The healing effect of fibroblast cells isolated from foreskin on skin wounds in animals

Supported by: GREEN, IAS, AIC

Background
Despite a number of experimental studies, the healing effects of stem cells on chronic wounds still face serious challenges. The present study investigated the effect of injection of fibroblasts isolated from foreskin on the histological improvement of diabetic wounds in male rats.
Methods
24 male Wistar rats were divided into control and treatment groups during this experimental laboratory study. Diabetes was induced in control and treatment groups using streptozotocin. Using a biopsy punch, a wound was created in the dorsal region of the animals Foreskin derived fibroblasts were injected into the dermis layer in the treatment group. On days 7, 14, and 21 after treatment, the wound healing was evaluated using morphologic observation, histological examination through hematoxylin- eosin staining, and measuring the wound size by Image j. Data were analyzed using ANOVA.
Results
On day 14 after treatment, the wound area was significantly smaller in the treated group than the control group ($P<0.001$). Histological examination showed that the skin thickness significantly increased in the treatment group on days 14 and 21 compared with control group ($P<0.01$). Besides, no morphologic complications were observed in the skin tissue following the injection of fibroblast cells.
Conclusion
Our findings indicated that fibroblast cells are capable of accelerating the process of diabetic wound healing without morphologic complications in the skin tissue; according to which, the foreskin derived fibroblast cells can be used in the field of cell therapy.

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