

PREVALANCE OF EQUINE PIROPLASMOSIS IN AND AROUND SAURSHTRA REGION IN HORSES

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Abstract: Equine Piroplasmosis (EP), also called as babesiosis, is a disease of equines (horses, donkeys, mules, and zebras) caused by blood-borne protozoan parasites including *Babesia caballi* and *Babesia equi*. To know the epidemiological status of Equine piroplasmosis in horses retrospective information were retrieved by scrutinizing the data bank of the Teaching Veterinary Clinical Complex. Retrospectively, according to symptoms, the incidence of EP was 1.9 per cent. The age wise incidence of EP was higher in adult group of horses (75.00%). The breed wise incidence of EP was higher in Kathiawari breed (75.00%). The sex-wise incidence of EP was higher in female (66.67%) followed by male (25.00%). The season-wise incidence of EP was higher in summer season (March - June) (75.00%).

Keywords: Equine piroplasmosis, Kathiawari, Marwari, *Babesia caballi* and *Babesia equi*.

INTRODUCTION

Equine Piroplasmosis (EP), also called as babesiosis, is a disease of equines (horses, donkeys, mules, and zebras) caused by blood-borne protozoan parasites including *Babesia caballi* and *Babesia equi*. Some group of researchers have proposed that *B. equi* can be classified as *Theileria equi*. These apicomplexan parasites are naturally transmitted from one animal to another mainly via ticks. The infected animals remain carriers of these parasites for longer period and remain source of infection to the tick vectors. Dual infection with both the organisms has also been reported, thus resting the chances of cross immunity. Other reason for occurrence of both the infections in the same populations could be attributed to the sharing of the same vectors by both the parasites (Sumbria *et al.*, 2014).

Javed *et al.* (2014) conducted the epidemiological studies on equine piroplasmosis in Pakistan. They examined 166 tick infested horses by blood smear examination and found that, out of 166 horses 38 (22.89%) were positive for *T. equi*, 32 (19.28%) for *B. caballi* and 18 (10.84%) positive for mixed infection of *T. equi* and *B. caballi*. On sex wise prevalence higher incidence was recorded in female (51.92%), followed by male (43.54%). On age wise

prevalence higher incidence was recorded at the age range between 1-5 years (23.18%) and lower in aged group (15.94%). On season wise prevalence highest incidence was recorded during summer (30.23%) followed by winter season (15.38%) and lowest in monsoon (3.70%).

Malekifard *et al.* (2014) identified equine piroplasmosis based on molecular and morphometrical features in horses in suburb of Urmia, West Azerbaijan province, Iran during April to September 2011, a total number of 240 blood samples were collected randomly from horses of 25 villages. Microscopic observation on 240 blood smears determined that 15 (6.25%) and 5 (2.80%) samples were infected by *T. equi* and *B. caballi*, respectively. The mixed infections occurred in 2 (0.83%) samples. The results of the Polymerized Chain Reaction assays showed that 26 (10.83%), 14 (5.83%) and 4 (1.66%) samples were distinguished as *T. equi*, *B. caballi* and mixed infection, respectively.

MATERIALS AND METHODS

To know the epidemiological status of equine piroplasmosis in horses, the information based on age, breed, sex, etc. pertaining to the cases presented at college hospital was collected and analyzed. Last three years (January, 2013 to December, 2015) retrospective information as mentioned above were retrieved by scrutinizing the data bank of the Teaching Veterinary Clinical Complex, College of Veterinary Science and A. H., J. A. U., Junagadh. These data were suitably analyzed and appropriately inferred to establish the clinical as well as epidemiological status of surra in horses.

RESULTS AND DISCUSSION

Overall incidence

A total of 9564 new cases were registered, out of which 633 (6.61%) cases were of horses. Among the total 633 (6.61%) cases of horses, 263 (41.54%) cases of horses were medicinal, out of which 28 (10.64%) cases of horses showed the symptoms of haemoprotozoan disease. Among these 28 suspected horses, 12 (42.85%) showed clinical signs of equine piroplasmosis. A total 09 (75.10%) out of the 12 suspected cases were found positive for equine piroplasmosis on blood smear examination, out of which 8 (88.88%) were of *B. equi* and 1 (11.11%) of *B. caballi*.

Age wise incidence

Total 633 cases of horses were registered in which 49 (7.74%) were of foal (0-12 month), 49 (7.74%) were in the group of yearling (1-2 years), 532 (84.04%) were in the group of adult (2-18 years) and 03 (0.47%) were in the group of aged (above 18 years).

Retrospectively, according to symptoms, the incidence of EP was 1.90 per cent. The age wise incidence of EP was higher in adult group of horses (75.00%) followed by yearling (16.67%) and foal (8.33%), whereas no incidence was recorded in aged group of horses. According to blood smear examination of suspected horses, the incidence of equine piroplasmosis was 75.0 per cent. The age wise incidence of EP was higher in adult group of horses (77.78%) followed by yearling (22.22%), whereas no incidence was recorded in foal and aged group of horses.

Higher incidence of EP in adult group of horses followed by yearling group of horses recorded in present findings have close similarity with the findings obtained by Javed *et al.* (2014) and Bhojani (2016). The disease may be associated with the number of animals under study, the different diagnosis methods used, the geographic area and difference in vectors population between these areas. However, stress, inadequate nutrition, inadequate exercise, close confinement, transportation and managerial negligence might have played a vital role for predisposing the disease in adult group.

Breed wise incidence

The incidence of EP was higher in Kathiawari breed (75.00%) subsequently it was decreased in order to 16.67 per cent in Non-descript breed and 8.33 per cent in Marwari breed, whereas according to blood smear examination of suspected horses, the incidence of EP was 66.67 per cent in Kathiawari breed followed by 22.22 per cent in Non-descript breed and 11.11 per cent in Marwari breed.

The incidence of EP was higher in Kathiawari breed of horses. This was probably because the populations of Kathiawari breed are more than any other breed, and the breed wise incidence of infection might be depend on the immune status of animals and management practice followed by owner and it could be further investigated along with the immunological background of different breeds, serological and molecular surveillances and their susceptibility to the diseases for more accurate diagnosis and genetic makeup.

Sex wise incidence

Total 633 cases of horses were registered in which 469 (74.67%) were female, 154 (24.33%) were male and 10 (1.58%) were gelding. According to the symptoms sex-wise incidence of EP was higher in female (66.67%) followed by male (25.00%), while it was lower in gelding (8.33%).

According to blood smear examination of suspected horses, the incidence of EP was 75.0 per cent. The sex-wise incidence of EP was recorded higher in female (66.67%)

followed by male (22.22%), while it was lower in gelding (11.11%). The highest incidence rate was recorded in female whereas lower in gelding, similar findings were also observed by Javed *et al.* (2014) and Bhojani (2016) who reported that the gelding appears to be less affected than the female. The reason for the difference was probably due to larger population of female than male and gelding and the management factors.

Season wise incidence

Total 633 cases of horses were registered in which 192 (30.33%) came in monsoon season (July - October), 258 (40.76%) in winter season (November - February) and 183 (28.91%) in summer season (March - June). According to symptoms, the season-wise incidence of EP was higher in summer season (75.00%) followed by winter season (16.67%) while lower incidence was recorded in monsoon season (8.33%).

According to blood smear examination of suspected horses, the incidence of EP was 75.00 per cent. The season-wise incidence rate of EP was higher in summer season (66.67%) followed by winter season (22.22%) while lower incidence was recorded in monsoon season (11.11%). Present findings are in agreement with Javed *et al.* (2014), who reported maximum cases in summer season followed by winter season and lowest in monsoon season. Probable reason for the disease occurrence was a conducive environment for the breeding of ticks.

Conclusions

Retrospective study showed the higher prevalence of Equine piroplasmiasis in adult group of Kathiawari mares during summer season (March to June) in the present study.

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