

Brown recluse spider envenomation: a prospective trial of hyperbaric oxygen therapy

ML Maynor, RE Moon, B Klitzman, PJ Fracica and A Canada

Department of Anesthesiology, Duke University Medical Center, Durham, NC, USA.

mmaynor.103@aol.com

OBJECTIVES: *Loxosceles reclusa* (brown recluse) spider bites can produce severe skin lesions that may necessitate extensive surgical repair. This study delineated the effects of hyperbaric oxygen (HBO) therapy on these lesions by performing a prospective controlled animal study. **METHODS:** After approval by the Institutional Animal Care and Use Committee, 41 New Zealand white rabbits received 64 intradermal injections of 73 microL of raw venom extract mixed with physiologic buffered saline (Dulbecco's solution). Control injections were made with buffer. The animals were divided into 5 groups: 1) venom and no HBO; 2) venom and 1 immediate HBO treatment (100% O₂); 3) venom and immediate HBO with 10 treatments (100% O₂); 4) venom and then delayed (48 hr) HBO therapy with 10 treatments (100% O₂); and 5) venom and immediate hyperbaric treatment with normal inspired PO₂ for 10 treatments (8.4% O₂). Three animals in group 2 also received a control sodium citrate buffer injection. HBO treatments were at 2.5 atm absolute (ATA) for 90 minutes twice daily. Daily measurements were made of the lesion diameter, and skin blood flow using a laser Doppler probe. **RESULTS:** There was no significant effect of HBO on blood flow at the wound center or 1-2 cm from the wound center. Standard HBO significantly decreased wound diameter at 10 days ($p < 0.0001$; ANOVA), whereas hyperbaric treatment with normoxic gas had no effect. Histologic preparations from 2 animals in each group revealed that there were more polymorphonuclear leukocytes in the dermis of all the HBO-treated animals when compared with the venom-alone and sodium-citrate controls. **CONCLUSION:** HBO treatment within 48 hours of a simulated bite from *L. reclusa* reduces skin necrosis and results in a significantly smaller wound in this model. The mechanism appears unrelated to augmented local blood flow between treatments.

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Comparison of Colchicine, Dapsone, Triamcinolone, and Diphenhydramine Therapy for the Treatment of Brown Recluse Spider Envenomation: A Double-blind, Controlled Study in a Rabbit Model

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