-vivo imaging of human skin.

OBJECTIVE: The goal of our study was to use RCM to determine whether susceptibility to irritant contact dermatitis differs between black and white skin. **METHODS:** Participants were placed in groups on the basis of skin color and the volar aspects of their forearms exposed to 1% and 4% sodium lauryl sulfate using Finn Chambers (Allerderm Laboratories Inc, Petaluma, Calif). They were evaluated at 6, 24, and 48 hours by RCM, transepidermal water loss, laser Doppler velocimetry, and routine histology.

RESULTS: Participants with white skin had more severe clinical reactions than those with black skin. RCM revealed microscopic changes even without clinical evidence of irritation. Confocal features included parakeratosis, spongiosis, perivascular inflammatory infiltrate, and microvesicle formation, and these features were confirmed by routine histology. Also, participants with white skin had greater mean increases in transepidermal water loss after exposure to 4% sodium lauryl sulfate than did participants with black skin.

CONCLUSION: In-vivo RCM can track early pathophysiologic events revealing differences between black and white skin during the development of irritant contact dermatitis, and may support the theory that those with black skin are more resistant to irritants.