ABSTRACT

Profile of Hair Follicle Wnt1, B-Catenin, Melanocyte Stem Cells, and Melanocytes in Narrow Band - Ultraviolet B Induced Vitiligo Perifollicular Repigmentation

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Background: Melanocyte stem cells (MelSCs) have been identified in the lower permanent portion of hair follicle and associated with perifollicular repigmentation pattern of vitiligo after Narrow Band-Ultraviolet B (NB-UVB) therapy. Wnt1 and β-catenin have been associated with UVB induced pigmentation in mouse and hyperpigmented lesion commonly seen on sun-exposed areas. The increase of MelSCs in these two conditions suggested the role of Wnt1 in MelSCs differentiation, which increases the number of melanocytes.

Purpose: To explain the profile of hair follicle Wnt1, β-catenin, MelSCs and melanocytes in NB-UVB induced vitiligo perifollicular repigmentation.

Methods: This clinical pre-experimental study used one group pre-test-post test design. The dose of 390 mJ/cm² DermaPal™ Daavlin NB-UVB was given twice a week for 2 months to 18 vitiligo patients. Biopsy was undertaken in vitiligo areas involving hair follicle before and after therapy and was assessed by immunohistochemistry technique. Data was analyzed using SPSS.

Results: There was a significant difference (p<0.05) of vitiligo area size, the number of cells expressing Wnt1, MelSCs, MelSCs expressing β-catenin, MelSCs proliferation, melanocytes, also melanoblast and melanocytes proliferation in hair follicle before and after NB-UVB irradiation.

Conclusion: There was a change in the profile of hair follicle Wnt1, β-catenin, MelSCs and melanocytes in vitiligo perifollicular areas before and after NB-UVB therapy. The finding of increment of hair follicle Wnt1 and β-catenin expression after NB-UVB therapy became the novelty of this study and it could be used for further research in perifollicular repigmentation mechanism.

Key words: melanocyte stem cells, NB-UVB, perifollicular repigmentation, vitiligo Wnt1/β-catenin