DERMATOLOGICAL SURGERY

THE SUCCESS OF MELANOCYTE KERATINOCYTE TRANSPLANTATION IN VITILIGO AND DEPIGMENTED DISORDERS IS INFLUENCED BY THEIR IMMUNOLOGICAL PROFILES

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Introduction: Melanocyte Keratinocyte Transplantation Procedure(MKTP) is emerging as the first line of surgical treatment of depigmenting disorders including vitiligo, Pibaldism, and hypopigmented scars. However, it's only effective in stable disease as active autoimmunity destroys the transplanted melanocytes. Despite careful selection of candidates based on reported disease stability, the success of the procedure is unpredictable, in terms of extent and durability of repigmentation.

Objective: To investigate if immunological mechanisms are influencing unpredictable surgical outcomes in melanocyte keratinocyte transplantation surgical candidates.

Materials and Methods: Twenty MKTP candidates with non-segmental, segmental, and mixed vitiligo, as well as one piebaldism subject were enrolled. We biopsied lesions undergoing surgery as well as non-lesional skin using optimized suction blistering technique. The cellular infiltrate in interstitial fluid was immunophenotyped by flow cytometry, and inflammatory cytokines were measured by ELISA. Following MKTP, these biomarkers were correlated to duration of stability and repigmentation score.

Results: Lesions that ultimately responded poorly to MKTP had a greater number of lesional CD8 cells prior to the procedure. Subtyping analysis of T cells showed a predominantly resident memory phenotype as well as lower number of T regulatory cells that may explain lesion's recalcitrance. We found significant negative correlation between lesional CD8 cells and repigmentation. No significant correlation between CD8 cells with the duration of stability of the disease. The Pibaldism patient fully repigmented with 100% score in 6 months with no detectable T cells or chemokines.

Conclusions: We highlight the dichotomy between autoimmunity and repigmentation in vitiligo, which may underlie the variability in surgical outcomes, despite the apparent stability. Assessing skin biomarkers in vitiligo patients and immunosuppressive treatments during the perisurgical period may improve selection of surgical candidates and their outcomes.