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Efficacy of Umbilical Cord Lining Stem Cells For Wound Healing in Diabetic Murine Model

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Abstract : Aim: This study investigates the roles of Cord Lining Stem Cells (CLSCs) as potential therapeutic agents for diabetic wounds. Method: 20 genetically diabetic db/db mice were randomly assigned to two arms; (i) control group received placebo treatment (sham media or cells delivery material), and (ii) active comparator received CLSCs. Two full-thickness wounds, each sized 10mm X 10mm were created, one on each side of the midline on the back of the mice. Digital pictures were taken on day 1, 3, 7, 10, 14, 17, 21, 24, 28. Wound areas were analyzed with ImageJ TM software and calculated as percentage of the original wound. Time to closure was defined as the day the wound bed was completely epithelized and filled with new tissues. Results: The CLSCs-treated wounds, showed a significant increase in the percentage of wound closure and achieved 100% closure of the wound sooner than the control group by an average of 3.7 days. The mice treated with CLSCs have a shorter wound closure time (mean closure day: 19.8 days) as compared to the control group (mean closure day: 23.5 days). Conclusion: Our preliminary findings inferred that CLSCs treated wound achieved higher percentage of wound closure within a shorter duration of time.

Keywords : cord lining stem cell, diabetic wound, stem cell, wound
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