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Treatments for damaged skin

This is the fifth of a series of articles looking at the available evidence for complementary medicine relating to the theme topic in *Australian Family Physician*. Any ointment or device when applied to damaged skin whether it be burned or cut, has a legion of tasks to perform: maintaining the integrity of the skin affected, repelling infective agents, and promotion of the healing process.

For centuries the use of honey has provided a therapeutic ointment option. Recently, additional modalities in the form of enteral supplementation and other micronutrients have been investigated for their therapeutic efficacy in patients with damaged skin.

Honey as a wound dressing

This study¹ investigated the topical use of honey in superficial burns and wounds using a systematic review of randomised controlled trials. Cochrane Library, MEDLINE, EMBASE, PubMed, reference lists and databases were used to seek for trials. Seven randomised trials involved superficial burns, partial thickness burns, moderate to severe burns that included full thickness injury, and infected postoperative wounds. Studies were randomised trials using honey with a comparator. Main outcomes were relative benefit and number needed to treat to prevent an outcome relating to wound healing time or infection rate.

One study in infected postoperative wounds compared honey with antiseptics plus systemic antibiotics. The number needed to treat with honey for good wound healing compared with antiseptic was 2.9 (95% CI: 1.7–9.7). Five studies in patients with partial thickness or superficial burns involved less than 40% of the body surface. Comparators were polyurethane film, amniotic membrane, potato peel and silver sulphadiazine. The number needed to treat for 7 days with honey to produce one patient with a healed burn was 2.6 (95% CI: 2.1–3.4) compared with any other treatment, and 2.7 (95% CI: 2.0–4.1) compared with potato and amniotic membrane. The results showed that for some or all outcomes, honey was superior to all compared treatments and that time for healing was significantly

shorter for honey than for all compared treatments. As the quality of studies was low, it was concluded that confidence in the use of honey as a useful treatment for superficial wounds or burns was low. However, it was also reported that there was significant biological plausibility for its employment.

Clinical and protein metabolic efficacy of glutamine granules-supplemented enteral nutrition in severely burned patients

Forty-eight severe burn patients (total burn surface area 30–75%, full thickness burn area 20–58%) met the requirements of the protocol for this double blinded randomised controlled trial.² Patients were randomly divided into two groups: burn control group (B group, 23 patients) and glutamine treated group (glutamine group, 25 patients). There was isonitrogenous and isocaloric intake in both groups, glutamine and B group patients were supplemented with glutamine granules or placebo (glycine) at 0.5 g/kg per day for 14 days with oral feeding or tube feeding, respectively. A number of plasma and urine parameters were determined, as well as wound healing rate of the burned area and hospital stay. The results showed that supplementation with glutamine granules for 14 days increased plasma glutamine concentration significantly than that in B group participants ($607.86 \pm 147.25 \mu\text{mol/L}$ vs. $447.63 \pm 132.38 \mu\text{mol/L}$, $p < 0.01$) and the plasma pre-albumin and transferrin in the glutamine group were significantly higher than those in B group control ($p < 0.01$). However, the concentration of total protein and albumin were not significantly changed compared with B group ($p > 0.05$). The amount of urine nitrogen and 3-methylhistidine excreted in the glutamine group were significantly lower than that in the control group. Wound healing was also faster and hospital stay days were shorter in the glutamine group than in the control group (46.59 ± 12.98 days vs. 55.68 ± 17.36 days, $p < 0.05$). Supplementation with glutamine granules with oral feeding or tube feeding could abate the degree of glutamine depletion, promote protein synthesis, inhibit protein decomposition, improve wound healing and reduce patient hospital stay.

Trace element supplementation modulates pulmonary infection rates after major burns

This double blind randomised controlled trial³ investigated the clinical and immune effects of trace element supplements in pulmonary infection rates after major burns. Twenty patients, aged 16–40 years, burned on 17–48% of their body surface, were studied for 30 days after injury. They consumed either standard trace element intakes plus supplements (40.4 µmol Cu, 2.9 µmol Se, and 406 µmol Zn; test group A) or standard trace element intakes plus placebo (20 µmol Cu, 0.4 µmol Se, and 100 µmol Zn; control group B) for 8 days. The demographic data were similar for both groups. Mean plasma copper and zinc concentrations were below normal until days 20 and 15 respectively (NS). Plasma selenium remained normal for group A but decreased for group B ($p < 0.05$ on days 1 and 5). Total leukocyte counts tended to be higher in group A because of higher neutrophil counts. Proliferation to mitogens was depressed compared with healthy control subjects (NS). The number of infections per patient was significantly ($p < 0.05$) lower in group A (1.9 ± 0.9) than in group B (3.1 ± 1.1) because of fewer pulmonary infections. Early trace element supplementation was significantly beneficial after major burns. Significant decreases in the number of bronchopneumonia infections with a shorter hospital stay when data were normalised for burn size were recorded.

Conflict of interest: none declared.

References

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