Clinical Pharmacology & Toxicology Pearl of the Week

~ Rattlesnake Antivenom ~

Background:

- *Crotalus viridis* (aka Prairie rattlesnake, Western rattlesnake, or Plains rattlesnake) is in South/Southeastern Alberta (e.g., Lethbridge, Medicine Hat, Brooks, and Milk River) and Southwestern Saskatchewan (e.g., Swift Current).

- Envenomation from this snake can result in local tissue injury, systemic effects, and hematologic toxicity (thrombocytopenia and coagulopathy).

The prairie rattlesnake (*Crotalus viridis*)
Photo credit: Adam Martinson (website: Canada.ca)

Management Pearls:

- Blisters – Patients may require debridement of hemorrhagic blisters. Dermotomy or fasciotomy are rarely necessary and should not be routinely performed as true compartment syndrome is infrequent. Consultation with a plastic surgeon may be required.
- Repeat lab testing – Repeat laboratory tests and clinical assessment between 30 to 60 minutes after antivenom infusion complete.
- DIC – DIC is extremely rare following rattlesnake bite envenomations and should only be suspected if a patient develops features of active bleeding, such as hematuria or rectal bleeding. In the absence of DIC, coagulopathy should be treated with further doses of antivenom.

Antivenom:

- FabAV (CroFab) is a lyophilized antigen binding fragment (Fab) that is derived from sheep hyperimmunized with venom from the from the Western Diamondback Rattlesnake (*Crotalus atrox*), Eastern Diamondback Rattlesnake (*C. adamanteus*), Mojave Rattlesnake (*C. scutulatus*) with venom type A, and Cottonmouth (*Agkistrodon piscivorus*).

- F (ab')2 AV (Antivipmyn), is a lyophilized antigen binding fragment (F (ab')2 derived from horses hyperimmunized with venom from American Terciopelo (*Bothrops asper*) and the Central American Rattlesnake (*C. simus*). In 2021, its FDA approved indications were expanded to include all North American pit vipers (species of the genera *Agkistrodon*, *Crotalus*, and *Sistrurus*).

- Indications for antivenom dosing include the presence of swelling (especially progressive swelling beyond the closest joint) and/or coagulopathy.

- In 2025, the Poison and Drug Information Service (PADIS) recommended a change in antivenom from CroFab to Antivipmyn for use for snake envenomations within Alberta and Saskatchewan. Both products are effective antidotes with similar safety profiles, yet there are substantial cost savings with Antivipmyn without a decrease in efficacy. A comparison of the two antidotes is at the end of this Pearl.

References:

- Wilson et al. Toxicon 2022. https://doi.org/10.1016/j.toxicon.2022.01.007
- Bush et al. Clinical Toxicology 2015. 53, 37–45. DOI: 10.3109/15563650.2014.974263

The Clinical Pharmacology (CP) physician consultation service is available Mon-Fri, 8am-5pm. The on-call physician is listed in ROCA on the AHS Insite page. CP consultations are also available through Netcare e-referral and Specialist Link. You can also find us in the Alberta Referral Directory (ARD) by searching "Pharmacology" from the ARD home page. Click HERE for more details about the service.

The Poison and Drug Information Service (PADIS) is available 24/7 for questions related to poisonings. Please call 1-800-332-1414 (AB and NWT) or 1-866-454-1212 (SK). Information about our outpatient Medical Toxicology Clinic can be found in Alberta Referral Directory (ARD) by searching "Toxicology" from the ARD home page.

More CPT Pearls of the Week can be found HERE.

Created and Reviewed June 13, 2025

Variable	Antivipmyn	CroFab
Alternative name	F(ab') 2 AV	FabAV
Source	Equine	Ovine
Dosing	10 vials initially, then repeat 10 vials if needed to achieve initial control, then one more dose of 4 vials for maintenance only if needed (coagulopathy, worsening swelling)	4-6 vials loading dose (repeat until control achieved), then 2 vials Q6H for 3 more doses (for a total of 6 vials after initial control)
Average number of vials given in published data	16.1 +/- 7.9	14.2 +/- 5.7
Incidence of adverse effects	1-14%	1-8% (average 5%)
Adverse effects	Pruritus, nausea, rash, arthralgia, peripheral edema, erythema, headache, myalgia, pain in extremity, and vomiting in greater than 2% of patients	Urticaria, rash, nausea, and pruritus in greater than 5% of patients
Risk factors for adverse effects	Patients with known allergies to horse protein are particularly at risk for an anaphylactic reaction. Trace amounts of cresol from the manufacturing process are contained in the antivenom. Localized reactions and generalized myalgias have been reported with the use of cresol as an injectable excipient. Patients who live in an area that is endemic to the Lone Star Tick (increased risk of alpha gal reaction)	Patients allergic to papain, chymopapain, other papaya extracts, or the pineapple enzyme bromelain may also have an allergic reaction to CroFab
Hypersensitivity reactions	Immediate hypersensitivity (anaphylaxis)	Immediate hypersensitivity (anaphylaxis)
	Delayed hypersensitivity (serum sickness) = rash, fever, myalgia, arthralgia	Delayed hypersensitivity (serum sickness) = rash, fever, myalgia, arthralgia
Late coagulopathy incidence	7.8%	29.7%
Storage	Room temp up to 25 deg C	Refrigerate at 2-8 degrees C
Shelf life	4 years	5 years
Website for more info	Anavip.com	Crofab.com