The effect of histamine receptor antagonists on immunosuppression induced by the cis-isomer of urocanic acid.

Norval M, Gilmour JW, Simpson TJ.

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Department of Medical Microbiology, University of Edinburgh Medical School, Scotland, UK.

Abstract

Urocanic acid (UCA) is found in the stratum corneum predominantly as the trans-isomer; on ultraviolet B (UVB) irradiation, isomerization to the cis-isomer occurs. Cis-UCA has been shown to mimic the consequences of UVB irradiation in generating transient suppression of contact and delayed hypersensitivity (DH) responses. In an attempt to elucidate the mechanisms of action of UCA, the effects of 2 histamine receptor antagonists, cimetidine and terfenadine, were examined. One day after skin painting murine ears with cis-UCA, the number of ATPase- cells was reduced from 1068 to 408 mm-2. However, if cimetidine or terfenadine was applied at the same time as cis-UCA, the number of ATPase- cells was reduced only slightly from the control value, to 1028 and 892 respectively. Cis-UCA given subcutaneously or epidermally 5 h before infection of mice with herpes simplex virus suppressed the DH response on subsequent challenge with the virus. If cimetidine or terfenadine was added at the same time as cis-UCA, little suppression of the DH response to the virus occurred. Thus 2 effects of cis-UCA, on the number of ATPase+ epidermal cells and on DH response, were reduced or abrogated by histamine receptor antagonists, which may indicate that cis-UCA acts through histamine-like receptors in the skin.

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