

Comparison Treatment of Vitiligo by Co-culture of Melanocytes Derived from Hair Follicle with Adipose-Derived Stem Cells with and without NB-UVB

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ABSTRACT

Vitiligo happens when pigment-producing cells die or stop functioning. Loss of skin colour can affect any part of the body, including the mouth, hair and eyes. It might be increasingly recognizable in individuals with darker skin. Treatment may improve the presence of the skin however doesn't fix the ailment. Vitiligo is a chronic (long-lasting) disorder that causes areas of skin to lose color. Nobody knows the specific reason for vitiligo. It might be an immune system infection wherein the body's resistant framework assaults and wrecks the skin cells that make shading. There is no cure for vitiligo. Treatment goals are to slow or stop the disease, help skin cells that make color to grow again, and to bring back color to the white patches of skin. Living with vitiligo can be hard. You can help deal with the sickness by finding a specialist who has treated individuals with vitiligo. Conversing with a guide and connecting with loved ones for help can enable you to adapt. Vitiligo can be characterized into segmental and non-segmental vitiligo. Segmental vitiligo has depigment edmacules arranged in a dermatomal or unilateral distribution, which does not cross the midline. It varies from non-segmental vitiligo as far as clinical highlights, regular history, and furthermore treatment reaction. Human epidermal melanocytes (HEM) produce melanin, a pigment responsible for both skin color and protection from ultraviolet radiation (UVR). Through a process called melanogenesis, melanocytes produce melanin, which is a pigment found in the skin, eyes, hair, nasal cavity, and inner ear. This melanogenesis leads to a long-lasting pigmentation, which is in contrast to the pigmentation that originates from oxidation of already-existing melanin. The precursor of the melanocyte melanoblast. In adults, stem cells are contained in the bulge area of the outer root sheath

of hair follicles. When a hair is lost and the hair follicle regenerates, the stem cells are activated. These stem cells develop into both keratinocyte precursors and melanoblasts - and these melanoblasts supply both hair and skin (moving into the basal layer of the epidermis). There is additionally evidence that melanocyte stem cells are present in cutaneous nerves, with nerve signals causing these cells to differentiate into melanocytes for the skin. Adipose-derived stem cells (ASCs) are mesenchymal stem cells (MSCs) that are obtained from abundant adipose tissue, adherent on plastic culture flasks, can be expanded in vitro, and have the capacity to differentiate into multiple cell lineages. Unlike bone marrow-derived MSCs, ASCs can be obtained from abundant adipose tissue by a minimally invasive procedure, which results in a high number of cells. Therefore, ASCs are promising for regenerating tissues and organs damaged by injury and diseases. This article reviews the implications of ASCs in tissue regeneration. Narrowband UVB is the most common form of phototherapy used to treat skin diseases. "Narrowband" refers to a specific wavelength of ultraviolet (UV) radiation, 311 to 312 nm. UVB phototherapy was formerly provided as a broadband source (290 to 320 nm). The narrowband range of UV radiation has proved to be the most beneficial component of natural sunlight for psoriasis. Narrowband UVB may also be used in the treatment of many other skin conditions including atopic eczema, vitiligo, pruritus, lichenplanus, polymorphous light eruption, early cutaneous T-cell lymphoma and dermatographism.

The aim of this work is to evaluate treatment of vitiligo by co-culture of melanocytes derived from hair follicle with adipose-derived stem cells with (NB-UVB) and without (NB-UVB)

In this study, we used co culture of adipose derived stem cell with melanocytes derived

from hair follicle in treating different types of stable resistant vitiligo, by two methods transplantation: group (A) exposed to (NB-UVB), group (B) did not expose to (NB-UVB). They are followed up for 3 months.

At the end of the follow up period which was 3 months group (A) showed better pigmentary response than group (B) and it was highly statistically significant. Stability, size, site and onset of vitiligo appeared to be important factors affecting treatment results. Using (NB-UVB) also after injection of the treatment showed more improvement in the treatment results. It can be concluded that co-culture of adipose derived stem cell with melanocytes derived from hair follicle could be a safe and effective method of treatment for stable localized vitiligo in patients resistant to other methods of therapy.