

Antivenin

Crotalidae Polyvalent

(North and South American Snakebite Antiserum)



Boehringer
Ingelheim

Composition

Antivenin is a refined and concentrated preparation of equine serum globulins obtained by fractionating blood from healthy horses that have been immunized with the following venoms: Eastern diamondback (*C. adamanteus*), Western diamondback (*C. atrox*), Central and South American rattlesnake (*C. terrificus*) and fer-de-lance (*B. atrox*). 0.25% phenol and 0.005% thimerosal (mercury derivative) are added as preservatives.

Antivenin neutralizes the venom of the viperene snakes, including all North American species of rattlesnakes, copperheads and cottonmouth moccasins. It contains a protective substance against the venoms of the related species in Central and South America, including the bushmaster and the fer-de-lance, and the habu and Mamushi of the Pacific Islands and Asiatic mainland.

Antivenin is standardized by its ability to neutralize in mice the toxic action of a standard venom injected intravenously.

Indications

For use in dogs which have received bites from viperene snakes, such as rattlesnakes, copperheads and cottonmouth water moccasins.

Administration and dosage

The dose varies from 10 to 50 mL (1 to 5 vials), intravenously, of rehydrated Antivenin, depending on the severity of symptoms, lapse of time after the bite, size of snake and size of patient (the smaller the body of the victim, the larger the dose required). Additional doses should be given every 2 hours as required, if symptoms such as swelling and pain persist or recur.

In emergency, when exposure is such that intravenous administration of Antivenin is not practical, the product may be administered intramuscularly as close to the site of exposure as practical.

General supportive therapy should be instituted whenever required. The use of corticosteroids is controversial. Use professional discretion.

Precautions

Attempts should be made to immobilize the patient until treatment is initiated. The use of excessive heat or cold is contraindicated. Use antihistamines, tranquilizers, sedatives and analgesics with care because they may mask important clinical signs. Use professional discretion.

General information

Antivenin is specific against the viperene class of snakes, whose venom is hemotoxic.

The elapine are the second class of poisonous snakes and include the coral snake, the cobra, and the mamba. Their venom is mainly neurotoxic. Both classes of poisonous snakes contain some neurotoxic and hemotoxic factors. However, horses from which Antivenin is derived have not been immunized against elapine venom.

The death incidence, worldwide, from snake bite is greater in dogs than in any other domestic animal. They most frequently are bitten in the head region; occasionally on the shoulders, thighs or legs. Fatalities in horses and cattle are less common. However, they do occur, particularly when bitten about the head or neck.

Symptoms from viperene envenomation are swelling, pain, muscular weakness, impaired vision, cyanosis, hemolytic anemia, bleeding tendencies, dyspnea, shock and subsequent tissue necrosis.

Some clinical evaluators of Antivenin reported the diamondback as the most lethal snake to dogs, and the ground or pygmy rattler the least dangerous. Sloughing or tissue necrosis was most frequently associated with, but not limited to, the water moccasin.

Sixteen practicing veterinarians had uniformly successful results with Antivenin in patients having mild symptoms at time of treatment. Of 103 dogs treated with acute symptoms, 72% survived following a single 10 mL dose; there was a higher percentage (83%) of recovery when 20 to 70 mL was given. Overall, 82% of Antivenin-treated animals survived; the majority not receiving Antivenin succumbed. The success of Antivenin appears to be directly related to the time interval before treatment. Only 45% of dogs survived if there was at least a four-hour lag period between time of bite and Antivenin treatment. The survival rate doubled if less than four hours elapsed before Antivenin was administered.

Caution

Storage temperature not to exceed 98°F (37°C). Avoid freezing and excessive heat. Use immediately after rehydration. In case of anaphylactoid reaction, administer epinephrine. Restricted to use by or on the order of a licensed veterinarian.

Reference

Peterson, M. Snake Envenomation in *Small Animal Critical Care Medicine* by Silverstein, D.C. and Hopper, K. Saunebar Inc. 2009, pg 399-404.

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