SNAKEBITE IN THE ELDERLY: A RETROSPECTIVE COHORT OF PATIENTS REPORTED TO THE TOXIC NORTH AMERICAN SNAKEBITE REGISTRY

Anne-Michelle Ruha[1], Meghan B Spyres[1], Kurt Kleinschmidt[2], Rais Vohra[3], Eric Smith[2], Angela Padilla-Jones[1], On behalf of the ToxIC Snakebite Study (TICCS) Group.
[1]Center for Toxicology and Pharmacology Education and Research, Phoenix AZ; [2]University of Texas Southwestern Medical Center, Dallas TX; [3]UCSF Fresno Medical Center, Fresno CA

Background

- Epidemiologic studies of snakebite in the US report typical victims to be young men
- While some pediatric studies exist, there is no literature focusing on a geriatric population
- Elderly patients often have more comorbidities and use more medications which may place individuals at risk for increased severity of illness or complication following rattlesnake envenomation

Research Question

- What are the characteristics, clinical course, and outcomes of elderly patients with envenomation by North American snakes?

Methods

- Data reported to the ToxIC North American Snakebite Registry (NASBR) between March 1 2013 and December 31 2014 were reviewed
- Inclusion criterion (IC) was age > 65 years
- Data included demographics, snake species, clinical and laboratory findings, treatments and outcomes

The 2014 TICSS group: *Anna Arroyo-Plascencia, Vikhyat S. Bebarta, Michael C. Beuhler, Adam Bosak, Jeffrey Brent, Daniel Brooks, E. Martin Caravati, James D. Cao, Nathan Charlton, Steven Curry, Michael Darracq, William Dribben, Kimberlie Graeme, Spencer Greene, Kennon Heard, C William Heise, Janetta Iwanicki, Aaron Min Kang, William P Kerns II, Thomas Kibby, Joshua King, Ronald Kirschner, Kurt Kleinschmidt, Michael Levine, Rachel Levitan, Philip Moore, Michael Mullins, Ayrn O'Connor, Nancy Onisko, Angie Padilla-Jones, Tammy Phan, Frank LoVecchio, Anne-Michelle Ruha, Steven A. Seifert, Daniel J Sessions, Aaron Skolnik, Eric Smith, Meghan Spyres, An Tran, S. Eliza Halcomb, Evan S. Schwarz, Shawn M. Varney, Rais Vohra, Brandon Warrick, Sam G. Wang, Paul Wax, Brian J. Wolk*

Results

Patient Characteristics

Total Patients Age >65	20 (100%)
Age 66-79	15 (75%)
Age 80-89	4 (20%)
Age >90	1 (5%)
Men	14 (70%)
Medical Comorbidities	16 (80%)
Cardiac Medication	13 (65%)
Antiplatelet/Anticoagulant Meds	7 (35%)
Time to healthcare (n=19)	<2 hours
Upper extremity bites	13 (65%)

Patient Outcomes

Hemotoxicity Thrombocytopenia Hypofibrinoginemia	8 (40%) 5 (25%) 5 (25%)
Swelling	20 (100%)
Minor Bleeding	1 (5%)
Hypotension	1 (5%)
Dysrhythmia	2 (10%)
Readmission	2 (10%)

Results Continued

- 20/280 cases from 14 sites and 10 states met IC
- 19 rattlesnakes, 1 unknown crotalid
- All patients were treated with Fab antivenom
- 1 patient readmitted twice, first (day 7 post-bite) for recurrent coagulopathy and again (day 15 post-bite) for recurrent thrombocytopenia
  - * Hematology studies on day 5 were normal
  - * Patient not on anticoagulant/antiplatelet drugs

Discussion

- Rattlesnakes were implicated in nearly all bites in this elderly cohort, and demographics (i.e. sex, bite location) were consistent with previous studies of rattlesnake bites[1,2]
- Co-morbidities and use of antiplatelet or anticoagulant medications, which have been associated with increased risk for early and late bleeding following snakebite[2], were common
- 10% of patients were readmitted and retreated
- Limitation: Only 30% had follow-up for late hemotoxicity and bleeding documented

Conclusion

- Elderly patients with North American snake envenomation are likely to have co-morbidities and take medications that may increase their risk for bleeding and complications

References: 1. Tanen D et al. Acad Em Med 2001;8:177-182.
2. Levine M et al. Acad Em Med. 2014;21:301-307.