

COMPARISON OF PEDIATRIC VS. ADULT RATTLESNAKE ENVENOMATIONS: THE ToXIC EXPERIENCE

Michael Levine¹, Michelle Ruha², Rais Vohra³, Brian Wolk⁴, Meghan Spyres¹, Jeffery Brent⁵, Paul Wax⁶, Sharan Campleman⁷

¹University of Southern California, Los Angeles, CA, USA, ²Banner—University Medical Center Phoenix, Phoenix, AZ, USA, ³UCSF Fresno Medical Education Program, Fresno, CA, USA, ⁴Loma Linda University School of Medicine, Loma Linda, CA, USA, ⁵University of Colorado, Denver, CO, USA, ⁶University of Texas Southwestern Medical Center, Dallas, TX, USA, ⁷American College of Medical Toxicology, Phoenix, AZ, USA

Background: Little data objectively compares pediatric and adult patients after rattlesnake envenomation. The objective of this study is to utilize the North American Snake Bite Registry (NASBR), to compare envenomation severity and treatment characteristics between adult and pediatric patients.

Methods: The NASBR is a prospectively collected registry of patients evaluated by medical toxicologists following snakebite. This study compared pediatric (age <18 years) vs. adult patients who presented with a known or suspected rattlesnake bite between 1/1/2013-12/31/2015. Severity was compared between adult and pediatric patients with regards to the following parameters: hematologic toxicity (defined *a priori* as platelets < 120,000 /uL, fibrinogen < 170 mg/dL, or PT > 15 seconds), length of stay (in days), anaphylactoid reactions (defined *a priori* as hypotension and/or angioedema) and the total number of vials of antivenom administered. Gastrointestinal symptoms were defined as the presence of nausea/vomiting prior to opiates, or diarrhea. Independent associations were assessed via Chi squared and Fisher Exact test (as appropriate) for categorical variables. Medians with interquartile ranges were used to assess normally distributed ordinal data.

Results: A total of 256 (63 pediatric; 193 adult) patients were identified from 12 centers throughout the United States. Males accounted for 65% of pediatric and 78% of adult bites ($p=0.001$). Upper extremity bites were more common in adult patients compared with pediatric patients (58% vs. 24%; $p=0.0001$). There was no statistical difference in the prevalence of gastrointestinal symptoms (6.2% vs. 14.3%), anaphylactoid reactions (6.7% vs. 4.8%), bleeding events (9.3% vs. 4.7%), or hematologic toxicity (44.6% vs. 52.4%) between adult and pediatric patients respectively. Comparing adult to pediatric patients, there was no difference in the median [IQR] length of stay (2 [1-2] vs. 2 [1-2]) or the mean total vials of antivenom during the index hospitalization (11.9 vs. 11.5), respectively. In this dataset, follow up data was available for 73% of all cases with 27.7% indicating at least one instance of late hematologic toxicity (20.9% and 29.7% ($p=NS$) among pediatric and adult cases respectively).

Conclusion: Pediatric patients are more likely to have lower extremity bites than adult patients. Toxicity and treatment are similar amongst pediatric and adult patients.