

Medication Mishaps in Horses (AAEP 2012)

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Paracelsus, a 16th century Swiss physician and alchemist, once said, "Poison is in everything, and no thing is without poison. The dosage makes it either a poison or a remedy." Similarly in horses, determining what medication dose is therapeutic vs. detrimental, and knowing which drugs can poison some horses while helping others, are among the challenges practitioners face when selecting medications for sick or injured animals.

And, try as they might to avoid them, veterinarians from time to time will manage medication mishaps: They or their techs might inadvertently reach for the wrong drug, or one of their clients might accidentally administered an inappropriate medication. Emma Adam, BVetMed, Dipl. ACVIM, ACVS, an equine practitioner performing research at the University of Kentucky Maxwell H. Gluck Equine Research Center, shared some tactics for managing equine medication mishaps at the 2012 American Association of Equine Practitioners convention, held Dec. 1-5 in Anaheim, Calif.

Adam touched on how veterinarians should handle adverse drug reactions and accidental administration of the wrong drug in the field, in addition to listing precautionary measures veterinarians can take.

Adverse Drug Reactions

Equine adverse drug reactions (ADRs) are just that, Adam said: unexpected adverse reactions to medications. They generally fall into one of two broad categories: idiosyncratic (in which the reaction is unpredictable, might or might not recur in a given individual, and/or might become worse with repeated exposure, such as allergic reactions or hypersensitivity) and dose-related.

Use Caution with Medications

Some owners call their veterinarian anytime their horse has a snuffle, while others tend to stockpile medications to treat their own animals. Emma Adam, BVetMed, Dipl. ACVIM, ACVS, stressed that horse owners should use extreme caution when administering medication to their charges without veterinary guidance.

Besides considering the risk of horses developing adverse drug reaction, which can be deadly, owners must also factor in the possibility that they're treating the horse with an inappropriate drug, she said.

"Not only is that irresponsible, it's also an adverse drug reaction because (the medication) isn't working," she said.

Adam also cautioned that this situation can lead to pathogens becoming more drug-resistant because they've been exposed to medications ineffective in killing them.

"As horse owners, we have to be careful with the drugs that we're privileged enough to use," Adam said. She stressed that owners should never treat ailments without first obtaining a veterinarian's diagnosis.

Erica Larson

Adam said most drugs used in equine veterinary medicine today can produce an ADR if not used carefully. Many of the available drugs can be toxic even if administered at doses, frequencies, and durations necessary to effect a cure in the equine patient. And possible side effects aren't limited to systemic reactions; for instance: horses can develop skin irritation at drug administration sites, whether they're oral, intramuscular (IM), or intravenous. Giving even seemingly common and innocuous medications such as phenylbutazone and flunixin meglumine can have serious consequences, she said. She explained that both can damage the horse's stomach and kidneys if not monitored properly; phenylbutazone is not licensed for IM injection and causes "massive tissue sloughs" if administered in that route, and flunixin meglumine--if administered via an IM injection--can cause extensive tissue damage, infection, and even clostridial myonecrosis (also known as "gas gangrene"). She said that other commonly used drugs, such as the antibiotics chloramphenicol and penicillin, can be used to treat ailments in horses successfully, but they can cause serious health problems in humans if a handler accidentally ingests or is exposed to them.

"We'd never tolerate these side effects in humans," she said, "but equine veterinarians have little choice but to use extreme caution while administering these sometimes risky medications, due to the relatively small number of drug options available for horses and minimal development of new products for the equine market."

Clinical signs of an ADR are variable, but they commonly include hives, diarrhea, swelling in all four limbs, or petechiation (small purple spots on mucous membranes). In the event of an ADR, the first step is to stop administering the drug believed to have caused the reaction. Then, she said, "it is essential to communicate about the situation calmly with the owner. Be transparent, be honest, and carry on formulating a plan to treat the horse."

It's also important for veterinarians to report any ADRs to the drug manufacturer.

"Drug companies go to great trouble and expense to get products safely on the market," Adam said. "However, testing the product is obviously not possible on a limitless number of animals and, as such, it is our responsibility to help with this process."

Adam also touched on accidental overdoses, noting that inappropriate dosing is not uncommon in veterinary medicine, "but a lot less common than in human medicine."

Accidental Administration of the Wrong Drug

Moving forward, Adam said many veterinarians at some point in their careers will face a situation involving a horse getting the wrong medication.

In these cases, she said, veterinarians must remain calm and focused and inform the horse owner about what is transpiring or what has occurred. Practitioners should gather as much information as possible about a situation in which they, their tech or assistant, or the horse owner gives a horse the wrong medication before deciding how to proceed. Adam said that in some cases veterinarians should seek help from other sources if they're unsure how to best proceed.

Follow-up care depends on the drug administered and subsequent health risks posed, if any. Some cases require support such fluid therapy, drug reversal agent administration, and/or additional drugs to return the horse to normal, she said. Each drug requires different protocol.

Preventing Mishaps

While we can't eliminate mistakes completely, Adam offered some suggestions that could help reduce the number of medication mishaps that arise:

- Be familiar with different drugs' physicochemical properties, and know when each should and should not be used.
- Arrange medications in cabinets or drawers thoughtfully and carefully;
- Add harmless dyes to certain clear liquids, such as mineral oil or rubbing alcohol, to make it easier to differentiate between them;
- Keep medications with similar appearances but different functions in separate areas;
- Consider labeling medication jars using tape and markers;
- When administering medications to foals with intravenous catheters and nasogastric feeding tubes, be sure to differentiate the two ports, either by labeling or by using different connections on the tubes;
- Ensure anyone tasked with administering medications has written instructions (and in the case of caretakers who might speak a different language, Adam said, ensure they have access to instructions written in their native tongue); and
- Because fatigue has been shown to play a role in making mistakes--and many equine veterinarians find themselves overworked on a regular basis--Adam said to double-check your work (be it that you're administering the proper drug at the proper dose or that you've left an owner with correct medication administration instructions), as well as your team's, to ensure everything is as it should be.

Take-Home Message

Practitioners should always strive to prevent mistakes from occurring in the first place, however knowing how to handle medication mishaps when they arise is key to giving the horse his best chances of complete recovery. Whether a horse develops an adverse drug reaction or someone has given him the wrong medication, veterinarians must be familiar with the steps to take and how to communicate with the appropriate individuals--from the horse owner to drug manufacturers. But above all, Adam said, "When things go wrong, keep calm and carry on."

Disclaimer: Seek the advice of a qualified veterinarian before proceeding with any diagnosis, treatment, or therapy.