PREVALENCE OF CANINE EHRLICHIOSIS

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DOI: https://doi.org/10.5281/zenodo.15013701

ABSTRACT

In dogs, Ehrlichiosis is caused by *Ehrlichia canis*, *E. chaffeensis* and *E. ewingi. E. canis* is an obligate intracellular gram negative bacteria which infects monocytes, macrophages and lymphocytes and transmitted by tick vector *Rhipicephalus sanguineus.* Clinical signs like lethargy, fever, lymphadenopathy, splenomegaly and epistaxis are seen. The aim of our review is to present the global and Indian scenario or prevalence of canine ehrlichiosis.

Keywords: Rhipicephalus sanguineus, Prevalance, canine ehrlichiosis

INTRODUCTION

In both animals and humans, Ehrlichiosis is an important emerging disease which has a world-wide distribution (Inokuma et al., 2001). In dogs, Ehrlichiosis is caused by *Ehrlichia canis*, *E. chaffeensis* and *E. ewingi* of which *E. canis* and *E. chaffeensis* were responsible for canine monocytic ehrlichiosis (CME) whereas *E. ewengii* is responsible for

Canine Granulocytic Ehrlichiosis (CGE) (Cardoso et al., 2010). In canines of tropical and subtropical regions, *E. canis* was commonly recognized bacteria among all the *Ehrlichia* spp. (Shaw et al., 2001). *E. canis* belongs to the order Ricketsiales, Family Anaplasmatacea and Genus *Ehrlichia* (Taylor et al., 2016). *E. canis* is an obligate intracellular gram negative bacteria which infects monocytes, macrophages and lymphocytes and transmitted by tick vector *Rhipicephalus sanguineus* (Bora et al., 2019). The global and Indian prevalence of canine ehrlichiosis is given in table 1 and table 2

CLINICAL SIGNS

Clinical signs like lethargy, fever, lymphadenopathy, splenomegaly, epistaxis, ocular abnormalities and bleeding tendency are commonly seen (Mylonakis et al., 2011). Immunocompetent dogs can eliminate the acute or subclinical phase of infection (Breitswerdit et al., 1998; Harrus et al., 1998). Chronic phase of infection is characterized by bone marrow aplasia, peripheral pancytopenia, severe bleeding and high mortality (Mylonakis et al., 2004). Hyperproteinemia, hypoalbuminemia, hyperglobulinemia and slight elevation of Alanin aminotransferase and Alkaline phosphatase are also noticed on biochemical tests (Shipov et al., 2008).

DIAGNOSIS

CME in dogs is diagnosed by haematological, serological and biochemical tests. Conventional method of blood smear or buffy coat smear examination for the identification of morula in lymphocytes is difficult due to chronic or low level of infection. The molecular methods (nucleic acid based detection) were the best for the

diagnosis of *E. canis*. The molecular diagnostic molecules targeted for *E. canis* include 16S rRNA gene (Cardoso et al., 2010), gp-200 (Huang et al., 2017) Vir B9 gene (Kledmanee et al., 2009).

Table:1 Global scenario of *Ehrlichia canis*

S.NO	Country	Total Number	PCR Prevalence	Reference
1	Brazil	N= 221	38.9%	Santos et al., 2009
2	Portugal	N = 55	12 %	Alexandre et al., 2009
3	Taiwan	N = 87	17 %	Huang et al., 2010
4	Malaysia	N= 323	4 %	Nazari et al., 2013
		N= 177	6 %	
5	Colombia	N = 91	37 %	Vargas-Hernández et al., 2012
6	Turkey	N= 757	4.9 %	Aktas et al., 2015
7	Nay pyi Taw area, Myanmar	N= 400	0.75 %	Hmoon et al., 2021
8	Pakistan	N= 403	3.4 %	Latta et al., 2021
9	Nepal	N= 70	27.14 %	Reganon et al., 2021

Table:2 Prevalence of *Ehrlichia canis* in India

S.NO	State	Total numbers (N)	Blood smear Result Prevalence	PCR Prevalence	Reference
1	Tamil Nadu	N = 98	-	50 %	Lakshmanan et al., 2007
2	Punjab	N= 778	-	0.39 %	Singla et al., 2016
3	South India	N = 150	1.3 %	4 %	Jain et al., 2018
4	Kerala	N= 113	-	0.88 %	Bora et al., 2019
5	Kerala	N= 144	2.7 %	27 %	Vismaya et al., 2020
6	Andhra Pradesh	N = 266	13.58 %	15.73 %	Prameela et al., 2020
7	Tamil Nadu	N= 230	-	16.1 %	Manoj et al., 2020
8	Punjab	N = 322	0.93 %	10.24 %	Kauret et al., 2021

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Cite this article:
Gatchanda Shravan Kumar, Prabodh Kumar Hembram, Saurabh Singh Singhal. (2025). Prevalence of canine ehrlichiosis. Vet Farm Frontier, 02(02), 59–60. https://doi.org/10.5281/zenodo.15013701.