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Potential of hematopoeitic stem cells for skin regeneration in resistant burn wound

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Burn injury is an important cause of morbidity and mortality. The normal repair of full-thickness burns is fibrosis and scarring without any appendages. Autologous skin grafting has been considered to be a better treatment for burn wounds. However, donor sites for autografts are limited especially in patients with large burns. Recently, progress has been achieved in the research of artificial skin substitutes. However, creating a viable skin substitute by assembling individual components in vitro has not been successful therefore finding a way for burn healing is becoming a must. Stem cells have properties of self-renewal and multipotency. Adult stem cells can modulate the immune and inflammatory responses to promote wound healing. The use of stem cells is becoming realistic in burn treatment. It can improve the quality of burn wound healing, reduce the formation of scars and re-establish the normal function of the skin and its appendages. Stem cell therapy is an attractive therapeutic tool for future burn treatment. In this study, we proposed separation of stem cells from autologous bone marrow aspirate and injecting them in the resistant burn wound under complete aseptic conditions. The results showed better wound healing with no scar formation. The use of stem cells will promote burn healing with normal skin growth without scars.

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