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175. Characteristics of Crotalid Venom-Induced Neurotoxicity in the North American Snakebite Registry (NASBR)

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Background: Although famously associated with the Mohave rattlesnake, neurotoxicity may occur after envenomation by many crotalid species. The frequency of specific venom-induced neurotoxic effects is not well described.

Research Question: What are patient demographics, clinical findings, and treatments associated with venom-induced neurotoxicity in the NASBR?

Methods: This is an analysis of prospectively collected data from patients with neurotoxicity after snake envenomations reported to the NASBR spanning 2013-2021. Neurotoxicity was defined as fasciculations, myokymia, paresthesias, altered mental status, or respiratory failure. Cases were excluded for involving non-Crotalus or non-native species, having isolated subjective paresthesias, or no description of neurotoxicity. Data collected included demographics, envenomation characteristics, and treatment information.

Results: 92 cases with neurotoxicity were reported. 49 were excluded for isolated subjective paresthesias or no data. 43 were included. The majority (N= 32, 74%) were from California, followed by Arizona (N= 7, 16%). Of the identified species (N= 16), the Southern Pacific rattlesnake was most common (N= 7, 44%). Zero non-rattlesnake crotalid cases reported objective neurotoxicity. Most cases (N=28, 65%) involved adults 18-65; most were male (N= 31, 72%). Most bites were to the lower extremity (N= 26, 60%), mostly to the lower leg (N= 9, 35%). Fasciculations/myokymia were the most common finding (N= 37, 86%), followed by paresthesias (N= 26, 60%), weakness (N= 7, 16%), and altered mentation (N= 6, 14%). Three cases with intubation were reported: two from California, one from Arizona, all species unknown. Neurotoxicity resolution was temporally associated with antivenom administration in 89% of cases (N=16) in which response to antivenom was reported (N= 18); 56% (N= 9) of these cases received Fab alone, 19% (N= 3) received Fab2 alone, and 25% (N= 4) received both.

Conclusion: Most cases of neurotoxicity occurred after rattlesnake envenomation in California, where both the Southern Pacific and Mohave species are found. Fasciculations were the most common objective effect reported and there were three cases requiring intubation.