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Control of tick infestation in dogs in Peshawar, KP, Pakistan

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Abstract

Current study was conducted during the month of June-2014. Total 122 dogs were studied in Veterinary Research Institution Peshawar, Pakistan. In 122 dogs that were presented to the institution, 22 dogs had the clinical signs of reduced food intake, loss of hair, and itching. They were restless and scratching with their legs, and constantly rubbed their bodies with the walls. Clinical examination revealed the presence of pruritus, alopecia and the formation of small crusts in dogs. All infected dogs (22) were treated with Ivermectin by subcutaneous injection dosed at 0.02 mL/kg body weight at a weekly interval for 3 to 4 weeks. All dogs were bathed with Cypermethrin shampoo weekly once for 3-4 weeks. In this study, it was observed that Ivermectin and Cypermethrin combination therapy was effective for the control of tick infestation in dogs.

Keywords: Dogs, Ticks, Ivermectin, Cypermethrin, Peshawar

1. Introduction

Ticks are effective in transmitting infectious disease^[7]. About 10% tick species act as vectors of various pathogens to animals as well as human. Ticks transmit different pathogenic microorganisms i.e. spirochaetes, protozoa, rickettsiae and viruses. Moreover, ticks can cause severe toxic conditions such as toxicosis, paralysis, irritation and allergy^[5]. The tick infestation in dog underscores the importance of tick control measures^[3]. In dog ecto-parasites (ticks) feed on blood while they live on skin. Within 24 hours, each female parasite can lay up to 50 eggs. The eggs fall off the dog into the surrounding area. The next generation of ticks is developed in the house, car or other places where the dog goes. Some dogs bearing the ticks on their skin do not show any skin disease, whereas others can show hair loss, severe irritation, inflamed or secondarily-infected skin^[12]. In this study we observed the controlling procedure of tick infection in Peshawar area, Pakistan.

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2. Materials and Methods

The present study was carried out during the month of June-2014 in Peshawar, Pakistan. Ticks infection was diagnosed based on visualization of ticks and clinical signs. Infected dogs were injected once weekly for 3 weeks with Ivermectin injection (at 1 mL/50 kg b.wt.) subcutaneously and Cypermethrin shampoo. For fast tick eradication, kennel premises were also treated with insecticide liquid cypermethrin at 1 mL/L of water. In addition infested cases were also given multivitamin and amino acid tablets orally once a day for 30 days and chlorpheniramine maleate by intra-muscular (IM) injection (0.5-1.0 mL) for 5 days for quick relief from itching sensation. Avoiding re-infestation that might be associated with emergence of developing nymphal stages from eggs that fell on the ground and possible body contact with other infested animals, the same therapy was repeated 7 days and 14 days after the first treatment. The improvement in the therapy was monitored at different intervals after 0, 7 and 14 days of post treatment. The external parasites were collected for laboratory diagnosis.

3. Results and Discussion

In 122 dogs, 22 dogs had the clinical signs of reduced food intake, loss of hair, itching, and were continuously rubbing their bodies with the walls. Clinical examination revealed presence of alopecia, pruritus, and small crust formation^[4]. Lesions were there on the body, but mostly confined to ears, shoulders, over the tail head, and neck. Clinical examination revealed no changes in body like temperature or pulse rate but the visible mucous membranes were pale. Close inspection of the skin at multiple locations revealed the presence of various stages of ecto-parasites. In 122-dog population prevalence of tick infestation was 36.7%. Of the 22 dogs with clinical signs of tick infestation, 5 for *Hyalomma* spp. (38.6%) and 17 were positive for *Rhipicephalus* spp. (62.48%). In affected dogs, 12 were female (54.55%) compared to 10 male (45.45%), 11 were pets (50%) compared to 11 strays (50%), and 13 (43.75%) were older than 1 year of age compared to 9 (56.25%) that were younger than 1 year of age. Insecticides had no adverse reactions to any of the treated dogs and or any of staff. According to Raut et al., (2007), who studied ticks in India, the infestation of ticks in 167 female and male older than 3-years of age, revealed the prevalence of *Rhipicephalus* (*R.*) *sanguineus* was 80.23%. While Papazahariadou et al., (2003) reported 89.3% infestation of *R. sanguineus* in dogs. Amuta, et al. (2010) reported that in 130 dog's examination, 55.38% (72/130) dogs were infested with various ticks species. In another study, Adhikari et al. (2013) studied that 46.39% dogs were infested with three different tick spp. (*Boophilus* spp.,

Haemaphysalis spp. and *Rhipicephalus* spp.); however, many dogs had mixed infestations.

In our study, stray dogs were found to be mostly affected (50%) as compared to pet dogs. These results supported the findings of Adhikari et al. (2013) who reported a higher rate of tick infestation among stray dogs (50%) as compared to pet dogs.

A topical spot-on solution was developed that contained amitraz and meta-flumizone as active components for the treatment of pets (Sabnis et al., 2007). As reported in current study, Pradeep et al. (2010) found cypermethrin an effective agent against *Rhipicephalus sanguineus* infestation, and Sharma et al. (2008) reported that within 48-hours post-application of cypermethrin, 100% of female engorged ticks were vanished, and all the dogs treated with cypermethrin shampoo were completely tick free. All the dogs retained their normal condition with normal intake of feed and normal habitat after applying the above combination therapy.

4. Conclusions

In the current study, it was observed that a combination therapy of weekly subcutaneous injections of Ivermectin, weekly bathing with Cypermethrin shampoo and spraying premises with Cypermethrin was effective for the control of tick infestation in dogs.

5. Acknowledgements

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