

Dermatofitosis pada Kucing: Profil Kortisol, Sitokin IL-2, IL-10, dan IL-12 dalam Hubungannya dengan Kesembuhan Selama Proses Terapi

Alsi Dara Paryuni
19/451052/SKH/00121

INTISARI

Dermatofitosis merupakan penyakit kulit menular yang paling banyak ditemukan pada hewan kesayangan dan mendapat perhatian khusus karena bersifat zoonosis. Penelitian ini bertujuan untuk melakukan evaluasi gambaran klinis dan patologis kucing yang terinfeksi dermatofit; memberikan informasi terkait kadar kortisol dan sitokin (IL-2, IL-10 dan IL-12) kucing yang terinfeksi dermatofit selama proses terapi; serta evaluasi terhadap efikasi terapi antifungal. Hewan penelitian yang digunakan yaitu 26 ekor kucing yang terinfeksi dermatofit usia $\pm 6-12$ bulan tanpa perbedaan jenis kelamin, yang dibagi ke dalam dua kelompok. Kelompok I merupakan kelompok kucing dermatofitosis yang diterapi ketokonazole krim 2% 2 kali sehari dan kelompok II merupakan kelompok kucing dermatofitosis yang diterapi kombinasi ketokonazole krim 2% dan griseofulvin oral dengan dosis 50mg/kg BB. Pemberian antifungal diberikan setiap hari selama 21 hari. Perkembangan lesi klinis dan patologis selama terapi diamati dengan lampu *Wood's*, pemeriksaan klinis, dan biopsi jaringan kulit untuk pemeriksaan histopatologis. Pengambilan sampel darah dilakukan pada hari ke 0, 10 dan 21 penelitian. Serum darah dari semua sampel kemudian dianalisis dengan menggunakan ELISA untuk mengetahui kadar kortisol, IL-2, IL-10 dan IL-12. Konfirmasi terhadap fungi penginfeksi dilakukan dengan mengambil kerokan kulit dan rambut kemudian ditanam pada media *Dermatophyte Test Medium* (DTM). Hasil pengamatan lesi klinis dan patologis dianalisis secara deskriptif, sedangkan hasil uji ELISA dianalisis dengan statistik ANOVA. Hasil penelitian menunjukkan bahwa 23 ekor kucing sampel terinfeksi *Microsporum canis* dan tiga ekor kucing terinfeksi *Tricophyton mentagrophytes*. Hasil pengamatan terhadap lesi klinis pada kulit didapatkan adanya eritema, *scale*, krusta, alopesia dan hiperpigmentasi. Pemeriksaan histopatologis menunjukkan adanya infiltrasi limfosit pada daerah epidermis dan dermis, hiperkeratosis dan parakeratosis. Penurunan derajat keparahan lesi terlihat pada semua sampel setelah diberikan terapi tunggal maupun kombinasi. Hasil ELISA menunjukkan rerata kadar kortisol Kelompok I menurun dari hari ke-0 (81.22 ng/mL), hari ke-10 (45.57 ng/mL) dan hari ke-21 (32.86 ng/mL), rerata kadar kortisol kelompok II menurun dari hari ke-0 (87.76 ng/mL), hari ke-10 (19.42 ng/mL), dan hari ke-21 (6.11 ng/mL). Hasil ANOVA menunjukkan penurunan tersebut signifikan ($P < 0.05$). Rerata kadar IL-2 Kelompok I menurun dari hari ke-0 (0.385 ng/mL), hari ke-10 (0.294 ng/mL) dan hari ke-21 (0.209 ng/mL), rerata kadar IL-2 kelompok II menurun dari hari ke-0 (0.761 ng/mL), hari ke-10 (0.365 ng/mL), dan hari ke-21 (0.167 ng/mL), tetapi hasil ANOVA menunjukkan penurunan pada kelompok I tidak signifikan. Sedangkan ANOVA pada kelompok II menunjukkan ada perbedaan signifikan ($P < 0.05$). Rerata kadar IL-10 Kelompok I meningkat dari hari ke-0 (0.428 ng/mL), hari ke-10 (0.452 ng/mL) dan hari ke-21 (0.494 ng/mL), rerata kadar IL-10

kelompok II meningkat dari hari ke-0 (0.554 ng/mL), hari ke-10 (0.595 ng/mL), dan hari ke-21 (0.670 ng/mL). Meskipun demikian, hasil ANOVA menunjukkan kenaikan tersebut tidak signifikan ($P > 0.05$). Rerata kadar IL-12 Kelompok I menurun dari hari ke-0 (0.062 ng/mL), hari ke-10 (0.046 ng/mL) dan hari ke-21 (0.034 ng/mL), rerata kadar IL-12 kelompok II menurun dari hari ke-0 (0.069 ng/mL), hari ke-10 (0.049 ng/mL), dan hari ke-21 (0.039 ng/mL), Hasil ANOVA menunjukkan peningkatan tersebut signifikan ($P < 0.05$). Kesimpulan dari penelitian ini adalah *M. canis* merupakan spesies utama yang mengakibatkan dermatofitosis pada kucing. Fluktuasi kadar kortisol dan sitokin IL-2, IL-10 dan IL-12 dalam serum darah kucing dermatofitosis berperan dalam proses kesembuhan infeksi dan pemberian terapi kombinasi ketokonazole krim dan griseofulvin oral secara klinis dan patologis memberikan efek yang lebih baik jika dibandingkan dengan terapi tunggal ketoconazole pada kasus dermatofitosis kucing.

Kata Kunci: Dermatofitosis, kucing, kortisol, sitokin, terapi, kesembuhan

Dermatophytosis in cats: Profile of Cortisol, Cytokines IL-2, IL-10, and IL-12 in its Relation with Recovery during Antifungal Therapy

Alsi Dara Paryuni
19/451052/SKH/00121

ABSTRACT

Dermatophytosis is the most common infectious skin disease of small animals. It is also important because it is a zoonotic skin disease. This study aimed to evaluate the clinical and pathological features of cats infected with dermatophytes; provide the basic information about cortisol and cytokine levels (IL-2, IL-10, and IL 12) in cats infected with dermatophytes during treatment process; and evaluate the efficacy of antifungal therapy. In a total of 26 cats infected with dermatophytes were included in this study. The age of the cats were ranging from ± 6 to 12 months and there was no sex difference. All cats were divided into two groups. Group I consisted of (13) cats treated with 2% ketoconazole cream twice daily; while group II consisted of (13) cats treated with a combination of 2% ketoconazole cream and oral griseofulvin at a dose of 50mg/kg BW. The antifungal was given every day for 21 days. The development of clinical and pathological lesions during therapy was observed using *Wood's* lamp, clinical examination, and skin tissue biopsy for histopathological examination. Blood samples were taken on days 0, 10, and 21 of the study. Blood serum from all samples was then analyzed using ELISA to determine the cortisol and cytokine IL-2, IL-10, and IL-12 levels. Confirmation of the infecting fungi was done by skin scraping and culturing the specimens onto Dermatophyte Test Medium (DTM) media. The observed clinical and pathological lesions were analyzed descriptively, while the results of the ELISA test were statistically analyzed using ANOVA. The results showed that 23 sample cats were infected with *Microsporum canis* and three cats were infected with *Tricophyton mentagrophytes*. Clinical lesions including erythema, scale, crusting, alopecia, and hyperpigmentation were observed from all cats. Histopathological examination showed lymphocytic infiltration in the epidermis and dermis, hyperkeratosis, and parakeratosis. A decrease in the severity of the lesions was seen in all cats following the application of either single or combination therapy. ELISA results showed that there was decreasing trend of the mean of cortisol levels in both group. The mean of cortisol level in group I was 81.22 ng/mL, 45.57 ng/mL, and 32.86 ng/mL on day 0, 10, and 21, respectively; while Group II showed mean of cortisol level at 87.76 ng/mL, 19.42 ng/mL, and 6.11 ng/mL on day 0, 10, and 21, respectively. The ANOVA results showed that the decrease on cortisol level was significant ($P < 0.05$). The mean levels of IL-2 in Group I decreased from day 0 (0.385 ng/mL), day 10 (0.294 ng/mL), and day 21 (0.209 ng/mL), and the mean IL-2 levels in group II decreased from day 0 (0.761 ng/mL), day 10 (0.365 ng/mL), and day 21 (0.167 ng/mL), but the ANOVA results showed that the decrease in group I was not significant. While the ANOVA in group II showed a significant difference ($P < 0.05$). The mean levels of IL-10 in Group I increased from day 0

(0.428 ng/mL), day 10 (0.452 ng/mL) and day 21 (0.494 ng/mL), the mean levels of IL-10 in group II increased from day 0 (0.554 ng/mL), day 10 (0.595 ng/mL), and day 21 (0.670 ng/mL). However, the ANOVA results showed that the increase was not significant ($P > 0.05$). The mean levels of IL-12 in Group I decreased from day 0 (0.062 ng/mL), day 10 (0.046 ng/mL) and day 21 (0.034 ng/mL), the mean IL-12 levels in group II decreased from day 0 (0.069 ng/mL), day 10 (0.049 ng/mL), and day 21 (0.039 ng/mL), ANOVA results showed a significant increase ($P < 0.05$). Finally, *M. canis* was the most dermatophytes detected from infected cats in this study. Fluctuations in the levels of cortisol and cytokines IL-2, IL-10, and IL-12 in the serum of dermatophytosis cats were observed and might contribute to the healing process of infection. The administration of combination therapy with ketoconazole cream and oral griseofulvin showed better effect clinically and pathologically when compared to ketoconazole alone.

Keywords: Dermatophytosis, cats, cortisol, cytokines, therapy, healing

