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97. Temporal trends in antibiotic use for crotaline snakebites reported to the North American snakebite registry from 2013-2024

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Background: Some patients with crotaline snakebites receive prophylactic antibiotics under the presumption that snakebites pose an infection risk. However, studies have demonstrated the risk of wound infection following snakebite is low regardless of antibiotic administration, and antibiotic use is only recommended in cases with clear clinical evidence of infection. This study characterizes trends in the administration of antibiotics for crotaline snakebites in North America, stratified by year and site volume.

Methods: This study is a multicenter secondary analysis of prospective data of crotaline snakebites reported to the Toxicology Investigators Consortium (ToxIC) North American Snakebite Registry (NASBR) from 2013 to 2024. Patients treated with antibiotics for crotaline snakebites at NASBR sites were included in the study analysis. Patients treated for pre-existing infections were excluded. The primary outcome of this study was the variability in antibiotic use by site, stratified by site volume. NASBR data was examined to identify trends in the annual percentage of snakebites receiving antibiotics. NASBR sites were stratified into low-, medium-, and high-volume sites based on the annual average cases reported to NASBR. Low volume sites had an average of ≤5 cases per year, Medium-volume sites had an average of 6-10 cases per year, and High-volume sites had an average of ≥10 cases per year. Indications for antibiotic use were identified, denoted in NASBR as: no antibiotics, prophylaxis, erythema or suspected cellulitis, or confirmed infection. The statistical significance of antibiotic trends across the three groups was assessed with the Mann-Kendall test. This study was exempted by our local institutional review board.

Results: A total of 2,362 crotaline snakebite cases were identified across 47 unique NASBR sites with 92 patients reported by Low-volume sites, 232 patients reported by Medium-volume sites, and 2,038 patients reported by High-volume sites. 165 patients were treated with antibiotics, with 92 patients (55%) given antibiotics prophylactically, 61 patients (37%) given antibiotics for erythema or suspected

cellulitis, and 12 patients (7%) given antibiotics for confirmed infection. Antibiotic use varied by site and was non-normally distributed. Antibiotic receipt was as follows: Low-volume sites mean 5.1% (SD 11.5%); Medium-volume sites mean 7.1% (SD 4.6%); High-volume sites mean 7.3% (SD 2.0%). Temporal trends were not statistically significant across tertiles (Mann-Kendall p-trend for Low-Volume =0.34; Medium-volume =0.10; High-volume =0.93). The proportion of patients receiving antibiotics demonstrated a slight downward trend over time (β = -0.0012). Low- (β = -0.0097) and Medium-volume sites (β = -0.0063) saw mild decrease, while High-volume sites (β = 0.0002) saw marginal increase in antibiotic use from 2013 to 2024. These trends were not statistically significant. Visually, there was high year-to-year variability at Low-Volume sites, which may have been due to sampling.

Conclusions: The proportion of patients receiving antibiotics demonstrated minimal downward trend over time without statistical significance. There was high year-to-year variability in low volume sites, possibly due to sampling. Most patients receiving antibiotics were treated prophylactically, despite current recommendations against routine use. We suspect antibiotics were given before toxicology consultation in many cases. Further research is needed to identify and reduce inappropriate antibiotic use in snakebite care.