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Experience in the Ivermectin Treatment of Internal Parasites in Zoo and Captive Wild Animals: A Review



Ivermectin-Behandlung von Endoparasiten bei Wildtieren in Menschenobhut: Eine Übersicht

Mariana Stancheva Panayotova-Pencheva

Institute of Experimental Morphology, Pathology and Anthropology with Museum, Department of Experimental Parasitology, Bulgarian Academy of Sciences, Acad. G. Bonchev St., Block 25, 1113 Sofia, Bulgaria

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Abstract

The selection and the use of antiparasitic remedies in the animals in zoological gardens and those bred in captivity present one of the challenges to the wildlife veterinarians. The latter have to be flexible enough in the choice of medicines and schemes of treatment of the animals they take care of. The present study is aimed at adding more information in that respect. A number of cases of ivermectin treating of mammals, birds, reptiles, amphibians and fish bred in captivity are presented in it. The tolerance to the drug in the different animals, species of the parasites influenced by it, dosages, schemes of applying and some other peculiarities in the system animals – diseases – anthelmintic treatments are discussed.

Keywords: Anthelmintic treatment; Captive wild animals; Ivermectin; Wildlife; Zoos

Introduction

Breeding animals in limited space as zoological gardens, rehabilitation centers, farms, reserves and others is characterized with the corresponding specificity of the diseases affecting them, including parasitoses. The amassing of a great number of animals often uprooted

E-mail address: marianasp@abv.bg

out of the natural habitat predisposes for a massive spread parasitoses amidst them. In a number of cases, for example in zoos, infections of animals with untypical parasites have been observed which have been acquired due to the close direct or indirect contact with other animal species. Often it is difficult to eliminate parasitic infection in captive animals because of confinement, changed environmental conditions and the movement of keepers from one enclosure to another. Hence attempts should be made to keep the parasite load low. For this, regular examination of fecal samples, assessment of parasitic load and administration of appropriate medicines is warranted at regular intervals (Singh, Gupta, Singla, Singh, & Sharma, 2006). The choice and use of antiparasitic drugs however are arranged among the challenges to wildlife veterinarians. In a great part of the cases the medicines on the market are designed for domestic animals and they should be adapted as to dosage and ways of application which is accompanied by the corresponding risks. On the other hand the continued use of one and the same antiparasitic remedies would lead to the emergence of resistance to them in the animals treated. These factors enforce the wildlife veterinarians to be flexible enough in the choice of medicines and schemes of treatment of the animals they take care of. Ivermectin is one of the antiparasitic remedies with numerous advantages. It is a broad-spectrum drug, effective against both arthropod and nemathelminthic endo- and ectoparasites; it can be administered either orally or parenterally; it is potent – allowing for administration of very small doses, and its potency is far exceeding those of other anthelmintics (Fink, 1988; Soll, 1989). These attributes have led to the extensive use of the compound for treating parasitic infections in a variety of animals. However, its possible toxicity should be taken into consideration. The main concern is neurotoxicity, which in most mammalian species may manifest as central nervous system depression, and consequent ataxia. Most often this happens when the drug has been overdosed and may cross the blood–brain barrier. Clinical evidence suggests kittens are susceptible to ivermectin toxicity (Frischke & Hunt, 1991), and for some breeds of dogs the drug is contra-indicated. There are data that ivermectin can cross the blood–brain barrier in tortoises, often with fatal consequences. Apart from domestic animals, ivermectin has been approved by various regulatory authorities for use in camels and Reindeer only. The treatment of any other species with the product is considered to be “extralabel” usage (Soll, 1989).

It is obvious that together with the conveniences, the administration of ivermectin in wild animals has its specificities and holds a great amount of risks. The purpose of the present work was chosen in that respect aiming at the completion of a literature review of the experience in the treatment of wild animals with ivermectin, encompassing in our case only the studies on the treatment of helminthoses in the ones held in captivity. We hope that the obtained data would be of use both to the researchers in the field of parasitology and the practicing specialists in the zoos, wild animal hospitals, rescue-shelters, rehabilitation centers, reserves and others.

Materials and Methods

The results found in the literature are presented in a chronological order and are grouped according to the taxonomic classification of the animals.

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