TITLE: FELINE SPOROTRICHOSIS IN A MUNICIPALITY OF SOUTHEASTERN BRAZIL: ANTIFUNGAL SUSCEPTIBILITIES OF Sporothrix brasiliensis

AUTHORS: MASCHIO-LIMA, T.¹; BIANCO, L. M¹; MARQUES, M.D.R.²; LEMES, T.H.¹; BRIZOTTI, N. S.²; CAETANO M.H.¹; ALMEIDA, B.G.¹; SILVA, C. A.; SIQUEIRA, J.P.Z.²; ALMEIDA M. T. G.²

INSTITUTION: ¹UNIVERSIDADE ESTADUAL PAULISTA – UNESP. INSTITUTO DE BIOCIÊNCIAS, LETRAS E CIÊNCIAS EXATAS - CÂMPUS SÃO JOSÉ DO RIO PRETO, SP (RUA CRISTOVÃO COLOMBO, 2265, CEP 15054-000, SÃO JOSÉ DO RIO PRETO-SP, BRASIL).

²FACULDADE DE MEDICINA DE SÃO JOSÉ DO RIO PRETO (AV. BRIGADEIRO FARIA LIMA, 5416, CEP 15090-000, SÃO JOSÉ DO RIO- SP, BRASIL).

ABSTRACT:

Sporotrichosis is a subcutaneous mycosis caused by the dimorphic fungi of the Sporothrix schenckii complex, which includes several species, including S. brasiliensis. The zoonotic form is responsible for rapid spread of the disease and epidemics with public health impacts. Sporothrix brasiliensis is highly virulent and associated with outbreaks of feline sporotrichosis in Brazil; however, data on susceptibility of isolates from animal origin are still scarce. The aim of this study was to evaluate the susceptibility profiles of Sporothrix isolates from cats against five drugs. Samples were collected from Nov. 2017 to Oct. 2018 by the Center for Zoonoses Control of São José do Rio Preto, Brazil. All the 100 isolates obtained were identified as S. brasiliensis by PCR Assay. Antifungal agents tested were amphotericin B (AMB), ketoconazole (KTZ), itraconazole (ITZ), terbinafine (TBF), and potassium iodide (KI). Determination of the minimum inhibitory concentrations (MIC) was based on the protocol of broth microdilution M38-A2 (CLSI). Microplates were prepared with drugs in a final concentration of 0.03 - 16 µg/ml. except for the KI (0.488 – 250 mg/ml). Inoculated plates were incubated at 28 °C for 72h. Readings were performed visually, considering 100% inhibition for ITZ, AMB, and KI; 80% for TBF; and 50% for KTZ. As results, TBF, KTZ, ITZ, AMB, and KI presented the respective geometric means, 0.15 µg/ml, 0.45 µg/ml, 0.46 µg/ml, 1.06 µg/ml, and 141.61 mg/ml. Drugs that showed the lowest MIC ranges were ITZ (0.03 - 1.0 µg/ml), TBF (0.03 - 2.0 µg/ml), and KTZ (0.06 - 2.0 µg/ml), and wider ranges for AMB and KI (0.125 - 8 µg/ml, 31.25 - 250 mg/ml, respectively). There were several isolates with MIC values above the previously established epidemiological cutoff values (ECV). For TBF, 50 isolates showed MIC above the ECV (0.12 µg/ml), and for amphotericin B, two isolates (4 µg/ml). Regarding the KI, although it is still prescribed by many veterinarians, there are no established ECV and further research are needed to assess it. The activity of the main antifungal agents used as treatment of sporotrichosis are evidenced here for TBF and AMB, and the necessity of high doses of KI to inhibit many isolates. It is important to analyze the susceptibility of Sporothrix and provide guidance for better suited treatments, which can contribute to control S. brasiliensis sporotrichosis transmitted by cats to humans.

KEYWORDS: Sporothrix brasiliensis, sporotrichosis, susceptibility, antifungal.

DEVELOPMENT AGENCY: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (*CAPES*).