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Comparison of placenta membrane and silver sulfadiazine effect in partial thickness burn wound healing in rat

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Background and Aims: Burn is an especially severe form of thermal injury. Human placenta membrane was introduced as a rapid physiological wound healing with antibacterial activity. Present study was performed to compare the effect of placenta membrane and silver sulfadiazine effect in the rat experimental deep partial thickness burn.
Methods: For this study, 48 male rats were randomly divided into 3 groups. Placenta membrane, silver sulfadiazine and control groups .For all animals, under the general anesthesia, deep partial thickness burn was created. At the end of first, second, third and fourth week of treatment, biopsies were taken from burn and adjacent normal areas. In the prepared slides, number of polymorphonuclear leukocytes, vascular channels and fibroblasts were examined.
Results: At day 7, in the placenta membrane group, PMNs leukocyte count was significantly lower than silver sulfadiazine group ($P < 0.05$) . At the end of second week, the amount of granulation tissues formation and fibroblast count was greater than silver sulfadiazine ($P < 0.05$). At the end of third week the organization of granulation tissue in the placenta membrane group was significantly higher ($P < 0.05$). At the end of the forth week the re-epithelialization, containing horny layer, in the first and second groups was completely formed.
Conclusions: The placenta membrane was an ideal tissue for temporary wound coverage and repair of partial-thickness burns. It is cost effective and accelerates wound healing, compared with silver sulfadiazine.

Keywords: Wound healing; Partial thickness burn; Placenta membrane; Silver sulfadiazine