

ARF FUNDS ANTIBIOTIC RESEARCH

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It's an old story that there are no drugs approved by the FDA for use in South American camelids, and, of course, that includes antibiotics. As a result veterinarians treating infections in alpacas try to extrapolate doses for antimicrobial drugs based on data from other animals as well as from previous experience. Very often these extrapolations are way off the mark. A significant problem in oral use of medications in alpacas is not only that the camelid stomach is very different from the monogastric stomach of the horse, dog, or cat, but that it also differs from the classical ruminant stomach of the sheep, goat, and cow. Therefore, studies of medications in alpacas will always be a high priority. In the past ARF has funded studies which highlighted these dosing problems. Jeffrey Lakritz, DVM, PhD used ARF funds to study oral dosing of trimethoprim/sulfamethoxazole in alpacas and discovered that the recommended doses for oral administration were totally inadequate in achieving therapeutic levels. Dawn M. Boothe, DVM did a similar study using oral sulfadimethoxine (Albon) and came to the same disappointing conclusion.

All, however, is not doom and gloom. A recent ARF-funded study has been completed looking at intravenous (IV), subcutaneous (SC), and oral administration of the fluoroquinolone antibiotic, enrofloxacin. The study was performed by A. Rae Gandolf, DVM of The Wilds in Cumberland, Ohio and was carried out in alpacas. The highlights of the study will be covered here, but for those who want all the details, they can be found in the May 2005 issue of the American Journal of Veterinary Research. Enrofloxacin is approved for use in chickens, turkeys, cattle, dogs, and cats and is effective against a wide range of gram positive and gram negative bacterial organisms. There is also evidence that it may be effective against Mycoplasma species. Dr. Gandolf found that all three routes of administration resulted in therapeutic blood levels of antibiotic appropriate for most susceptible infections. There were no adverse reactions to enrofloxacin after one month of careful monitoring, and the medication needed to be given only once a day. An oral dose of 10mg/kg/24h and IV and SC doses of 5mg/kg/24h gave effective therapeutic drug levels. In comparison, the recommended oral dose in cats is 5mg/kg/day and 5-20mg/kg/day in dogs.

This is a very effective antibiotic with very little toxicity except in the following circumstance. Defects in the cartilage of weight-bearing joints in growing animals and humans have been noted with the administration of quinolone antibiotics. In the animals for which the drug is approved for use, no lesions have been noted in cattle and cats, but have definitely been noted in puppies. Whether growing alpacas are at risk is unknown, but adult alpacas are at no risk at all. We are grateful to Dr. Gandolf for making such good use of our ARF research funds.