

NEWS FROM THE PIT

Arizona Poison and Drug Information Center



Rattlesnake Bites During Breastfeeding

MotherToBaby Arizona

By Chris Stallman, MLS, MS, CGC

Breastfeeding is known to be a good source of nutrition for children. It can reduce the chance for certain health conditions for both the child and the person who is breastfeeding, and can have a positive impact on a person's mental health and emotional well-being. As a genetic counselor, teratogen information specialist, and mother of four, I fully support the appropriate feeding of children, whether through breastmilk, formula, or a combination both. However, there are those who are strongly motivated to breastfeed but have concerns about how exposures can affect their milk or their child. The good news is most exposures are considered compatible with breastfeeding and are not a cause for concern. But what about breastfeeding after a rattlesnake bite?

If someone is bitten by a rattlesnake, it is important to get help right away. They should not wait until they notice symptoms, and they should not try and treat the bite themselves. More information on rattlesnake bite dos and don'ts can be found here: <https://azpoison.com/venom/rattlesnakes>. People who are breastfeeding should also be treated as soon as possible in order to preserve their health. The benefits of treating the person who is breastfeeding outweighs the risks of an untreated rattlesnake bite. When that is taken care of, questions arise about breastfeeding.

NEWSLETTER HIGHLIGHTS

Rattlesnake Bites During Breastfeeding



Rattlesnake Bites During Breastfeeding

Continued from page 1

When someone contacts MotherToBaby about any exposure during breastfeeding, we begin by explaining that there are several things to consider when thinking about breastfeeding exposures. This can include the age and health of the child that is breastfeeding, how much of an exposure might enter the breast milk, and if the exposure can change the amount of milk produced. We attempt to locate and review available literature, which may be robust, limited, or nonexistent.

In cases where there are no studies or data on an exposure in breastfeeding, characteristics of the exposure may help with risk assessment. For example, the size of a medication molecule can play a role in determining potential risk, with larger molecular weight exposures being less likely to enter breast milk in large amounts. Protein binding potential, lipid solubility, and ability for systemic absorption are all factors that can be considered as part of the risk/benefit analysis.

There are no studies on possible side effects rattlesnake venom may have on a child who is breastfeeding.

There are no studies on possible side effects rattlesnake venom may have on a child who is breastfeeding. There is a report of a mother outside of the United States who was unknowingly bitten by an unknown type of snake. She went on to breastfeed her three-year-old child, and both mother and child died shortly after. After this case, a letter to the editor assumes that “venom’s protein compounds would very likely reach” the nursing child.¹ This assumption is based on a study² suggesting that protein “toxin degradation does not occur in breast milk.”¹ However, the study² referenced in the letter used bacterial toxins unrelated to snake venom. The enzymes in snake venom would not be expected to be absorbed intact from the GI tract of a full term infant.

There is also the question of breastfeeding while receiving treatment for a rattlesnake bite. Again, information is limited. The FDA product label for Crotalidae polyvalent immune Fab (Ovine) (brand name CroFab®) states “It is not known whether CROFAB is excreted in human breast milk. Because many drugs are excreted in human milk, caution should be exercised when CROFAB is administered to a nursing woman.”³



Rattlesnake Bites During Breastfeeding

Continued from page 2

It should be noted that while many exposures can pass into breastmilk, an exposure's presence in breastmilk does not always equal a chance of harm or side effects. CroFab® is large protein molecule and the amount in breast milk is likely to be very low. It is also considered likely that the medication would be partially destroyed in the infant's GI tract and poorly absorbed.

There are no official guidelines or recommendations (one way or the other) when it comes to breastfeeding after a rattlesnake bite. This makes questions about when to resume breastfeeding, or whether or not to breastfeed at all, challenging for patients and providers. In general, "erring on the side of caution" usually means preserving the breastfeeding relationship. In the absence of official recommendations, very often, it comes down to personal choice. Some people may not feel comfortable breastfeeding their child without more information or guidance. Others may choose to breastfeed as soon as possible. People who are nursing are encouraged to work with their healthcare providers as well as their baby's pediatrician to determine what is best for the family and if any precautions or monitoring is indicated for the nursing child.

Rattlesnake bites in breastfeeding are an uncommon but serious exposure. Time is of the essence and treatment should be sought and administered right away. It is important to consider the health of the person who is breastfeeding and their child, as well as the benefits of breastfeeding when making these decisions. Until more information and guidance is available, providers are encouraged to consider each person's unique situation and weigh the benefits of breastfeeding against any concerns.

References

1. Vasheghani-Farahani M, Marashi SM. When to restart breastfeeding in a lactation mother after a snakebite? *Arh Hig Rada Toksikol* 2016;67:71.
2. Dupre M, Gilquin B, Fenaille F, Feraudet-Tarisse C, Dano J, Ferro M, Simon S, Junot C, Brun V, Becher F. Multiplex quantification of protein toxins in human biofluids and food matrices using immunoextraction and high-resolution targeted mass spectrometry. *Anal Chem*. 2015;87(16):8473-8480. doi: 10.1021/acs.analchem.5b01900. PMID: 26167627
3. FDA Drug Label. (2018), Highlights of prescribing information crofab. Retrieved from <https://cacmap.fda.gov/media/74683/download>



Rattlesnake bites in breastfeeding are an uncommon but serious exposure.

A Note From The Editor

By Geoffrey Smelski, PharmD, DABAT

Having to navigate challenging clinical scenarios, in the absence of rigorous evidence-based medicine, is why many of us became toxicologists in the first place. One approach clinicians can use for situations like this is to simply weigh risks vs benefits and assess the ability to monitor or intervene should potential harms arise. Breastfeeding has some benefits associated with it, which means that we should probably not stop breastfeeding without a good cause. On the other side of the equation, there is very little clinical evidence characterizing the safety or the potential consequences of breastfeeding post envenoming.

In a worst-case scenario model, you could predict that all of the venom's systemic effects would be carried over to the infant. Considering that mom should have already passed the acute phase of the envenomation and received antivenom prior to breastfeeding, the worst-case scenario at this point would be primarily limited to coagulopathy and thrombocytopenia. In case it wasn't clear, all mothers should universally withhold breastfeeding during the acute phase of envenomation until antivenom has been administered and "initial control" of the venom has been obtained.

The safest approach, regarding limiting any potential harm to the baby from venom in mom, would be to simply refrain from breastfeeding. However, venom levels can be detected for several weeks after the day of the bite, which would make it hard to be certain when to restart and all of the benefits from breastfeeding would be lost during this prolonged time period. Thankfully, stopping breastfeeding is likely not necessary. Venom, like most toxins, causes a dose-dependent toxicity. The amount of venom that would be expected to pass from mom to baby would be very small, if at all, especially from rattlesnake bite victims that have received appropriate doses of antivenom. Continuing along with our worst-case scenario model, the child could potentially develop an impaired ability to develop a clot, which could lead to bleeding complications, should they also develop some type of mechanical injury. While the chances of all these factors lining up are likely very small, if they were to happen, there could be some potentially severe complications related to bleeding.

(Continued on next page)



A Note From The Editor, Continued

By Geoffrey Smelski, PharmD DABAT

So, the question becomes, how can we approach this particular risk-benefit situation in the absence of medical guidelines? We can start by minimizing the risk of residual venom effects in mom by ensuring that she has received an appropriate dose of antivenom. At the AzPDIC we track the number of vials of antivenom used for managing every envenomation, and I would like to see that mom was at or above the average number of vials administered. Much like venom causes dose dependent toxicity, antivenom binds up venom in a dose dependent fashion and we would not want mom to have any extra venom floating around if we can avoid it. Next, we would want to assess our ability to monitor for signs of bleeding in the baby. This may be easy if mom and baby were going to still be in the hospital, or it could be challenging if mom was ready to be discharged, had minimal health literacy, and no home phone. And this is right about the point where patient specific medicine would need to be practiced.

Fortunately, for those that may not feel comfortable making clinical decisions in complex envenomations cases like these, a trained toxicologist is only a phone call away through your regional poison control center. And as always, should your regional toxicologist not be familiar with managing envenomations, the folks here at the Arizona Poison & Drug Information Center in Tucson Arizona are always happy to lend a hand.

