A New Topical Agent, Zanfel®, Ameliorates Urushiol-Induced *Toxicodendron* Allergic Contact Dermatitis

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Background/Objective

Toxicodendron exposure and subsequent allergic contact dermatitis (ACD) is a significant health issue and frequent cause for emergency department visits. The resulting monetary cost to states with *Toxicodendron* plants can be substantial. Poison ivy, poison oak, and poison sumac are all common causes of ACD and the vast majority of the general population is susceptible, with perhaps one million victims per year. Treatment for the condition may be difficult, however, with systemic anti-histamines and steroids as well as topical agents all being limited by concerns of efficacy or side effects. A new topical agent, Zanfel®,(Zanfel Laboratories Inc., Morton, IL) a mixture of alcohol solubles and anionic surfactants, has the potential to bind the urushiol resin post exposure, even after symptom onset. If effective, this would provide the emergency physician with a new mode of therapy for this common problem. The objective of this study was to determine if a new topical wash, Zanfel®, is an effective post exposure treatment of *Toxicodendron* ACD.

Methods

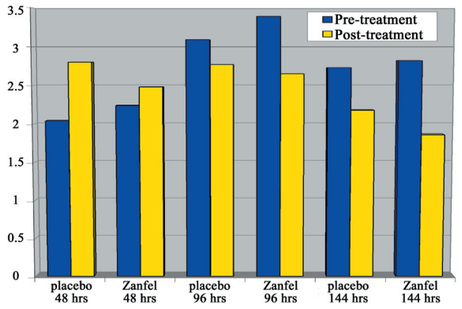
This was a randomized, controlled, double-blind trial with 24 consenting volunteers. With each subject serving as his or her own control, both forearms received three one square inch sites of skin exposure to 1.5 micrograms of purified *T. radicans* urushiol resin (see Figure 1). At three subsequent times post exposure (48, 96 and 144 hours), the sites were treated with placebo or Zanfel®. Pre-treatment and post-treatment ACD reaction scores and subjective itch scores were compiled at each time. ACD was scored using a zero to six point Likert scale based upon erythema, induration, and vesiculation; itch was quantified using a ten-centimeter visual analog scale. Comparisons were by paired t-test, with alpha set at 0.05.

Figure 1

Results

At all times following urushiol exposure, Zanfel® significantly improved the *Toxicodendron*-induced ACD compared to placebo. The difference in ACD scores at times 48, 96 and 144 hours respectively, all favored the Zanfel® group versus placebo (- 0.76 vs. -0.24; 0.32 vs. 0.74; and 0.55 vs. 0.96, all $p<0.05$). (See Figure 2) Itch scores improved for both groups at all three time points with a trend favoring the Zanfel® group at 96 hours ($p=.058$).

Figure 2 - ACD Reaction Results



Discussion

Traditional treatments for urushiol-induced ACD have utilized one of two different strategies: prophylaxis (barrier creams to prevent resin exposure) and anti-inflammatory (using steroids and anti-histamines to treat the reaction, once established). Zanfel, however, appears to provide an additional approach. In our study it appeared to effectively bind the toxin thus ameliorating the ACD symptoms within a short time after application. The Zanfel treated sites demonstrated less erythema and induration than those sites treated with placebo. In some cases the Zanfel appeared to prevent a reaction entirely. (See Figure 3) The effect of Zanfel on itch was more difficult to discern possibly due to our protocol, which rated the degree of itch shortly after washing the sites either with Zanfel or the placebo. The physical act of washing caused a clinically significant decrease in itch, which may have attenuated the effect of the active agent.

Zanfel has thus far had almost no role in emergency practice. No peer-reviewed study documenting or refuting its effectiveness has appeared. The manufacturer claims that relief from ACD symptoms occurs within seconds to minutes of a single application; subsequent or multiple applications in recalcitrant cases are recommended. Our study documented the potential of Zanfel for treatment of experimentally induced ACD. A clinical study of naturally occurring poison ivy rash is underway.

Zanfel Placebo

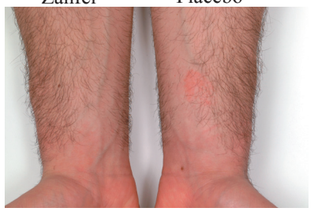


Figure 3

Conclusions

The new topical agent, Zanfel®, when applied after exposure to urushiol, ameliorates or prevents *Toxicodendron*-induced allergic contact dermatitis.

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