

Comparative Assessment of Efficacy and Safety of Silver Sulphadiazine and Collagen Based Silversulphadiazine in Healing of Upper Partial Thickness Burns

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ABSTRACT

25 patients suffering from upper partial thickness burn wounds were studied for comparative assessment of efficacy and safety of *SSD and Collagen based SSD for complete re-epithelialization of burn wound.

INTRODUCTION

To describe Comparative Assessment of Efficacy and Safety of Silver Sulphadiazine and collagen based silversulphadiazine in Healing of Upper Partial Thickness Burns, and in a prospective of this study conducted over a series of 25 patients suffering from upper partial thickness burns, wounds were analysed over a three week period. This study aimed to make observations on a selection of burns and to evaluate the efficiency and safety of silversulphadiazine.

MATERIAL AND METHODS

The entire wound healing process is a complete series of events that begins at the moment of injury and continues for few months to years.

The main phases are:

- a- Inflammatory phase which lasting from immediate post wound to 5-6 days.
- b- Proliferative phase lasting for 2 days to 3 weeks.
- c- Remodeling phase lasting from 3 weeks to few years during which scar maturation occurs.

Collagen based SSD was applied from day one of burn on fresh wounds.

On 6 sq.cm area after cleaning with normal saline and the rest of the wound area was covered with only SSD.

Dressings were changed for SSD on every day and for collagen based SSD every alternate day.

*SSD: Silversulphadiazine.

Patients were examined on every alternate day, days 3 and 5 to record inflammatory phase completion, day 7 for wound granulation, day 9 to check for early epithelialization.

Findings of day 11 and day 13 were studied at checkpoints for analysis of re-epithelialization.

Later on, every alternate day, wounds were examined for re-epithelialization. Study stopping point was done on day 21 if re-epithelialization does not occur.

During this study the primary efficacy variable is the time to 100% re-epithelialization (complete wound closure) as determined by clinical assessment.

RESULTS

Assessment of safety:

- Pain and itching.
- Incidence of burn site infection.

Pain at burn sites: Pain assessment at the burn sites was conducted, prior to dressing change.

Wound intervention involving burn sites, on day one and every alternate day till complete re-epithelialization or till secondary end point was noted.

Primary end point:

Complete healing defined as the presence of a dry, opalescent-pink external confluent surface representing the newly formed outer cornified layer of the epidermis (the stratum corneum).

Secondary end point:

- The reporting of pain and itching at the treatment site-pain was recorded on neumeric pain scale.
- Signs of infection.

Itching severity at burn site:

Itching at each burn site was assessed by the subject as none (0), mild (1), moderate (2), or severe (3) at each visit.

Burn site infection:

Presence of infection at the burn site was established based on clinical observations and supported by microbiological testing. At each study visit, symptoms and signs consistent with infection were evaluated as present or absent. The symptoms and signs of infection include: Purulence, malodor, increased warmth, pain and tenderness, erythema, induration, or swelling.

Inclusion criteria:

- Male or female patients of 18 years and older.
- Patients with upper partial thickness burns.

Exclusion criteria:

- Pregnant or lactating.
- Treatment with systemic corticosteroids during the 30 days prior to injury.
- Immunosuppressive, radiation or chemotherapy during the three months prior to injury.
- Patients with known viral infection.
- Patients with known hypersensitivity to Penicillin.
- Patients with known sensitivity to bovine origin.
- History of diabetes.

DISCUSSION

Collagen based SSD cream is a pure water soluble non oily viscous cream made of a reconstituted collagen of a bovine endodermis containing 1% SSD.

During the study, it was found that the healing of burn wound was 30% to 40% faster in case of collagen based SSD as compared to SSD only. Also it was found that with Collagen based SSD the dressings were painless and comfortable at the time of removal and there was no allergic reaction or any untoward effect on patient.

Collagen fibers form a mesh of collagen on the wound that works as a Scaffold for the support of the three dimensional growth of the cells and the fibroblast grow faster in and around the collagen scaffold and deposit their own collagen between the collagen fibers and thus promote healing.

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