

Anavip® for Timber Rattlesnake Envenomation

Timber rattlesnake (*Crotalus horridus horridus*) envenomations are rare in Maryland, but when they do occur, along with tremendous local swelling and pain, there can be prolonged thrombocytopenia. The localized swelling responds well to CroFAB®, an FDA-approved antivenom for North American pit viper envenomations, but the low platelet count may recur after initially improving. It is for this scenario that a new antivenin, Anavip®, may help. Anavip® is an equine-derived Crotalidae Immune F(ab')₂ antivenom that is made from the venom of two species of South American pit vipers: *Bothrops asper* (Fer-de-lance) and *Crotalus durissus* (South American rattlesnake). Both snakes have the ability to cause prolonged destruction of platelets. Anavip® is FDA approved for rattlesnake envenomations.

The recommended dose is 10 vials. Each vial reconstitutes quickly with 10 mL of normal saline per vial, dissolving in less than a minute. The 10 vials are combined and further diluted into a total volume of 250 mL of normal saline. The first 10 minutes of the dose should be infused slowly (25-50 mL/hr) to watch for allergic reactions; then if no reactions occur, the rate is increased to 250 mL/hr until completion. Monitor for 60 minutes to ensure that no allergic reactions occur and that initial control is achieved. Initial control is defined as:

1. Leading edge of local injury not progressing
2. Systemic symptoms are resolved
3. Coagulation parameters have normalized or are trending toward normal

Continue to monitor the patient for at least 18 hours in the hospital after initial control is achieved. Rarely, additional 10 vial doses may be needed to achieve initial control and late dosing of 4 vials to suppress re-emerging symptoms such as coagulopathies.

The most common adverse effects are pruritus, nausea, rash and arthralgia. In clinical trials there was no increased incidence of adverse effects in pediatric or geriatric patient populations.

The high cost of snakebite treatment with CroFAB® is another issue that may make alternatives like Anavip® worth looking at. At the time of this writing, treatment with just the loading dose of 6 vials of CroFab® costs ~\$17,802 vs. ~\$11,320 for 10 vials of Anavip®. Since most rattlesnake bites require additional CroFAB® doses (2 vials every 6 hours x 3), this would come to a total of ~\$35,604. It is unlikely that additional Anavip® vials would be needed, making the difference in price >\$24,000 for a single exposure.

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Did you know?

Timber rattlesnakes are found primarily in western Maryland.

According to the Maryland Department of Natural Resources, timber rattlesnakes are found in the following western Maryland counties: Frederick, Washington, Allegany, and Garrett. Additionally, there have been rare sightings in central Maryland. Timber rattlesnakes are the only rattlesnake in Maryland. They have a dark zig-zag pattern across the back. There are two color phases, yellow and black, that make identification by color alone difficult. Adults grow to 36-60 inches in length. The head is triangular with vertical slit pupils and heat-sensing pits (holes) between each eye and nostril.



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