

*Research Article***Searching for some Melanocyte Stem Cell Markers****Sherif S. Awad, Noha H. Moftah, Manal Gabril and Sally M. Lemby**

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Abstract

Vitiligo, a cutaneous pigmentary disorder caused by selective destruction of melanocytes, is characterized by progressive patchy loss of pigmentation from skin. Melanocytes that are located in the epidermis and hair follicles (HF) of the skin play a major role in pigmentation of the skin or hair. The maintenance of the melanocyte is dependent on a population of melanocyte stem cells (MelSCs).

Keywords: Vitiligo, Melanocytes, Melanocyte stem cells.

Introduction

Vitiligo, a cutaneous pigmentary disorder caused by selective destruction of melanocytes, is characterized by progressive patchy loss of pigmentation from skin. (Choi et al., 2014).

Melanocytes are responsible for hair, skin and eye pigmentation, so they are specialized pigment-producing cells (Słomiński et al., 2004).

After therapy for vitiligo, such as immune-suppressive modalities, repigmentation frequently begins in the peri-follicular area. This likely arises from the reservoir of MelSCs in the HF bulge (Nishimura, 2011).

Patient and Methods

The present study included 16 patients with vitiligo vulgaris. The patients were selected from the Dermatology Out-patient Clinic of Minia University Hospital. All patients will subjected to the Consent from the patient, detailed history, General and local clinical examination. Skin biopsies were taken from all patients for immunohistochemical examination. Immunohistochemical examination was performed for evaluation of S100, Melan-A, c-kit, MITF, SOX10, BCL2 and CD34 by detection of positive staining cells in the epidermis, dermis, hair follicles and eccrine glands. Evaluation of the expression was carried out by counting the number of positively stained cells. Data were analyzed using Statistical Package for the Social Sciences (SPSS), Version 22. Quantitative data were presented by mean and

standard deviation, while qualitative data were presented by frequency distribution.

Results

The present study included 16 patients with vitiligo vulgaris. Eleven female patients (68.8%) and 5 males (31.2%) were included in this study. The age of these patients ranged from 12 to 54 years old (21 ± 10.9). Regarding activity of the disease, 10 patients (62.5%) were active and 6 patients (37.5%) were stable. The disease duration ranged from 1 to 20 years (6.81 ± 5.7). A positive family history of vitiligo presented in 4 patients (25%). Other associated autoimmune diseases presented in 2 patients (12.5%). Regarding skin type, 3 patients (18.8%) were skin type III, 10 patients (62.4%) were skin type IV and 3 patients (18.8%) were skin type V.

Discussion

Cui et al., (1991) showed that the depigmented skin of vitiligo patients carries residual melanocytes that can be preserved in HFs for a long time. These melanocytes are able to act as a reservoir for the repopulation of pigment cells with normal function during disease treatment. Immunohistochemical research on various melanocytic antigen expression in the skin provides important information about melanocyte status in vitiligo lesions (Pretti et al., 2010). Replenishing the skin with new functioning melanocytes is needed during the repigmentation process, and this is dependent on the existence of SCs or melanocytes precursors (Awad, 2014). It suggests that the

HF is the main reservoir that supplies melanocytes in repigmenting human vitiligo (Parsad et al., 2004).

Conclusion

Vitiligo, a chronic idiopathic pigmentary disorder of the skin and hair, mainly affects melanocytes in epidermal basal layer. Its etiological factors include autoimmune, biochemical, neural, melanocytorrhagy, autocytotoxic and genetic hypotheses. MelSCs serve as a melanocyte reservoir for skin and hair pigmentation.

The complete knowledge of the melanocyte reservoir is of prime importance to understand the mechanisms of repigmentation, which are crucial for designing newer strategies for vitiligo therapy. The possibility of MelSCs in skin areas without HFs where repigmentation occurs with a diffuse pattern may suggest the existence of an amplified concept of the melanocyte reservoir that would include the IFE as well.

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