Use of Dermacid in treatment of dermatomycoses in small domestic animals

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Abstract

A new preparation called Dermacid that we have developed and are presenting herein is a highly efficient means possessing fungicidal properties. It is not toxic for warm-blooded animals, possessing no cumulative properties and is a highly efficient means for treatment of dermatomycoses in cats and dogs.

Carrying out reliable and efficient therapy is an important link in the system of measures aimed at controlling dermatomycoses in domestic animals.

By now, specialists have studied and tested a considerable number of different chemical substances and agents possessing a therapeutic action in animals suffering from dermatomycoses. Among them are such substances as cresol, phenol, formalin, lysol, salicylic acid, copper sulfate, creolin, petroleum products, dichlorophen, clotrimazole, nizoral, camyzyl, zoniton, fungin and other therapeutic substances, but the majority of them possess undesirable side effects and are economically disadvantageous (2, 9).

The known antimycotic vaccines are mainly used to prevent the disease, not always ensuring the desired prophylactic and therapeutic effect (3, 5, 8), especially during acute course of the disease. These circumstances compel us to use effective fungicidal chemotherapeutic agents.

Based on the findings obtained in our studies, we have developed a new complex preparation Dermacid possessing antifungal, anti-inflammatory and analgesic properties.

MATERIALS AND METHODS OF THE STUDY

The studies were carried out over the period from 2000 to 2005. The experiments were performed on a total of 450 LCR-line white mice weighing 14 – 20 g (females); 25 dogs weighing 13 – 15 kg, and 131 cats weighing 2.5 – 4 kg.

Toxicity of Dermacid was studied on white mice by means of the probit-analysis suggested by Miller and Tainter (6). The cumulative properties were determined according to the Lim method (4).

The clinical trials were performed on dogs and cats in a Moscow clinic. In order to determine the presence of the fungal causative agent, scrapping was made from the site of the lesion of the skin.

In order to isolate the pathogen of dernmatomycosis we used the mash agar, potato agar, meat-pectone – glycerin agar with 2 % glucose.

The species type was determined by the findings obtained in studying the morphological and cultural peculiarities of the dermatophytes (7).

Comparative analysis of the dermatophytes' sensitivity to Trimycide^{D} was performed using the method of serial dilutions (1), with the use of the museum strains of dermatomycosis causative agents: Microsporium canis N^{o} 31, 401, 128; Trichophyton mentagraphytes N^{o} 210, 135, 118; Trychophyton serrucosum N^{o} 130, 592, 36.

Therapeutic efficacy of Dermacid was determined on clinically sick dogs and cats at various stages of the disease's course. The animals were of different gender and age. Therapeutic efficacy was assessed by the clinical cure of the animals; the results of the microscopic examination of the scrapping from the skin to be inoculated on nutrient media in order to isolate the causative agent, as well as by the results of luminescent diagnosis.

RESULTS

The obtained findings made it possible to determine the fungostatic activity of Dermacid at the minimal

concentration of the preparation, lying within the limits of 0.58 – 1.17 μg/g of the culture medium.

It was determined that Dermacid by its degree of toxicity belongs to low-toxicity compounds. The LD_{50} of Dermacid administered intramuscularly amounts to 326 ± 11.4 mg/kg of the body weight of mice.

Studying the cumulative properties of the preparation showed that the LD_{50} amounts to 976 ± 9.4 mg/kg, with the cumulation coefficient lying within 2.9 – 3.5, thus strongly suggesting the absence of cumulative properties of Dermacid.

In case of death of animals, the following clinical signs were observed: short-term excitation was observed during 20 - 30 minutes, which was gradually replaced by depression and ataxia. Respiration during the period of excitation was noted to be quickening, becoming thereafter intermittent (jerky), shallow and infrequent. Also noted were auricular hyperemia, flabbiness, paresis of the extremities, decreased tactile sensitivity. The lethal outcome was noted to occur 20 – 24 hours after administration of the drug.

The experiments carried out on dogs and cats while studying therapeutic efficacy of Dermacid showed that the preparation proved to be efficient if administered intramuscularly at a dose of 2.0 ml/head to adult animals; and 1.0 ml/head to puppies and kittens.

The intervals, frequency and the number of administrations/injections depended upon the clinical for most of the disease and the degree of virulence of the causative agent.

CONCLUSION

Dermacid is a complex agent designed for treatment of dermatomycoses in small domestic animals. The preparation is a low-toxicity compound possessing weakly pronounced cumulative properties. Dermacid exhibits fungicidal properties in the ratio of 0.58 – 1.17 μg/g of the nutrient medium. The preparation proved to be efficient in treatment for dermatomycoses in cats and dogs. Dermacid is to be administered intramuscularly at a dose of 2 mg/kg body weight at an interval of 5 - 6 days from two to three times, depending on the stage and course of the disease.

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