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A study on prevalence of Canine Ehrlichiosis in and around Bidar, Karnataka (India)

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ABSTRACT
The present study was undertaken to know the prevalence of Canine Ehrlichiosis in and around Bidar, Karnataka, India. It was observed that the prevalence of Canine Ehrlichiosis was 1.33 per cent.The prevalence of canine ehrlichiosis was highest in animals more than 2 years age (66.67%) compared to animals less than 2 years of age (33.33%). More prevalence was recorded in males (54.55%) in comparison to females (45.45%). In the present study, the higher prevalence of the disease was observed in pure-bred dogs compared to non-descript dogs. Among pure breeds, highest prevalence of canine ehrlichiosis was in Labrador (36.36%) followed by non-Descript (24.24%) dogs. Prevalence in other breeds was German Shephards (9.09%), Pomeranian, Mudhol Hound and Doberman as 06.06 per cent 03.03 per cent in Boxer, Cocker spaniel, Saint Bernard and Rottweiler respectively. The seasonwise prevalence study revealed that, higher prevalence of the disease was recorded in pre monsoon season (42.42%) followed by south west monsoon season and post south west monsoon season (21.21%) and least prevalent in winter season (15.15%).
Keywords: *prevalence, ehrlichiosis, Labrador, lymphadenopathy*

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INTRODUCTION

Canine Ehrlichiosis is a multisystemic, infectious disease also known as tracker dog disease, tropical canine pancytopoenia, canine hemorrhagic feverand canine typhus caused by a group of gram negative pleomorphic rickettsiael organisms belonging to *Ehrlichia* species. Ehrlichia an obligate intracellular organism belonging to family Anaplasmataceae of Rickettsiales order, infected white blood cells. Amongst many species, *E. canis* is acknowledged as the primary causative agent of Canine Monocytic Ehrlichiosis [1]. Ehrlichiosis is a worldwide prevalent vector borne zoonotic disease, most commonly reported from tropical and subtropical areas. In India, it has been reported from various parts of the country by various researchers [7,3, 8]. The present study was conducted to know the prevalence of canine ehrlichiosis in and around Bidar (Karnataka).

MATERIAL AND METHODS

The present study was carried out at Veterinary college, Bidar. A total of 2475 dogs presented to Out Patient Ward (Medicine), Veterinary College, Bidar and Veterinary Hospital, Disease Diagnostics and Information Centre, APMC (Agriculture Product Marketing Committee) yard, Bidar showing clinical signs of pyrexia, inappetance, lymphadenopathy, bleeding tendencies, history of tick infestation etc suggestive of Ehrlichiosis were screened for two years from 2014 to 2016.Confirmation of the disease was done by presence of morulae in mononuclear cells during microscopic examination of giemsa stained blood smear and buffy coat smear along with the detection of ehrlichia antibodies by SNAP 4Dx kit. Further, prevalence of the disease were determined as: (a) prevalence of *E. canis* infection with regards to sex (male and female) of the affected animals; (b) age of the affected animals (Less than 2 years and more than 2 years); (c) breed of the affected animal; (d) season (winter, pre monsoon, south west monsoon and post south west monsoon). The animals positive for ehrlichiosis were studied for clinical signs.

RESULTS AND DISCUSSION

In the present study, the overall prevalence of canine ehrlichiosis was found to be 1.33 per cent (Table 1). Juyal *et al* [7] have reported the prevalence of ehrlichiosis to be 0.35 per cent in Punjab while Samaradni *et al* [11] found prevalence of canine ehrlichiosis to be 18.9 per cent in Nagpur. This variation in the prevalence in different regions may be associated with the distribution of the vector. The prevalence of canine ehrlichiosis was highest in animals more than 2 years age (66.67%) compared to animals less than 2 years of age (33.33%) (Table 2). More prevalence was recorded in males (54.55%) in comparison to females (45.45%) (Table 3). In the present study, the higher prevalence of the disease was observed in pure-bred dogs compared to non-descript dogs. This finding is in agreement with that of Seamer and Snape [12] who also reported higher occurrence in pure bred dogs. Among pure breeds, highest prevalence of canine ehrlichiosis was in Labrador (36.36%) followed by non-Descript (24.24%) dogs (Table 4). Prevalence in other breeds was German Shephards (9.09%), Pomeranian, Mudhol Hound and Doberman as 06.06 per cent 03.03 per cent in Boxer, Cocker spaniel, Saint Bernard and Rottweiler respectively. However, Dhankar *et al.* [2] and Karthika *et al.* [8] reported Canine Ehrlichiosis to be more prevalent in German Shephard breed. In the present study higher prevalence in Labradors could be attributed to over representation of the breed in the study area due to popularity of the breed.The season wise prevalence study revealed that, higher prevalence of the disease was recorded in pre monsoon season (42.42%) followed by south west monsoon season and post south west monsoon season (21.21%) and least prevalent in winter season (15.15%) (Table 5) which is in agreement with Dutta *et al.* [3] from Guwahati, Assam. Similarly, Eljadar [4] recorded maximum prevalence of the disease during the summer season followed by rainy season in Punjab. Samradhni *et al* [11] reported that post-monsoon and winter seasons showed highest infection rate to *Ehrlichiacanis* infection however Harikrishnan *et al* [6] and Lakshmanan *et al* [9] found no significant seasonal difference in prevalence of ehrlichiosis infection in dogs. The probable reason behind this trend may be correlated to the seasonal activity of the brown dog tick, *Rhiphicephaluss anguineus* which is in its abundance in hot and humid period of the year [13] thus resulting in the higher incidence of ehrlichiosis infections in warmer months.

In the affected dogs, lymphadenopathy (87.88%) was the most predominant sign followed by pyrexia (84.88%), depression (78.78%), anorexia (72.73%), tick infestation (69.69%), pale conjunctival mucous membrane (51.52%), congested (39.39%) and bleeding tendencies (30.33%). Icteric mucous membrane (09.09%), vomiting and ascites (06.06%) and lameness (03.03%) were other signs recorded (Fig. 1). Affected dogs may show bleeding tendencies due to platelet defects or thrombocytopenia, which may occur as a result of hypoplasia of all bone marrow precursor cells, more commonly in the severe chronic phase [10]. Some dogs may develop a secondary immune-mediated haemolyticanaemia (IMHA) and have an acute haemolytic crisis [5] leading to jaundice.

Table 1. Prevalence of Canine Ehrlichiosis in and around Bidar

Month (2014-2016)	Total no. of cases presented			Total no. of dogs positive for *E. canis*			Per cent prevalence
	College hospital	APMC	Total	College hospital	APMC	Total	of *E. canis* (%)
July	88	155	243	00	00	00	0.00
August	61	151	212	03	01	04	1.89
September	58	144	202	02	00	02	0.99
October	65	123	188	01	00	01	0.53
November	50	155	205	01	01	02	0.95
December	83	206	289	04	00	04	0.98
January	68	118	186	03	00	03	1.30
Feburary	81	115	196	02	00	02	1.61
March	69	145	214	05	04	09	4.21
April	51	142	193	04	01	05	2.59
May	45	140	185	00	00	00	0.00
June	40	124	164	01	00	01	0.81
Total	**757**	**1718**	**475**	**26**	**07**	**33**	**1.33**

Table 2: Age wise prevalence of Canine Ehrlichiosis

Age	Total no. of dogs positive for *E. canis*	Percentage (%)
< 2 years	11	33.33
>2 years	22	66.67
Total	**33**	**100**

Table 3:Sexwise occurrence of Canine Ehrlichiosis

Sex	Total no. of dogs positive for *E. canis*	Percentage (%)
Male	18	54.55
Female	15	45.45
Total	**33**	**100**

Table 4:Breedwise occurrence of Canine Ehrlichiosis

Breeds	Total no. of dogs positive for *E. canis*	Percentage (%)
Labrador	12	36.36
Non-descript	08	24.24
German Shephards	03	09.09
Pomeranian	02	06.06
Mudhol Hound	02	06.06
Doberman	02	06.06
Boxer	01	03.03
Cocker Spaniel	01	03.03
Saint Bernard	01	03.03
Rottweiler	01	03.03
Total	**33**	**100**

Table 5:Seasonwise prevalence of Canine Ehrlichiosis

Season	Total no. of dogs positive for *E. canis*	Percentage (%)
Winter	05	15.15
Pre Monsoon	14	42.42
South West Monsoon	07	21.21
Post South West Monsoon	07	21.21
Total	**33**	**100**

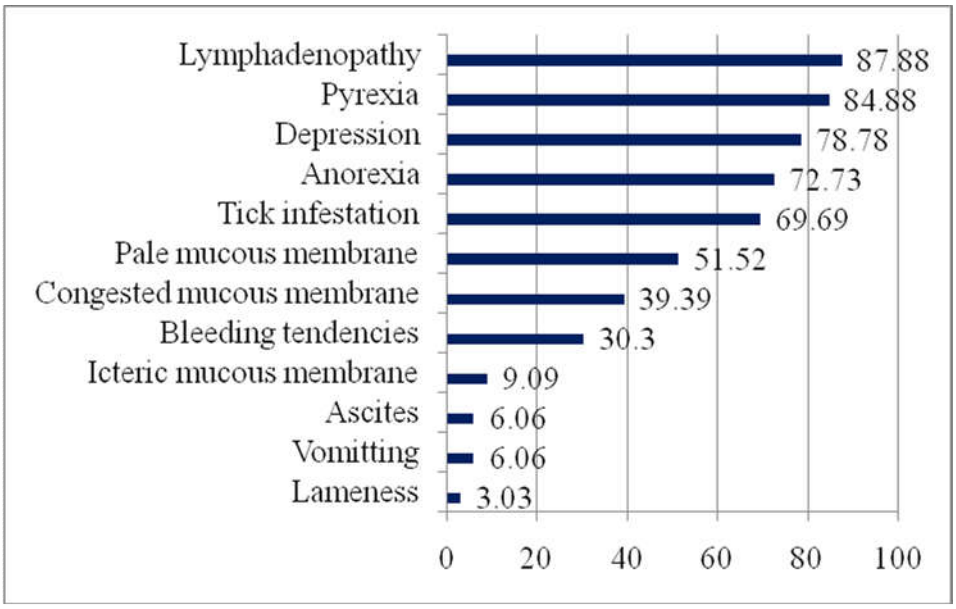

Fig. 1. Season wise prevalence of Canine Ehrlichiosis

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