

EXPERIMENTAL IMMUNOLOGICAL STUDY

IN CHEMICAL BURNS IN RATS

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Abstract

The study was performed on 25 rats burned with Hydrochloric acid divided in 5 groups : 5 control, 5 treated with NaCl solution, 5 treated with calcium gluconate and 5 treated with Diphoterine[®]. We investigated TNF- α , IL6 under immunological point of view after 6h, 24h, 48h and 7 days. We monitored the wound healing in different times. The results showed a better healing in the groups treated with NaCl solution and Diphoterine[®] and showed a low response to the immunological parameters. In the present paper we report the results of the study.

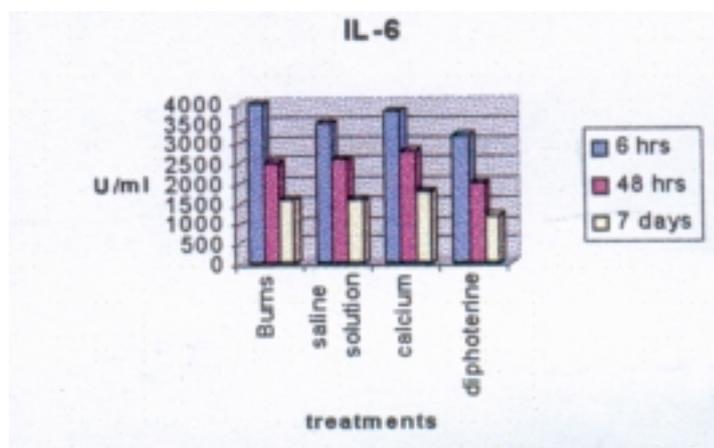
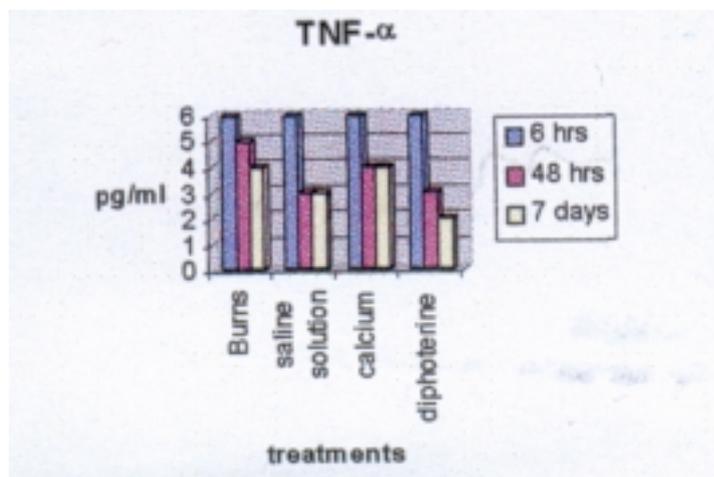
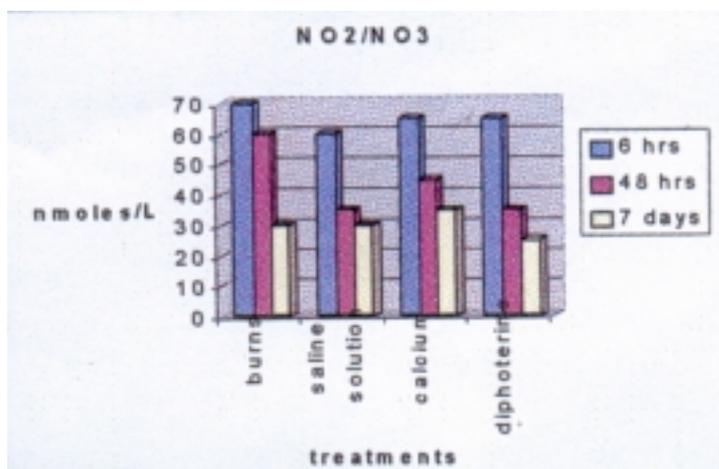
Introduction

Normally in clinical practice after chemical burns many solutions are used to wash the skin damaged. In this study, we compared the effects of saline solution, calcium gluconate and an amphoteric solution, named Diphoterine[®] on wound healing and immunological responses after burns on rats, induced by hydrochloric acid (HCl).

Materials and methods

We used 25 male rats Sprague-Dowley CD average weight 250 gr. Twenty rats were burnt with HCl solutions (0.5 ml, 52%) for 15 seconds, on the back's skin, and washed with saline solution (5 rats), calcium gluconate (5 rats), Diphoterine[®] (5 rats). 5 rats were burned and untreated. We investigated immunological parameters (IL-6, TNF- α , NO) and β -endorphin and substance P for pain management (data not shown) after 6, 48 hours and 7 days .

results



Discussion

For NO : low level in Diphoterine[®] group means a good response to infection. High level in calcium and saline solution indicates a down regulation in responding to infection (inhibition of leukocytes and pacrophages).

For TNF- α and IL-6 : low levels in Diphoterine[®] and saline solution groups indicate a low general inflammatory response and that an anti-inflammatory activity of the amphoteric solution.

Conclusion

Amphoteric solution (Diphoterine[®]) showed satisfactory results not only in immunological responses but also in wound healing and pain control (high level of β -endorphin, and low level of substance P), in comparison with the other solutions used.