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Retrospective Assessment of the Treatment of Sporotrichosis in Cats and Dogs Using Itraconazole

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ABSTRACT

Background: Cases of sporotrichosis in male and female cats and dogs of different ages with cutaneous sporotrichosis that were treated at the dermatology service of a teaching veterinary hospital and orally administered itraconazole (ITC) were retrospectively characterized by reviewing the clinical records corresponding to a 19-year period (1993-2011). The aim of the present study was to analyze regarding clinical cure, side effects, length of treatment and relapse using ITC in the treatment of cutaneous sporotrichosis in cats and dogs.

Materials, Methods & Results: From the assessed case series, 20 animals were selected, of which 17 (85.0%) were cats and three (15.0%) were dogs; the animals were mostly males (80.0%) and of ill-defined breeds (75.0%). Cases of sporotrichosis in male and female cats and dogs of different ages that were treated at the dermatology service of a teaching veterinary hospital and orally administered ITC (10 mg/kg) once a day. The percentage of full remission of the treated cases, regardless of their clinical form, was 100%, and no systemic or tegumentary side effects were found in the assessed animals. The average duration of treatment was 3.4 months in cats and 11.3 months in dogs, whereas the maximum duration of treatment required to resolve the clinical condition in the assessed case series of cats and dogs was 16 months, regardless of the animal species. Relapses occurred in 15.0% (one cat and two dogs) of the cases treated with the investigated antifungal agent.

Discussion: The remarkable difference in the average duration of therapy required to achieve clinical cure between cats and dogs might be related to the fact that most of the cases of feline sporotrichosis were of the localized cutaneous form (82.3%). Conversely, the three cases of canine sporotrichosis were of the disseminated cutaneous form, which may have delayed the success of treatment. Clinically manifested systemic or tegumentary side effects were not reported by the pet owners or were detected by clinical examination of the animals that were subjected to treatment with ITC in the present study, which agrees with previous reports. However, given the retrospective character of this research complementary laboratory exams are lacking and thus it cannot be asserted that alterations do not exist. Therapeutic failure was not observed with the use of ITC in the investigated cases of canine and feline sporotrichosis. Clinical relapse occurred in two dogs and one cat, all of which exhibited the disseminated cutaneous form, which might have predisposed them to clinical recrudescence. In addition, the evident difference in the percentage of relapse between the two species might be correlated with the higher prevalence of the disseminated cutaneous form among the investigated dogs (100%) compared with the cats (40%). Of the animals that exhibited relapse, one dog had been treated with topical corticoids for the previous three months. According to the literature, glucocorticoids and other immunosuppressants are contraindicated in dogs and cats with sporotrichosis. The cat, in turn, exhibited respiratory disease complex in addition to sporotrichosis, which might be related to the clinical relapse. In conclusion, ITC is efficacious in the treatment of sporotrichosis in cats and dogs and does not induce apparent side effects.

Keywords: sporotrichosis, mycosis, treatment, itraconazole, dog, cat.
INTRODUCTION

Sporotrichosis is a mycotic disease that is caused by the dimorphic fungus of the *Sporothrix schenckii* complex [8] and can affect humans, dogs and cats, among other species [4].

The typical protocol for the treatment of classic animal sporotrichosis is based on the protocol used in the treatment of humans and includes halogens (20% potassium or sodium iodide in saturated solution) that are orally administered [5,6]. Other therapeutic options for cats and dogs with sporotrichosis include azoles (ketoconazole, fluconazole), imidazoles (itraconazole), allylamines (terbinafine), polyenic drugs (amphotericin B), cryotherapy and surgical resection of the skin lesions [11].

The ITC is currently considered the drug of choice for the treatment of sporotrichosis in cats because of its higher effectiveness and safety compared with other antifungal drugs [5,10,11,17]. The main side effects reported to be caused by ITC treatment in dogs and cats include dysorexia, emesis and diarrhea, and in addition an increase in the serum levels of the liver enzymes [12-14,17]. As disadvantages of this protocol, the literature mentions the need for longer treatment, per two to six or more months [13] and its high cost [16].

Regardless of the drug chosen, pharmacological treatment must be continued for at least one month after apparent clinical remission to prevent the relapse of clinical manifestations [12,17].

The aim of the present study was to survey the clinical experience associated with the use of ITC for the treatment of cutaneous sporotrichosis in cats and dogs regarding clinical cure, side effects, length of treatment and relapse.

MATERIALS AND METHODS

Clinical cases with an established diagnosis of sporotrichosis in cats and dogs that were assisted at a Dermatology Service (DS) were retrospectively reviewed from 1993, the year when the protocol for ITC treatment was pioneeringly instituted for the treatment of sporotrichosis, to September 2011. From these records, the animals with a confirmed diagnosis that were treated with ITC were selected.

Cats and dogs of any age and gender with a diagnosis of sporotrichosis that was confirmed by fungal culture, direct microscopic examination and/or histopathological exam, that were treated with ITC and consistently followed up at the DS were included in the present study. Animals that were not treated with ITC, those whose owners who did not perform the treatment in an appropriate manner, or those with an inappropriately assessed clinical evolution were excluded.

The clinical presentation of sporotrichosis was classified either as localized or disseminated cutaneous or as lymphocutaneous. The data were entered in a spreadsheet and grouped according to species, breed, age, detected side effects and clinical relapse.

In all of the cases, the treatment included ITC Sporanox® (oral capsules 100 mg)

\^1, at 10 mg/kg orally every 24 h together with food for up to four weeks after the clinical remission of lesions. The animals were considered cured if they did not relapse within one year after clinical discharge. In contrast, the animals were considered re-infected if, following an initial period of apparent clinical cure, they exhibited new lesions up to one year from the end of treatment. The treatment was considered incomplete if the medication was discontinued before achieving full remission of the clinical manifestations or if it was not continued for at least one month after the regression of the lesions.

RESULTS

Out of a total of 37 cases (nine dogs and 28 cats) of sporotrichosis identified in the 19-year investigated period, 17 (45.9%) were excluded because they did not meet all of the inclusion criteria (the animal did not return for follow up, or the owner did not perform the treatment in an appropriate manner) or a treatment protocol other than ITC was instituted.

The final sample included 17 cats and three dogs. Regarding breeds, three (17.6%) of the 17 cats had a well-defined breed (WDB), all of which were Siamese, and 14 (82.4%) had an ill-defined breed (IDB). Of the dogs, two (66.7%) had IDB, and one (33.3%) was a boxer. The average age of the cats was 38.4 months old, varying between three and 108 months of age, and the average age of the dogs was 80 months old, varying between 72 and 84 months of age. Regarding gender, most of the cats (12 - 70.6%) and all three dogs were male.

The data also showed that 12 (70.6%) cats exhibited the localized cutaneous form, whereas the remainder (five) of the cats and all three dogs exhibited the disseminated cutaneous form.
Regarding the therapeutic response, all 20 (100%) animals treated with ITC that were included in the present study progressed into clinical cure (Figures 1-4). The average time to achieve clinical cure was 3.4 months for cats and 11.3 months for dogs. No side effects and/or therapeutic failures were observed in any of the animals subjected to treatment with ITC. Clinical relapse was observed in three animals with the disseminated cutaneous form of disease. Two (66.7%) of the relapsing animals were dogs, one of which had been treated with topical corticoids for three months before relapse, and one (5.9%) was a cat, which exhibited respiratory disease complex as a comorbidity.

**DISCUSSION**

The success found by the present study regarding the treatment of animals with sporotrichosis using ITC corroborates a report by Crothers et al. [1], who found 88.9% and 100% clinical improvement in dogs and cats, respectively, and a study reported by Schubach et al. [15] in dogs. However, these results disagree with those reported by other authors, who found lower rates of efficacy (38.3% and 50.0%, respectively) with this same treatment in cats [7,10].

Such differences may have been due to the different degree of severity of the clinical forms of disease among the studies (the localized or disseminated and the systemic forms) or to the lack of compliance with treatment by the pet owners, which may result in therapeutic failure. In addition, certain reports in the literature indicate that the localized cutaneous form...
(initial chancre) has a better prognosis compared with the disseminated form [3].

The remarkable difference in the average duration of therapy required to achieve clinical cure between cats and dogs might be related to the fact that most of the cases of feline sporotrichosis were of the localized cutaneous form (82.3%). Conversely, the three cases of canine sporotrichosis were of the disseminated cutaneous form, which may have delayed the success of treatment. Pereira et al. [10] reported an average time to clinical cure of 5.5 months in cats treated with ITC, whereas in the dogs studied by Schubach et al. [15], an average of 2.5 months since the onset of treatment was observed.

Clinically manifested systemic or tegumentary side effects did not occur in any of the animals that were subjected to treatment with ITC, which agrees with previous reports [2,17]. Several authors have warned against or even observed adverse effects affecting the digestive system, with nausea, dysorexia, emesis and gastrointestinal pain [11,14,17] or the integumentary systems, mainly hair hypopigmentation [10,16]; however, none of these effects were reported by the pet owners in the present study. Neither were clinical manifestations compatible with the liver damage reported. However, the serum levels of the liver enzymes were not measured or followed up in all of the cases treated with ITC; therefore, it cannot be asserted that these levels were not altered.

Therapeutic failure was not observed with the use of ITC in the investigated cases of canine and feline sporotrichosis. Clinical relapse occurred in two dogs and one cat, all of which exhibited the disseminated cutaneous form, which might have predisposed them to clinical recrudescence. In addition, the evident difference in the percentage of relapse between the two species might be correlated with the higher prevalence of the disseminated cutaneous form among the investigated dogs (100%) compared with the cats (40%). Moreover, according to the literature, the response of dogs is quite variable, and relapse is not infrequent [9]. The average times for relapse to occur were 67.5 and 10 days in the dogs and the cat, respectively.

Of the animals that exhibited relapse, one dog had been treated with topical corticoids for the previous three months. According to the literature, glucocorticoids and other immunosuppressants, such as cyclosporine, are contraindicated in dogs and cats with sporotrichosis, and these medications must also be avoided after treatment because immunosuppressing doses of glucocorticoids have been correlated with sporotrichosis relapse even four to six months after apparent clinical cure [12,16]. The cat, in turn, exhibited respiratory disease complex in addition to sporotrichosis, which might be related to the clinical relapse.

CONCLUSION

Based on the results described above in regard to the therapeutic response, ITC was efficacious in the treatment of sporotrichosis in cats and dogs without inducing apparent side effects.

SOURCE AND MANUFACTURER

1Itraconazole, Janssen-Cilag Farmacêutica Ltda, São Paulo, SP, Brazil.

Declaration of interest. The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

REFERENCES


