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INVESTIGATION ON PREVALENCE OF BABESIOSIS IN CATTLE IN VARIOUS AREAS OF TAUNSA SHARIF DISTRICT DERA GHAZI KHAN, PUNJAB, PAKISTAN

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ABSTRACT

A total of 200 cattle of all age groups and sex were examined from various villages of Taunsa Sharif District Dera Ghazi Khan. The prevalence of babesiosis in cattle was investigated. The association between age, gender, season and prevalence rate are investigated by regression analysis. Blood samples were collected from tail vein of cattle in a tube containing EDTA. The collected samples were dispatched to Civil Veterinary Hospital, Taunsa Sharif for microscopic examination. Thin and thick blood smears were prepared and smears were stained by using Giemsa's staning technique. The smears were examined under microscope for the identification of Babesia. Out of these 200 samples, 70 samples were identified as positive for Babesiosis. Overall prevalence of babesiosis in these areas was recorded as 35%. The study was conducted during summer months (May 01, 2014 to August 29, 2014).

Keywords: buffaloes, *Bubalus bubalis*, cattle, babesiosis, taunsa sharif, prevalence, hemoparasites

INTRODUCTION

According to economical point of view, Babesiosis is most important disease of cattle, spread by ticks (Bock *et al*., 2004). Babesiosis is a tick-borne hemoparasitic disease infect cattle and buffalo. The disease is caused by genis babesia and is prevalent in whole world and has considerable medical and economic impact (Roy, 1990). The blood parasitic diseases are most important and can cause severe loss to livestock production in mant developing countries (Radostits *et al*., 2000). Different researchers worked on prevalence of babesiosis in Pakistan and reported the prevalence rate as 5.5 to 42.8% in large animals. This is economically importand disease in Pakistan. Generally outbreaks in large animals has been reported during summer months. Disease was also reported in appearently healthy animals (Niazi *et al*., 2008). Babesia species can be easily diagnosed in the bloos smears by microscopic examination and can also be detected by PCR which is highly sensitive technique (Mosqueda *et al*., 2012). The disease is characterized by hemoglobinuria, rise in body temperatuse usually very high, icterus, high mortality rate but with early treatment mortality rate can be reduced (Mahoney, 1977). Mostly great disease rate is seen in young animal 6 to 12 months of age but clinical signs are mild and short lived (Radostits *et al*., 2000). In past several reports on babesiosis of cattle has been published but in the disease prevalence in taunsa sharif has not been explored so far. Therefore the present study was conducted to determine the prevalence rate and

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treatment of babesia infection in different villages of Taunsa Sharif, Punjab state, Pakistan.

MATERIALS AND METHODS

Study area and study period

The present study was conducted at the various villages of tehsil Taunsa Sharif includes Mangrotha, sooker, Basti buzdar, Bharti and Berooth. Cattle accessions presented at these areas during the summer months (May 01, 2014 to August 29, 2014).

Study animals

A total of 200 cattle of either sex were selected for sample collection. Fifty blood samples were collected from cattle in the month of May, Fifty blood samples were collected from cattle in the month of June, and fifty blood samples were collected from cattle in the month of July, and remaining fifty samples were collected in the month of August.

Sample collection and Microscopic examination

Blood was collected from cattle of either sex for the identification of babesia by using thick and thin smear (conventional method) through Giemsa's staining technique. Blood sample (5 ml) was collected in ethylene-diamine tetra acetic acid (EDTA) filled test tube from tail vein by using sterile syringe. The collected blood was subjected for the examination of blood parasites through thick and thin smear technique. After adding one drop of blood (2 µl), spreading, drying, fixation with methanol and staining by using Giemsa's stain was done. Then microscopic examination (100x, oil immersion lens) was done for identification of babesia by using the standard parasitological technique (Soulsby, 1982).

Statistical analysis

Statistical analysis was performed by using statistical software programme SPSS. Variable with significant association at $P<0.05$ were subjected to regression model. The obtained results were with a 95% consider interval.

Table 1. Month wise prevalence of babesiosis in cattle.

Month	No. of cattle examined	No. of cattle infected	Prevalence rate %
May	50	15	30
June	50	20	40
July	50	23	46
Aug	50	12	24

Table 2. Gender wise Prevalence of babesiosis in cattle.

Gender	No. of sample	No. of cattle infected	Prevalence rate %
Male	100	19	19
Female	100	51	51

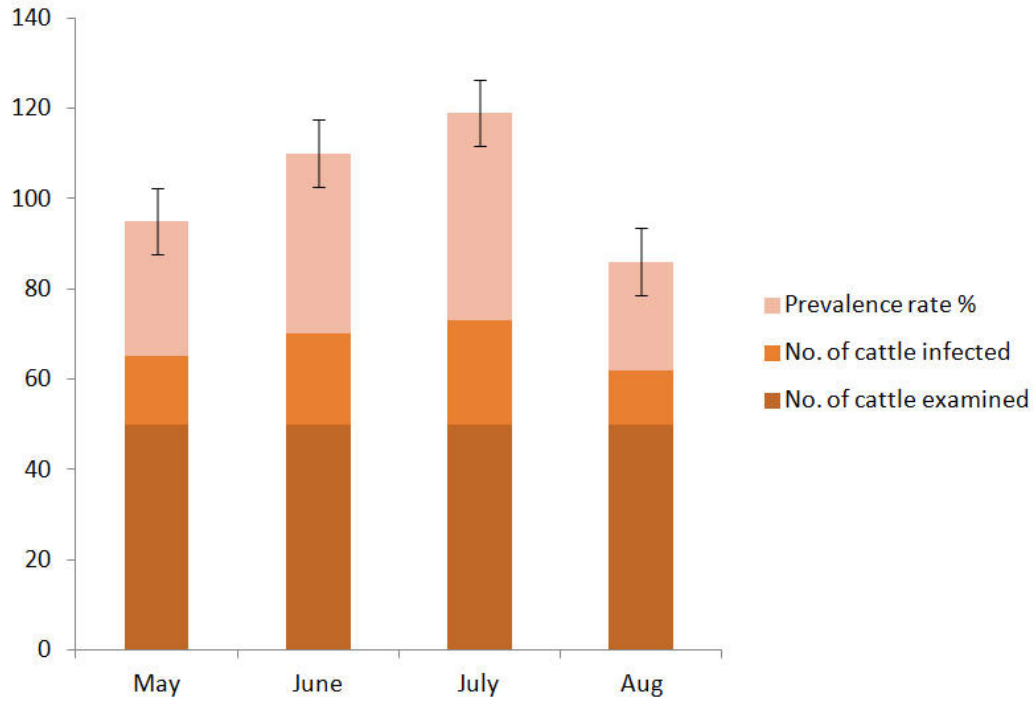

Figure 1. Graphical representation of month wise prevalence of babesia in summer months (May-August in Taunsa Sharif.

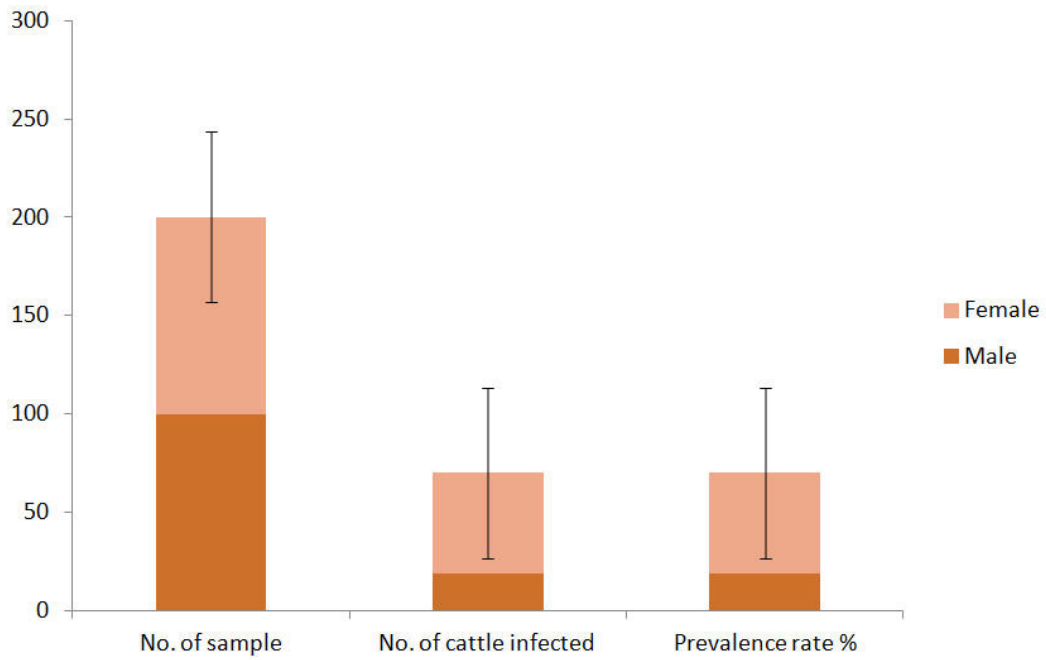

Figure 2. Graphical representation of gender wise prevalence of babesia in summer months (May-August) in Taunsa Sharif.

RESULTS AND DISCUSSION

200 Blood samples collected from the cattle population of Taunsa Sharif were identified. Out of these 70 samples were positive for babesiosis. Affected cattle showed rise in body temperature, anemia, emaciation, coughing, dullness, hemoglobinuria and weight loss. The overall prevalence rate in cattle population in these areas was recorded as 35%. While the infection is more prevalent in female recorded as 51% than in male recorded as 19%. 50 samples were collected in each of 4 months and month wise prevalence was recorded as 30% in the May, 40% in June, 46% in July and 24% in the month of August. Regarding age, the disease was more prevalent in young cattle recorded as 37% than in adult cattle recorded as 30%.

It is concluded that babesiosis is a most widespread disease which can cause heavy losses in cattle population in summer months. In many countries including Australia, America and Asia, the disease infect about 1.2 billion cattle (Zulfiqar *et al*., 2012). The present study indicate that overall babesiosis infection in five villages of Taunsa Sharif was 35.4% (70/200). Similar study was carried out in Qadirabad where the prevalence rate for babesiosis was recorded as 66.6% (Durani and Kamal, 2008). The disease was recorded as more prevalent in young animals than in adult animals. This high prevalence in young animals may be due to their soft and thin skin which helps the vector (ticks) to transmit the disease easily. Same results were observed in another research (Ahmad *et al*., 2014). While the highest prevalence of infection was observed in female as compare to male. The same result was observed in another research (Ayaz *et al*., 2013).

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