Submission Type: Case Report

Poster Title: **Management of North American Crotalid Envenomation with Antivenom: Valuable Reflections from a Case Report at a Community Teaching Hospital in Southern New Jersey**

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Case Report:

According to the New Jersey Department of Environmental Protection's (NJDEP) Fish and Wildlife Division, the timber rattlesnake and copperhead snake are two poisonous North American crotalids indigenous to New Jersey. These crotalids prefer wooded uplands and wetlands which can be found within the service region of the AtlantiCare Regional Medical Center (ARMC) in New Jersey. Per the NJDEP Fish and Wildlife Division, there have been 16 reported venomous snake envenomation cases in New Jersey from 1999 to 2023.

Snake venom contains a large variety of toxins, which may lead to adverse local, systemic, and hematologic effects. Treatment with antivenom should be administered as soon as possible or within 6 hours of the bite, with 4-6 vials of antivenom being administered to initially control the envenomation. Based on clinical judgment and severity of the envenomation, the initial dose may increase to 12 vials. If initial control is not achieved within 1 hour of the initial dose, another 4-6 vials can be administered. Once initial control is achieved, it is recommended to administer 2 vials every 6 hours for 3 doses. Historically, ARMC stocks 6 vials of antivenom available to treat rare cases of poisonous snake envenomation. We present the case of a patient who presented to ARMC with a venomous rattlesnake bite to his left upper extremity that occurred while camping.

A 38-year-old male with a past medical history of alcohol abuse presented to the emergency department (ED) with nausea, diarrhea, and pain over the envenomation site which was moderately bleeding. The patient had a hypotensive episode during the cleaning of the envenomation site with a systolic blood pressure of 80 millimeters of mercury (mmHg) and a diastolic blood pressure of 48 mmHg, and a single episode of coffee-ground emesis in the ED. He had a blood alcohol level of 258 milligrams per deciliter (mg/dL), an international normalized ratio

(INR) of 1.3, fibrinogen < 70 mg/dL, and a lactate level of 2.44 millimoles/liter (mmol/L). The patient received a 3-liter IV bolus of normal saline, morphine 4 mg IV once, ondansetron 4 mg IV once, and the tetanus, diphtheria, and acellular pertussis vaccine. The clinical institute withdrawal assessment protocol was initiated with lorazepam as needed. The patient received his initial 6 vial dose of antivenom in the ED approximately 3 hours after the bite, then was admitted to the intensive care unit (ICU) where he received 2 vials of antivenom every 6 hours for a total of 3 doses, totaling 12 vials. While in the ICU, his creatine phosphokinase was 533 units per liter and INR was 3.3 for which he received 2 packs of cryoprecipitate and 2 units of fresh frozen plasm. With an improvement in his overall health status after the recommended course of antivenom, the patient was discharged less than 48 hours after his initial presentation to the ED. Following this encounter, an internal review of ARMC's policies and procedures surrounding the administration of antivenom was conducted. The Pharmacy and Therapeutics Committee agreed to increase the par level of the antivenom stock from 6 to 12 vials since an initial dose of 8-12 vials may be recommended based upon clinical judgement and the severity of the envenomation. If a patient in the future presents with severe crotalid envenomation requiring 12 vials for the initial dose, ARMC is now prepared to initially treat the patient without delay. This case demonstrates the value of a medical institution actively reviewing policies and procedures, as ARMC is fully prepared to treat pediatric and adult patients who present with North American crotalid envenomation of any severity.