

**COMPARATIVE EFFICACY OF AZITHROMYCIN AND
LEVOFLOXACIN IN PYODERMA OF DOGS**

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ABSTRACT

The present study was undertaken to compare the clinical efficacy of azithromycin and levofloxacin in pyoderma of dogs with regard to the adverse effects and duration of therapy. A total of sixty clinical cases of dogs irrespective of breed and those above the age group of two years presented to the clinical service complex, with symptoms of pyoderma were divided retrospectively into two groups. Group I (n=30) was treated with azithromycin @ 5-10 mg/kg, orally, once a day, for 21 days and group II (n=30) was treated with levofloxacin @ 10 mg/kg, orally, once a day, for twenty one days along with the suitable supportive therapy, after ruling out the fungal and mite origin skin infections. The serum samples collected from the dogs at

weekly intervals were subjected to biochemical analysis for serum alanine transaminase (ALT), blood urea nitrogen (BUN) and creatinine parameters. Levofloxacin treated dogs recovered faster compared to azithromycin treated dogs with reference to the number of days required for complete disappearance of the clinical signs (13.10 ± 0.52 v/s 16.86 ± 0.51). 36.66 and 16.66 per cent of dogs in group II had elevated ALT levels on Day 14 and 21 respectively against 6.6 percent of dogs in group I on Day 14 only. 13.33 per cent of dogs in group II had elevated BUN levels on Day 14, while none of the dogs in group I had elevated BUN levels during therapy. The study revealed that both azithromycin and levofloxacin can be used effectively in the treatment of pyoderma with the concern for hepatic insufficiency of levofloxacin on long term use.

KEYWORDS: pyoderma, azithromycin, levofloxacin, efficacy.

INTRODUCTION

Among all the dermatological problems in dogs, pyoderma occupies greatest importance in small animal practice. Though numerous antibiotics are being used for the management of pyoderma, due to its essential nature of prolonged course of treatment and possible side effects,. In this context, the present study was designed to evaluate the efficacy of levofloxacin and azithromycin in the treatment of pyoderma in dogs.

MATERIALS AND METHODS

Dogs in the age group of 2- 4 years, presented to the teaching veterinary clinical service complex of veterinary college, Bidar and APMC peripheral hospital during the years: 2010 and 2011, with the history and clinical signs suggestive of pyoderma were included in the study. Clinical signs like erythema, alopecia, papules, pustules, scales, crusts, epidermal collorates, pruritus, lichenification with or without the presence of underlying predisposing factors like flea infestation, tick infestation, mange, allergic conditions like atopy are included in the present study. Initially in extreme pruritic dogs, hydroxyzine@ 1-2 mg/kg, P.O or prednisolone @ 0.5 to 1 mg /kg, PO are administered for one week and underlying causes are eliminated with proper topical ectoparasitidal liquid medications for four consecutive days.

After the clinical disappearance of the underlying predisposing factors, below mentioned antibiotics are administrated and owners are instructed to follow proper hygienic managemental practices at the kennel and its surroundings.

Retrospectively, Sixty dogs presented to the clinics were included in two groups: Group I (n=30) being administered with azithromycin @ 5-10 mg/kg, s.i.d. for 21 days and Group II (n=30) being administered with levofloxacin @ 10 mg/kg, s.i.d for 21 days. Clinical efficacy was assessed based on the disappearance of skin lesions like scales, crusts, erythema, papules, pustules, pruritus, with reemergence of hairs. All the study dogs are subjected to clinical examination on alternate three days interval after one week of initiation of treatment to till completion of treatment duration. During the course of treatment owners are instructed to monitor animals for any possible development of adverse symptoms and to bring the same to the notice of veterinary clinician. Blood samples are collected on day 1, 7, 14 and 21 day to evaluate the possible hepatic and renal toxicity of the drugs.

RESULTS AND DISCUSSION

In levofloxacin treated group- II, mean duration of treatment for complete recovery was 13.01 days where as it was 16.86 days for azithromycin treated group- I dogs (Table 1). There was a significant difference observed among the two groups with respect to the duration of therapy with reference to the time taken for the complete recovery ($P < 0.05\%$).

Out of 30 dogs, 25 dogs in group II showed complete clinical cure within 14 days and 5 dogs showed clinical cure within 21 days of treatment representing 83.33 % and 16.66 % respectively. In group I, 8 dogs showed complete clinical cure within 14 days and 17 dogs showed clinical cure within 21 days representing 26.66 %, 56.66% respectively. However, another 5 dogs in group I showed clinical cure within 30 day's as mentioned by owners itself accounting for 16.66 %. Present study revealed that levofloxacin treated dogs recovered fast and quickly in contrast to azithromycin treated dogs.

In Group II, 11 dog's out of 30, exhibited elevated levels of ALT (Alanine amino transferase) on 14th day accounting for 36.66 % and on 21st day 5 dogs out of 30, had elevated ALT representing 16.66 %. These dogs suffered with transient hepatic damage and are supplemented with liver tonics and liver injections after 21st days of treatment. In Group I, two dog's serum samples showed elevated ALT representing 6.6% on 14th day and on 21st day none of the animals had elevated ALT.

None of the dogs in either group during the study period exhibited severe signs of hepatic damage like icterus, total anorexia, ascites, emaciation or diarrhea. The present study revealed that azithromycin and levofloxacin are well tolerated among dogs however, the later carries the risk of possibility of development of transient hepatic damage. Results of the present study are in accordance with Perera, G and Hay, R.^[1], who reported concern in administering such drugs as a matter of concern, as these drugs may also cause CNS disturbances.

One dog in group I had vomition for six consecutive days from the day of therapy, which was controlled with antiemetics for eight consecutive days. In the group II, four dogs reported clinical abnormalities like anorexia, vomition, dehydration and weakness after seven day of therapy. This was attributed to liver damage as evidenced by elevated liver enzymes in the serum biochemical profile. Similar observations are reported earlier.^[2,3]

In group II, 4 dogs showed transitory mild increase in the serum blood urea nitrogen (20-21 IU/L) and mild elevated creatinine (1.9 to 2.2 mg/dl) respectively on 14th day of treatment indicative of transitory renal insufficiency this could be because of dehydration as evidenced by physical examination due to vomiting and anorexia. In group I, none of the dogs exhibited elevated values of BUN and creatinine on 14th and 21st day indicating azithromycin is well tolerated in contrast to levofloxacin, where in the later carries the risk of development of transient renal insufficiency.

Table 1: Comparative evaluation of azithromycin and levofloxacin in treating pyoderma of dogs.

Parameter	Group I	Group II
No. of days for recovery (Mean \pm SE)	16.86 \pm 0.52	13.10 \pm 0.51
Dogs with elevated ALT (%)		
Day 14	6.66	36.66
Day 21	0.00	16.66
Dogs with elevated BUN (%)		
Day 7	0.00	13.33

It was concluded from the present study that, both azithromycin and levofloxacin are well tolerated and can be used effectively in the treatment of pyoderma with the later drug proved to be more efficacious, however with potential concern for hepatic insufficiency on long term use.

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