The clinical efficacy of Dermacyn on deep partial thickness burn wounds

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[Abstract] Objective: To observe the therapeutic efficacy of Dermacyn on deep partial thickness burn wounds. **Method**: 20 cases, with age ranged from 18 to 65 and burn area <60%, of partial thickness burn wounds were treated with Dermacyn. And Sulfadiazine Silver served as self-consubstantiality control medicine. **Result:** The 7-days wound cure rate in the treatment group and control group was 11.505+/-1.612% and 10.475+/-1.627% respectively, while the 13-days wound cure rate was 33.125+/-2.7646% and 31.29+/-2.6656%. The mean wound healing time was 20.00+/-2.7125 days in treatment group and 22.1+/-3.007 days in the control group. The differences between these two groups were significant as P<0.01. There was no obvious evidence of adverse effects. **Conclusion:** Compared with Sulfadiazine Silver, Dermacyn is able to short the wound healing time of deep partial thickness burn.

Key Words :Dermacyn Burns

1 Background and objective Sulfadiazine Silver is still a classical drug in the burn treatment now. It forms a thin scab, releasing Ag ions and sulfadiazine when gets in touch with tissues. Ag is able to inhibit the proliferation of bacteria for widening the distance between purine and pyrimidine by replacing H ions of

DNA, while sulfadiazine can make bacteriostasis simultaneously. However, Ag is also able to hamper the wound healing in the process of epithelization through combining with epithelium DNA. Moreover, sulphonamides are easy to cause allergic eruptions.

In order to prevent the adverse effects of Sulfadiazine Silver, many new drugs are being developed. Among them, Dermacyn can not only control infection by eradicating bacteria, fungi and virus, but also hasten the wound healing effectively.

This research objective is to approach the efficacy and security of dermacyn on the treatment of deep partial thickness burn.

2 Material and method

2.1 Case selection 20 patients with deep partial thickness burn within 24 hours after thermodynamics burn were selected. There were 12 males and 8 females, with age ranged from 18 to 65, burn area ≤60%, and mean total burn area of 24.1%. They had no hypersensitive body constitution, no history of drug allergy, no disease of heart, pulmonary, liver, kidney, hematopoietic system, CNS and endocrine system, no shock and other severe complications of burn. Patients in lactation or pregnancy were excluded. Others with special causes of burn were not selected in this study as well.

2.2 Grouping and medication The depth of burn was identical, and the burn area was approximately 100cm^2. Two adjacent or symmetrical deep burn wound partial thickness were studied by self-consubstantiality control[(1)]. Dermacyn was used to clean and hydropathic compress wound surface in the treatment group, while Sulfadiazine Silver (SD-Ag) cream was used in the control group. Portion exposure or enswathement therapy was adopted and changed dressing every other day. The course of treatment was less than 28 days.

2.3 Observation index Observed the wound appearance and secretion every time before changing the dressing, to find whether there was sever infection or eruptions. Photographed the original wounds and those after medication for 7 days and 13 days with fixed magnification, and then applied Matlab 7.0 in managing the scan pictures to calculate the wound cure rate (healing area/ burn area *100%) respectively. Count up the wound healing time of each patient. Took CBC, urinalysis and biochemistry tests both before and after treatment, to evaluate the adverse effects based on the patient's condition.

2.4 Statistical method Paired-Samples T Test with SPSS 10.0 .

3 Results

3.1 Wound condition There was evident secretion along with shedding of initial necrosis tissues in the treatment group. After 5 to 7 days, the shedding was completed, and then the secretion decreased. The wound became fresher, and the wound edge inflammation extinct. Epithelium islands appeared, while borderline skin expanded centrally. There was no marked pain, allergic reactions and other adverse effects. The control group, in comparison, had lower fresh level and more secretion.

3.2 Wound cure rate and healing time All the wounds healed within 28 days. The 7-days wound cure rate in the treatment group and control group was 11.505+/-1.612% and 10.475+/-1.627% respectively, while the 13-days wound cure rate was 33.125+/-2.7646% and 31.29+/-2.6656%. The mean wound healing time was 20.00+/-2.7125 days in treatment group and 22.1+/-3.007 days in the control group. The differences between these two groups were significant as $P<0.01$.

3.3 Adverse effects All the test results shown no functional impairments of liver, kidney or other organs after treatment. No patients had allergic reactions like eruptions.

4 Discussion Super-oxidized solution is used for debriding and cleaning wound in the management of acute or chronic wound, ulcer, concisus, bruise and

burn. It is adopted in various wound treatment because of precipitating the healing process by diminishing the number of bacteria and supplying wet environment. It is widely recognized that Dermacyn speeds up the wound healing through several mechanisms such as (1) controlling infection. Dermacyn shows broad-spectrum antibiotic abilities in vitro and in vivo researches. [2] (2) abating inflammation. Dermacyn can spur inflammation cells releasing stimulator factors for pre-inflammation cells and histamine to inhibit secretion. [3] (3) improving topical circulation. Dermacyn may dilate capillaries to raise PaO_2 level in wounds and peripheral tissues. [4] (4) promoting the movement and proliferation of fibroblastic cells. Neutral super-oxidized solution is able to precipitate wound healing in white mice, which supports the direct efficacy of Dermacyn on wound treatment. [5]

From above-mentioned results: Compared with Sulfadiazine Silver, Dermacyn short approximately 2 days for the healing of deep partial thickness burn wounds. There is no apparent suffering as the stimulus to the wounds is feeble. Moreover, there is no obvious evidence of toxicity effects, allergic reactions and adverse effects. As a result, it is valuable to spread the usage of Dermacyn in clinic.

References

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