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078. Interspecies Differences in Rattlesnake Envenomations in the Western United States Reported to the North American Snakebite Registry

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Background: Rattlesnake envenomations produce cytotoxic, hemotoxic, neurotoxic, and systemic effects. While some effects have been associated with particular species of rattlesnake, such as neurotoxicity following Mohave envenomation, comparison of clinical effects between species has not been studied.

Hypothesis: There are significant interspecies variations in clinical effects from rattlesnake envenomation.

Methods: This is a cohort study of patients reported to the North American Snakebite Registry with envenomation by a positively identified species of rattlesnake in the western United States. Snakes were “western” if the range was entirely west of the Mississippi River. Only species with greater than 15 cases were included to allow for statistical comparisons using Pearson’s chi-squared test.

Results: 173 cases met inclusion criteria. Five western species had over 15 cases identified and included 76 *Crotalus atrox*, 31 *C. viridis*, 29 *C. lutosus*, 20 *C. scutulatus*, and 17 *C. helleri*. Statistically significant differences were seen between species for the following: *C. scutulatus* was associated with more hypotension than *C. lutosus* (25% vs. 0%, $p = .008$); *C. atrox* had more hypofibrinogenemia than *C. scutulatus* (25% vs. 0%) and *C. viridis* (3.4%) ($p = 0.002$). *C. atrox* was also associated with more bleeding and necrosis than *C. viridis* (23.7% vs. 3.2%, $p = 0.014$; and 18.4% vs. 0%, $p = 0.003$; respectively); *C. helleri* was associated with more neurotoxicity than *C. atrox* (52.9% vs. 5.3%, $p < 0.001$).

Conclusion: Comparison of clinical effects following envenomation by western species of rattlesnakes reported to the North American Snakebite Registry demonstrated statistically significant differences in rates of hypotension, hypofibrinogenemia, bleeding, necrosis, and neurotoxicity between species.