OBJECTIVE

This study investigated a polymer-based skin barrier to prevent and treat irritant contact reactions. The product is an acetone and polymer-based skin coating technology that is applied to the skin as a liquid that rapidly dries (~15 – 30 seconds) to form a thin film.

Irritant and allergic contact dermatitis affect approximately 10% of adults and hand eczema, in particular, represents one of the four most common occupationally-related diseases, accounting for substantial lost earning potential in otherwise healthy populations. Hand eczema is the most common occupational skin disease and occurs regularly in professions such as mechanics, textile workers, hairdressers, and especially healthcare workers.

METHODS

IRB approval, consent, and baseline measurements were completed. The designated treatment was randomly assigned and then applied to each of the sites described above.

Sixty µl of an aqueous solution of 2.0% SLS was pipetted onto a layer of filter paper placed in each of several aluminum Finn Chambers® (Allerderm Laboratories, Petaluma, CA), which were affixed to the sites with hypoallergenic tape. On day 2, the Finn Chambers and barrier products were removed and all sites were scored for irritation and evaluated for TEWL. The study ended on Day 8 and final measurements were taken.

RESULTS

Barrier to Irritant Test: Sites receiving the polymer barrier and then SLS had lower TEWL levels than the SLS-only site (p<0.0001) at all time points, demonstrating the effectiveness of the polymer barrier to prevent irritant contact reactions. Visual evaluation scores confirmed the TEWL results, showing less irritation on the sites that received the polymer barrier than the SLS alone.

Skin Barrier Function Recovery Test: At the final time point, TEWL measurements on the polymer-treated sites were significantly improved compared to the SLS-only sites, suggesting that the polymer barrier was as effective as petrolatum at resolving the irritant contact reactions.

Polymer Effect on Normal Skin Test: Repeated daily applications of the polymer barrier to normal skin for 5 days showed no significant differences between TEWL levels of normal, untreated skin. Thus, repeated application of the polymer barrier did not adversely affect normal skin.

CONCLUSIONS

The novel polymer skin product is an effective barrier to irritant contact dermatitis. When applied to irritated skin, the polymer coating improves skin barrier function as effectively as petrolatum. Applying the polymer barrier does not adversely affect normal skin.

REFERENCES & ACKNOWLEDGEMENT


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