

Efficacy of Oral Sarolaner In canine Demodicosis

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Abstract

Dogs presented to small animal dermatology unit of Veterinary Clinical Complex, Rajendranagar with a history of extensive itching, alopecia, hyperkeratinisation, skin discoloration, formation of scales and crusts with regular deworming and vaccination status were taken for the study. Clinical examination was conducted and dogs with of lichenified skin, alopecia, erythema, papules, comedones as well as the presence of Demodex mite on skin scrapping were included in the study. Dogs were randomly divided into two groups, viz., group I (n=28) treated with tab. ivermectin (400 mcg/kg, PO, SID) until two successive negative scrapings and group II (n=28) treated with tab. Sarolaner, an isoxazoline class parasiticide administered orally at a dosage of 2 mg/kg once a month till three months. Mites were counted once in 15 days in both groups. Parasitological cure in group I was 60.71, 78.57 and 92.85 percent respectively, in subsequent months, whereas in group II 67.85 and 100 percent respectively, after the first and second month of therapy. Notably, dogs in group II demonstrated full clinical recovery by the second month of treatment with no reported relapses. Additionally, all the dogs were also managed with chlorhexidine shampoo bath weekly once and immune boosting syrup once a day.

Keywords: canine demodicosis, ivermectin, sarolaner

The skin holds a significant sensitive organ and plays a crucial role in its aesthetic appeal. Demodicosis is a common parasitic dermatosis stands out as a prevalent category among the various skin disorders, underscoring the substantial impact on the overall health and well-being of dogs (Sakina and Mandial, 2011). Managing certain cases of demodicosis can pose challenges in treatment, especially when traditional approaches encounter difficulties or prove ineffective. Despite using topical amitraz, the prognosis of the disease remains complex, with a significant number of cases exhibiting resistance or remain intolerant to this product. Oral administration of ivermectin within the range of 0.3–0.6 mg/kg on a daily basis is a suitable therapeutic approach for generalized demodicosis in canines. However, ivermectin can lead to severe neurological side effects, including lethargy, tremors, mydriasis, and in sensitive dogs, even death (Paterson *et al.*, 2014). This toxicity is attributed to the extended duration of therapy or overdosing by owners. So, the current study was carried out to compare the efficacy of oral ivermectin and oral sarolaner as a therapy to treat demodicosis.

Materials and methods

Clinical trial was carried out at Veterinary Dermatology unit, College of Veterinary Science in Hyderabad. Dogs were included in the study after

obtaining written informed consent from its owner. The study implemented at fortnightly follow-up schedule and cases where owners willingly participated in regular follow-ups were considered. Dogs displaying clinical signs of generalized demodicosis were diagnosed and eligibility for inclusion was determined based on the presence of skin lesions affecting an entire body region or having five or more localized lesions, including alopecia, erythema, comedones, papules, pustules, casts, scales, or crusts. Additionally, eligible dogs had to exhibit a minimum of four to five live Demodex mites (immature or adult) in three deep skin scrapings. Pregnant, lactating or breeding dogs, those undergoing immunosuppressive therapy, receiving systemic or topical antimicrobials, recently treated with an ectoparasitic agents and dogs with mange caused by *Sarcoptes* mites were excluded from the study. Dogs below the age of seven months were not enrolled. The study prohibited concurrent treatment with any other ectoparasitic agents throughout the duration.

Sarolaner (group I dogs) was given orally @ 2 mg/kg once monthly for 3 months. Whereas, Ivermectin (group II) was given orally @ 400 mcg/kg once daily until three subsequent negative scrapings. In both groups, therapy was followed and dogs were reviewed until three months. Live Demodex mites were counted in the three most severely affected sites and deep skin scrapings from each primary dog on days 0, 15, 30,

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45, 60, 75 and 90 days. Scraped material mixed with mineral oil was microscopically examined at 40X magnification to count adult and immature mites, the presence of Demodex eggs also noted. The severity of clinical signs was assessed before treatment on day 0 and days 15, 30, 45, 60, 75 and 90 of therapy (Becskei *et al.*, 2018). A Parasitological cure was determined when all skin scrapings were consistently negative. The study was concluded when no live mites were found on two consecutive skin scrapings.

Results and Discussion

Dogs diagnosed with generalised demodicosis were randomly divided into two therapeutic groups with 28 dogs in each. Dogs enrolled under the sarolaner group had an average age of 1.5 years and an average body weight of 14.2 kg. Among them, 57.14% (16/28) were purebred, while 42.85% (12/28) were of mixed breed, 64.28% (18/28) male, and 35.71% (10/28) were female. In the ivermectin group, dogs had a mean age of 1.9 years and a mean body weight of 15.6 kg. Among these dogs, 67.85% (19/28) were purebred and 39.28% (11/28) were of mixed breeds, 57.14% (16/28) were female and 42.58% (12/28) were male.

During the study, one dog treated with sarolaner and two dogs treated with ivermectin received concurrent systemic antibiotic treatment at various points due to pyoderma associated with demodicosis. At the beginning of the study, many dogs exhibited symptoms such as alopecia, erythema, casts, crusts, comedones, papules and pustules. Throughout the study duration, improvement in clinical signs was noticed in both the treatment groups. However, the overall reduction in the extent of affected body surface reached nearly 96% in the sarolaner group and nearly 84% in the ivermectin group by the conclusion of the study.

Within the sarolaner treated group, all 28 dogs successfully completed the study. However, in the ivermectin-treated group, two dogs completed the study without achieving a parasitological cure. These two dogs were withdrawn from the study on day 90 due to lack of efficacy and subsequently managed with sarolaner. The parasitological cure rates in group I were 60.71% (17/28), 78.57% (22/28) and 92.85% (26/28) in the subsequent months. In group II, the cure rates were 67.85% (19/28) and 100% (28/28) after the first and second month of therapy respectively (Table 1).

Table 1: Mite count evaluation and parasitological cure

Therapy	Day 0	Day 15	Day 30	Day 45	Day 60	Day 75	Day 90
Group I Ivermectin (n=28)							
Range of mite count	10-250	5-80	0-60	0-25	0-10	0-5	0-5
Average mite count	56.93	35.68	28.75	10.82	2.39	1.18	0.68
% Reduction in mite count	-	37.33	49.50	80.99	95.80	97.93	98.81
% of mite free dogs	-	28.57	60.71	72.95	78.57	89.64	92.85
Group II Sarolaner (n=28)							
Range of mite count	20-280	0-60	0-25	0-10	0	0	0
Average mite count	72.57	26.67	12.84	6.20	0	0	0
% Reduction in mite count	-	73.33	87.16	93.80	100	100	100
% of mite free dogs	-	62.98	67.85	89.56	100	100	100

The current investigation suggests that ivermectin (400 µg/kg, PO, SID) was not successful in adequately managing demodicosis in all the cases which was in accordance with the findings of Fondati (1996), who documented a lack of efficacy of ivermectin in demodicosis. The findings from this clinical study affirm the effectiveness and apparent safety of sarolaner in treating generalized demodicosis in dogs, consistent with

previous controlled studies, they reported significant improvement after being treated with sarolaner (Six *et al.*, 2016 and Becskei *et al.*, 2018). During the study, one dog treated with sarolaner and two dogs treated with ivermectin received concurrent systemic antibiotic treatment at various points due to pyoderma associated with demodicosis. This additional treatment may have contributed to the resolution of clinical signs

of demodicosis (Rao *et al.*, 2020). Following three months treatment with sarolaner, a 100% parasitological cure was observed in all cases, with all dogs being mite free. In contrast, the ivermectin-treated group did not achieve a parasitological cure in all dogs, leading to the withdrawal of therapy in two dogs due to lack of efficacy. The efficacy of sarolaner appears better than ivermectin.

The findings of quick reduction in mites along with a marked improvement in skin and coat condition in sarolaner administered dogs was in accordance with findings of Becskei *et al.*, (2018). The distinct and rapid resolution of clinical signs observed in the sarolaner treated group showed its practical utility in clinical cases, offering effectiveness without any side effects. With the convenience of a monthly treatment regimen, it eliminates the necessity for daily therapy and constant monitoring. The ease of administration enhances its practical adaptability, making sarolaner a valuable and user friendly option for managing demodicosis in dogs.

Conclusion

In the present study sarolaner demonstrated superior efficacy compared to ivermectin, achieving a 100% parasitological cure within three monthly treatments. The findings suggest that sarolaner can be a valuable alternative, especially considering its superior efficacy and the challenges associated with ivermectin therapy.

References

- Becskei, C., Cuppens, O. and Mahabir, S. P. (2018). Efficacy and safety of sarolaner against generalized demodicosis in dogs in European countries: a non-inferiority study. *Veterinary dermatol.*, 29(3):203-272.
- Fondati, A. (1996). Efficacy of daily oral ivermectin in the treatment of 10 cases of generalized demodicosis in adult dogs. *Veterinary Dermatology*, 7(2), pp.99-104.
- Paterson, T.E., Halliwell, R.E., Fields, P.J., Louw, M.L., Ball, G., Louw, J. and Pinckney, R. (2014). Canine generalized demodicosis treated with varying doses of a 2.5% moxidectin+ 10% imidacloprid spot-on and oral ivermectin: Parasitocidal effects and long-term treatment outcomes. *Veterinary Parasitology*, 205(3-4), pp.687-696.
- Rao, L.N., Rajesh, K., Shaju, L.E., Manasa, B.B. and Suresh, K. (2020). Pyodermatitis in a German shepherd dog and its therapeutic management. *Haryana Veterinarian*, 59(1): 148-150.
- Sakina, A. and Mandial, R. K. (2011). Prevalence and clinical observations of mange in dogs. *Vet. Pract.* 12(2): 248-250.
- Six, R.H., Becskei, C., Mazaleski, M.M., Fourie JJ, Mahabir, S.P., Myers, M.R. and Slootmans, N. (2016). Efficacy of sarolaner, a novel oral isoxazoline, against two common mite infestations in dogs: *Demodex* spp. and *Otodectes cynotis*. *Vet Parasitol.*, 222: 62–66.