A warning against using livestock drug to treat COVID-19

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Demand has surged for ivermectin, a drug widely given to horses and cows to treat worms and other parasitic infections, as a possible treatment or preventative for COVID-19. Some seekers have turned to

over-the-counter animal formulations, despite Food and Drug Administration warnings against their use, resulting in a spike in calls to poison control centers. Dr. Jim Lowe, a professor of veterinary clinical medicine at the University of Illinois Urbana-Champaign and an expert on infectious diseases and agricultural animals, spoke with News Bureau biomedical sciences editor Liz Ahlberg Touchstone about ivermectin, the differences between forms intended for animals and the approved human prescription, and the risks of accidental overdose.

What is ivermectin? What does it treat?

Ivermectin is parasiticide, meaning it kills parasites. It's a very broad-spectrum parasiticide that can treat internal parasites, like worms, or can be applied topically to treat mange or lice. It was first used to treat heartworm in dogs and now has broad uses in the animal world, and is used extensively in horses and food animals like cows and swine. It is used in people as well, primarily to treat river blindness, a parasitic infection of the eye in tropical parts of the world.

As you mentioned, ivermectin is available for humans as a prescription. However, ivermectin intended for animals is widely available. How are the animal forms different?

The active ingredient of ivermectin is the same in all forms. The differences are in the formulation and how it's delivered. The human prescription is generally a tablet that is swallowed. Animal products come in a variety of forms. For example, the product we use in cattle and pigs is injectable, and the dewormer used in horses is a concentrated paste. These tend to come in quite large doses, compared with a single human tablet. We certainly do not want people to take any form of a drug intended for animals.

Does ivermectin have anti-viral properties as well as anti-parasitic ones?

All of the drug compounds that we use are foreign chemicals to the body, and they all do more than just what they're intended to do, so in theory it could have some anti-viral activity. However, we don't see evidence that it's clinically valuable as an anti-viral, as we don't see direct impacts on viruses in the way that we would with other anti-viral drugs, such as those used to treat influenza.

Is there a problem with taking any form of ivermectin as a preventative or treatment to COVID-19?

The challenge is toxicity. Toxicity can come from taking too much in a single dose, but the bigger issue is the cumulative dosing with taking the drug for multiple days in a row. Ivermectin is labeled for a single-use dosage in both humans and animals. Whether treating a person for river blindness or a horse for worms, it's intended to be given once and not multiple times. It stays active in the body for a length of time. If someone takes ivermectin day after day or week after week, as one might with an anti-viral or antibiotic, the dosage builds up in the body to toxic levels. Even with the human form, if someone takes one dose for 10 days in a row, they end up with 10 times the recommended dose, which can certainly cause toxic effects and overdosing.

What are some of the possible side effects of taking too much ivermectin?

There haven't been a lot of studies of overdosing in humans, but in animals, we do know that when there is an accidental multiple dosing or overdosing, it can be neurotoxic—causing neurological effects like

seizures and blindness. The FDA has cautioned that it can cause gastrointestinal symptoms as well as neurological ones, and can interact with other medications.

If someone is in possession of ivermectin and wishes to dispose of it, what should they do?

Drug disposal is regulated state by state, so check your state's recommended approach. In Illinois, the recommended way to dispose of medication is to remove it from its container, mix it with something inedible like sand or kitty litter, put it in a sealed container and throw it in the garbage. Do not put it down the drain or the toilet. Some pharmacies also have drug disposal services.

Provided by University of Illinois at Urbana-Champaign

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