When it comes to these drugs, there's a lot of misinformation and misunderstanding. Here's what you need to know.

BY DON JERGLER

Published: 2014.09.23 07:05 AM

When it comes to antibiotics, antifungals and antivirals, there are lots of do's, don’ts, misinformation and misunderstanding, veterinary experts say.
“Veterinarians should be aware that just because a pharmacokinetic study of a new drug has been performed in horses doesn’t mean that enough information now exists to use that drug,” said Virginia R. Fajt, DVM, Ph.D., a clinical associate professor of Veterinary Physiology and Pharmacology at Texas A&M University.

While pharmacokinetic data are important for understanding how horses dispose of a drug, the data must either already exist or be generated to understand how concentrations of drugs in horses relate to effects of the drug, Dr. Fajt cautioned.

“This is particularly important when it comes to antimicrobial and antifungal drugs, because their efficacy will depend on how much drug it takes to inhibit the growth of these pathogens, and the inhibitory concentrations may be different for horse pathogens than pathogens from other species of animals,” Fajt said.

Consider This

An added consideration to take into account when prescribing drugs is what the practitioner wants from drugs, said Jennifer L. Davis, DVM, Ph.D., Dipl. ACVIM, Dipl. ACVCP.
“Horse owners want a drug that is 100 percent safe, effective, cheap and easy to give,” said Dr. Davis, an associate professor of equine internal medicine at North Carolina State University’s College of Veterinary Medicine. “Currently, we do not have a single antibiotic that fits that description.”

The long-acting injectible antibiotics, like Excede in horses and food animals and Convenia (cefovicin from Zoetis Inc.) in dogs and cats, have become popular in veterinary medicine because they increase owner compliance and cooperation from patients, Davis said.

“I think this is the way many new drugs will be developed in the future, but horse owners have to be aware of the drawbacks of these formulations, particularly in the case of adverse events and a lack of efficacy,” Davis said.

“Once these drugs are administered, they are present in the animal for prolonged periods, making adverse events that do occur more difficult to treat. Additionally, more appropriate treatments may not be able to be administered until drug concentrations are depleted, due to potential drug interactions.”

A new broad-spectrum antimicrobial called Equisul-SDT from Aurora Pharmaceutical is available and licensed for use in horses.

This product is similar to other licensed products, such as Uniprim from Neogen Corp. and Tucoprim from Zoetis, in that it’s a combination of sulfadiazine and trimethorprim, but it is an easy-to-use suspension that is labeled for twice-daily administration, Davis said.

“The twice-daily administration will result in higher blood concentrations of the drugs, which means it will be effective against a greater number of bacteria,” she
ceftiofur crystalline free acid, or the brand Excede from Zoetis. This is a long-acting injectible formulation for which two doses given four days apart provides therapeutic blood concentrations for 10 days, she said.

Since it was first approved in 2009, a great deal of research has been done on this product.

“Extended dosing regimens have been investigated, and it has been shown that dosing on Days One and Four, followed by once weekly dosing for up to five doses, will provide effective concentrations in the blood and the lungs for up to 32 days,” Davis said.

Bad Reactions

The major adverse reaction associated with this drug is swelling at the injection site, which can range from minor to a very hot, painful area with accompanying high fevers, she said.

To help reduce the incidence of these reactions Davis suggests splitting the dose into two sites; administering no more than 10 mL per site; using a 16-g, 1.5-inch needle; drawing up drug with one needle and then injecting the drug with a separate needle per site.

Samuel Hurcombe, BSc BVMS (Hons) Dipl. ACVIM, Cipl. ACVECC, thinks it’s important to keep one thing in mind.

“I think regarding a lot of these medications, it is important to realize they are often being used off-label and so that must be understood by both veterinarian and client before being used,” said Dr. Hurcombe, a clinical associate professor and specialist in equine emergency surgery and internal medicine at Cornell

Sponsored By Quicken

Get 40% Off America’s #1 Personal Finance Software

Save $$$ now when you buy Quicken, then use the software to keep track of your spending- saving you money in the long run. [Quicken]

Learn More
the specific (Federal Drug Administration) approval process for a very specific indication.”

He added, “Judicious use of these drugs including an appropriate indication, duration of therapy and monitoring are essential.”

Davis likes the new formulation of sulfadiazine-trimethoprim because it is labeled for twice-daily dosing.

“The once-daily dosing results in concentrations below minimum inhibitory concentration by 24 hours, and since the drugs are cleared at different rates, the trimethoprim is even lower, which results in a loss of synergism of the combination,” she said.

**Options**

Frequently used as anti-inflammatory medications are doxycycline and minocycline, because they have been shown to have some effect in modulating certain mediators of inflammation, particularly in cases of osteoarthritis and corneal disease, Davis said.

“While this is an interesting use of these compounds, and there is some evidence of their usefulness in humans, many practitioners are giving very low doses and treating for prolonged periods of time,” she said. “I worry that this may be promoting the development of bacterial resistance due to exposure to subtherapeutic concentrations of antibiotic. This may result in our inability to use these in cases of bacterial infection, and they are one of the few groups of oral antibiotics that we can use in horses.”
“It has much better pharmacokinetics than Acyclovir as it is absorbed better in horse GI tract,” Hurcombe said.

Antiprotozoans like diclazuril, marketed as Protazil, are used as a daily top-dress feed additive for the treatment of equine protozoan myeloencephalitis.

Hurcombe says the drug is “palatable, well tolerated and effective.”

“I think it is also cheaper than Marquis (ponazuril), which is the other FDA-approved EPM medication,” he added.

For the management of pituitary pars intermedia dysfunction (PPID, or Cushing’s disease), Hurcombe likes pergolide, marketed as Prascend by Boehringer Ingleheim.

Hurcombe also noted that the Oncept melanoma vaccine, which is marketed by Merial for dogs with oral melanoma, “is being tried by equine clinicians in horses with melanoma following surgical debulking and/or chemotherapy/radiation.”

“There are limited reports this far, but from my personal experience it has shown promise,” he added.

Texas A&M’s Fajt said that regardless of experts’ preferences, there will always be concerns.

“There will continue to be concerns about inappropriate use of drugs that inhibit the growth of or kill infectious organisms, because use may select for resistant strains of those organisms,” Fajt said.

“This has been less of a concern with antifungals, because of their expense and duration of therapy, but should always be in the back of the mind when using an
Veterinary Service Grants Available from USDA

The Veterinary Services Grant Program will be accepting applications soon from veterinarians who want to expand their services to underrepresented areas and rural clients.

What to Watch For When Breeding Mares

Ensure equine breeding success with these tips.


Find out what you need to know.
Does Your Cat Have Lower Urinary Tract Disease? 3 Signs to Look For

Sponsored by Royal Canin

Get 40% Off America's #1 Personal Finance Software

Save $$$ now when you buy Quicken, then use the software to keep track of your spending- saving you money in the long run. [Quicken]

Learn More
6 Exam Codes Every Veterinary Practice Needs

Reasons to be a Veterinarian

Veterinary Practice News Blogs

The Magazine

Subscribe
Digital Access
Advertise With Us
Contact Us
Web Exclusives

Get 40% Off America’s #1 Personal Finance Software
Save $$$ now when you buy Quicken, then use the software to keep track of your spending—saving you money in the long run. [Quicken]
Learn More
Tibial Plateau Leveling Osteotomy
2016.03.24
Are you ready to move on to the next level in cranial cruciate ligament repair? This interactive course includes lectures and laboratories to teach...

Continuing Education amidst Zion National Park!
2016.03.24
Vet Lectures and The International Union of Veterinary Cyclists are hosting 15 hours of RACE-approved CE March 24–27, 2016 amidst the...

AAHA Austin 2016
2016.03.31
Join AAHA in Austin, March 31 - April 3, 2016. Even if you’ve attended the past 80 years of AAHA conferences, you’ll experience...

Minimally Invasive Joint Surgery & Arthroscopy
2016.04.01
This three day comprehensive course is designed for general practitioners or specialists interested in learning minimally-invasive techniques for...

Axial Skeleton & Upper Limb Ultrasound for Equine Practitioners - A 2-day Practical Course
2016.04.01
This course was developed to provide attendees with the theoretical knowledge and the practical skills of ultrasound image acquisition and...

Practical Orthopedics of the Pelvic Limb
2016.04.17
This two-day course emphasizes practical knowledge and hands-on surgical laboratory experience for the treatment of the most orthopedic...

Get 40% Off America’s #1 Personal Finance Software
Save $$$ now when you buy Quicken, then use the software to keep track of your spending- saving you money in the long run. [Quicken]
Learn More
This two-day course emphasizes practical knowledge and hands-on surgical laboratory experience for the treatment of the most common orthopedic...

### Intermediate Abdominal Ultrasound
**2016.04.21**
This course is designed for veterinarians who ultrasound animals at least once every other week. The course will review basic physics, but most of...

### Reconstructive Surgery: Management of Problem Defects - Course
**2016.04.24**
This intensive two day course closely pairs lectures with direct laboratory application of the surgical techniques covered using cadaver specimens....

### Flexible & Rigid Endoscopy
**2016.04.28**
This course combines the Flexible GI Endoscopy workshop and the Rigid Endoscopy workshop to create a full 4 day lecture and hands-on lab covering...

### Infectious & Vector Borne Disease for the General Practitioner
**2016.04.30**
One topic, in-depth immersion learning in America's finest city. Catch the wave of knowledge with the San Diego County VMA! Classroom seating for...

### Infectious & Vector Borne Disease for the General Practitioner
**2016.04.30**
One topic, in-depth immersion learning in America's finest city. Catch the wave of knowledge with the San Diego County VMA. Classroom seating...
Clinical Pathology for the General Practitioner
2016.04.30
One topic, in-depth immersion learning in America's finest city. Catch the wave of knowledge with the San Diego County VMA. Classroom seating for...

2016 MVMA Spring CE Conference
2016.05.11
MVMA Spring CE Conference* Wednesday, May 11, 2016 8:30 am – 5:00 pm (6 CE Credits) Best Western Royal Plaza, Marlborough, MA  Track 1:...

2016 North Carolina Workshop in Laboratory Animal Medicine
2016.05.12
The course is appropriate for veterinarians specializing in laboratory animal medicine, especially those preparing for ACLAM board certification....

3rd Annual New York State Veterinary Conference
2016.05.13
May 13–15, 2016 – Westchester Hilton, Rye Brook, NY The event features over 50 companion animal sessions for the whole veterinary team....

Core Surgery Procedures for the Small Animal GP
2016.05.15
In this course veterinarians will learn, review, and practice the principles of soft tissue surgical procedures that are performed commonly in...

Small Animal Ultrasound
2016.05.21
This two day course is designed to give veterinarians and veterinary technicians hands on experience with diagnostic abdominal ultrasonography in...

Get 40% Off America’s #1 Personal Finance Software
Save $$$ now when you buy Quicken, then use the software to keep track of your spending- saving you money in the long run. [Quicken]
Learn More
Invasive Hemodynamic & Respiratory Function Monitoring and Techniques of Mechanical Ventilation

American College of Animal Welfare Third Annual Short Course
2016.06.01
The ACAW and the NC State CVM invite veterinarians interested in gaining specialized knowledge regarding animal welfare assessments, issues, and...
Get 40% Off America's #1 Personal Finance Software

Save $$$ now when you buy Quicken, then use the software to keep track of your spending—saving you money in the long run. [Quicken]

Learn More