

DRUG TREATMENT FOR MEGAVERTEBRATES

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Abstract

Very little published data exists on the treatment of megavertebrates, with most literature being primarily in book chapters on general medicine of these species. Although these animals in captivity are generally healthy and require few drug treatments over the course of their lifetime, when they become ill treatment becomes a serious issue. Specifically, drug selection, formulation, dosage, and frequency are difficult because of the lack of published pharmacokinetic studies. Another consideration is the voluminous amount of drug that must be administered to species that are notoriously difficult to medicate. For example, consider fluid replacement in a full-grown elephant with severe salmonellosis and associated gastroenteritis. Using a conservative estimate of maintenance fluid requirements at 40 ml/kg daily, an adult elephant weighing 4,000 kg would require approximately 160 liters of fluids daily. With severe diarrhea causing 5% dehydration, replacing the fluid lost requires an additional 200 liters. Delivery of this volume intravenously becomes technically demanding, requiring multiple large gauge catheters, fluid pumps, and large quantities of sterile fluids. After the fluid requirements are met, consideration must then be given to antimicrobials, gastric protectants, and pain control. All of these drugs must be administered to an anorectic, usually non-compliant and potentially dangerous animal. In this presentation, methods of drug administration to very large animals and associated limitations will be reviewed.