CLINICAL EVALUATION OF AN ABSORBANT HYDROGEL DRESSING ON BURN WOUNDS.

SECOND ASIAN PACIFIC BURNS CONFERENCE HONG-KONG Friday 9 February 1996

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INTRODUCTION.

In this poster a clinical evaluation of an absorbent hydrogel dressing on burn wounds will be discussed.

Within a period of six months twenty patients with second degree burns (more than 10 % total body surface) were treated with an absorbent hydrogel dressing according to a alternative treatment regime. From those, 13 patients had deep second degree burn wounds and two of them had serious overall third degree burns. The rest was a mixture of all degrees. We had to explain the standard treatment and its disadvantages.

A. STANDARD TREATMENT

The standard treatment of burns in our setting has been; covering the wounds with Silver sulfadiazine Cream (SSD) and dry cotton gauze. The Silver sulfadiazine Cream was applied two or three times a day after removal of the remnants.

The wound healing pattern for the SSD treatment is by most humans the same. Histopathological investigation of the wound done by the Beverwijk Burns Research Institute, The Netherlands shows a typical mixed aspect of eschar within granulation tissue and outgrowing epithelium. Disintegration of the crust starts after approximately one week post burn at the wound edges. Re-epithelialization, starting from the edges can be seen very soon.

After some time, depending from the surface, approximately 14 days, the epidermis broadens and it gets a not expected and not explainable pseudo carcinomatous outgrowth. This seems typical with SSD and without consequences.

Histopathological data show that silver ions are irritating the tissue. As long as the scab exists the ions stay at the top of this scab. There they are disinfecting the wound without penetrating the scab. As soon as the scab breaks down, the ions get absorbed and can be traced in the blood. Silver sulfadiazine has the potential to preserve viable dermal tissue but the epidermal regeneration is rather slow and irritated, while the formation of granulation tissue is pronounced with an abundance of myofibroblasts.

B. ALTERNATIVE TREATMENT

Our alternative treatment begins for killing the germs on the burned skin with SSD, but then we cover the wound with large pieces of hydrogel (Elasto-Gel®, Southwest Technologies Inc.) without SSD. Elasto-gel consists of 63 % glycerin, 17.5 % water and 17.5 % polyacrylamid that acts as matrix. The first days these hydrogel sheets can be left for at least one to three days. As wound exudate diminishes the hydrogel sheet can be left for one week or longer.

Wound healing is enhanced and patient comfort is dramatically improved, compared to the old standard SSD and cotton gauze.

Until now we have not had any signs of infection during the treatment with the hydrogel. The reason of no infection should be sought in the high concentration of glycerin in the dressing.

An investigation of "The University Of Miami School Of Medicine Department Of Dermatology And Cutaneous Surgery" shows that Elasto-gel is effective in reducing both the number of Pseudomonas aeruginosa and the total number of bacteria. This suggests that Elasto-gel-occlusion does not favorably support Pseudomonas aeruginosa proliferation and may have significant implications for clinical use.

Because the healing resulted macroscopically in the absence of hypertrophic scars even three months after complete epithelialisation, histopathological evaluation of a wound treated with this hydrogel will show no abundance of myofibroblasts.

Together with her arm more than 10% TBS was burned.

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REFERENCES