PIGMENTATION

LESIONAL SKIN IN VITILIGO EXHIBITS DELAYED IN VIVO RE-EPITHELIALIZATION COMPARED TO THE NON-LESIONAL SKIN.

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Background: Vitiligo, a common skin disorder, is characterized by the loss of functional melanocytes resulting in the depigmentation of skin. Though still not established unequivocally, earlier studies have demonstrated molecular and architectural alterations in the epidermal keratinocytes upon the loss of melanocytes. The physiological implications of these 'altered' keratinocytes are yet not known.

Objectives: To investigate the proliferation and migration potential of lesional keratinocytes during the process of wound healing.

Methods: Partial-thickness wounds were created in eight subjects with stable vitiligo vulgaris undergoing melanocyte transplantation. The re-epithelialization phase, marked by migration and proliferation of activated keratinocytes at the wound edge, was examined on day 1 (basal state) and day 12 post wound.

Results: This study demonstrates a substantial difference in the re-epithelialization potential between the lesional and non-lesional skin. While all eight non-lesional wounds demonstrated neoepidermis formation, only three corresponding lesional samples showed re-epithelialization; the rest remaining in the inflammatory phase. Ultrastructural studies, using transmission electron microscopy, further revealed a reduced number of desmosomes and increased spongiosis in the lesional re-epithelialized tissue along with an increased myofibroblast population compared to the non-lesional samples.

Conclusion: This study implicates gross functional perturbations in the lesional skin during wound healing in vitiligo, suggesting that the breakdown of keratinocyte-melanocyte network has downstream physiological consequences in maintaining skin homeostasis. Deciphering this cross talk could lead to the development of new therapeutic strategies for restoring pigmentation in vitiligo and/or enhancing wound healing.