

Medical > In Vivo > Inflammatory Disease Research

64

Irritant contact dermatitis induced by a common household irritant: a noninvasive evaluation of ethnic variability in skin response.

Astner S, Burnett N, Rius-Díaz F, Doukas AG, González S, Gonzalez E.; J Am Acad Dermatol. 2006 Mar;54(3):458-65.

ABSTRACT

OBJECTIVE: This study was undertaken to investigate the ethnic susceptibility to irritant contact dermatitis induced by a common dishwashing liquid using noninvasive technologies.

METHODS: A total of 30 participants (15 Caucasian, 15 African American) were patch tested to graded concentrations of a common household irritant and evaluated using clinical scoring, reflectance confocal microscopy, transepidermal water loss, and fluorescence excitation spectroscopy.

RESULTS: At 24 hours, the concentration thresholds for clinically perceptible irritancy were significantly higher for African American compared with Caucasian participants. Reflectance confocal microscopy showed stratum corneum disruption, parakeratosis, and spongiosis; these features were more severe in Caucasian participants ($P < \text{or} = .002$). Mean values for transepidermal water loss were significantly higher in the Caucasian group at comparable clinical scores ($P < \text{or} = .005$). Fluorescence excitation spectroscopy showed a broad excitation band at 300 nm (emission 340 nm) and values in both groups returned to baseline by day 7.

LIMITATIONS: This pilot study was limited in scope and larger studies are needed to further evaluate ethnic differences in irritant contact dermatitis and to demonstrate the applicability of our findings for other irritants.

CONCLUSION: Clinical evaluation, reflectance confocal microscopy, and transepidermal water loss showed significant differences in the cutaneous irritant response between both groups suggesting a superior barrier function of African American skin. Fluorescence excitation spectroscopy on the other hand demonstrated no differences in the hyperproliferative response after irritant exposure and indicated similar kinetics for the two groups.