ORIGINAL RESEARCH PAPER

HEAMATOLOGICAL CHANGES OF SUB CLINICAL MASTITIS IN BUFFALOES

Agricultural Science

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ABSTRACT

In present investigation, a total 440 quarter milk samples of 110 buffaloes were screened for subclinical mastitis (SCM). Out of these, 76 quarters from 40 buffaloes were found positive based on bacterial culture. The mean Hb and TEC values decreased significantly (P<0.01) with a non-significant reduction in PCV and lymphocytes values in SCM affected buffaloes. While, the mean values of TLC and neutrophils increased significantly (P<0.05) in subclinical mastitis affected buffaloes as compared to healthy control. In the present investigation, the mean hemoglobin and total erythrocyte count values were significantly (p<0.01) lowered on day zero among buffaloes affected with subclinical mastitis as comapred with healthy control along with a non significant reduction in the mean values of packed cell volume. The mean total leucocyte count were elevated significantly (p<0.05). Differential leucocyte count on day zero revealed a significant (p<0.05) elevation in the mean counts of neutrophils. with a non significant decrease in the lymphocyte count as comapred with healthy control was noticed in buffaloes affected with SCM.

INTRODUCTION

India ranks first in milk production and considered to possess the largest bovine population in the world. Telangana state stands 10th in livestock population and 13th in bovine population during the year 2016-17 with total cattle population in the state was 90.5 lakhs (As per Socio economic outlook censes 2016-17). The milk production in the state during 2016-2017 was 4,681 tonnes with per capita availability of 574 grams/day in Telegu states. The annual economic losses due to bovine mastitis was estimated to be in Rs. 7165.51 crores in India, out of which Rs. 4151.16 crore loss (57.93%) has been attributed to Subclinical mastitis.

Mastitis is an important disease of dairy animals caused by several infectious and non-infectious agents and is characterized by inflammation of parenchyma of the mammary gland with physical, chemical and bacteriological changes in the milk and pathological changes in the glandular tissues (Radostits et al., 2007). High milk yielding cattle were more prone to mastitis when compared to low milk yielding cattle (Kavitha *et al.,* 2009). According to the severity, duration, nature of the exudates and primary cause, mastitis can occur in clinical and subclinical form in buffaloes (Sharma and Sindhu.,2007). Recorded a 14 per cent reduction in milk yield of animals affected with subclinical mastitis (Antanaitis *et al.,*2015). Higher infection rate of subclinical mastitis in hindquarters as compared to the fore quarters (Belina *et al.,*2016).Moreover, subclinical infected udder quarters may develop into clinical mastitis if left untreated.

Subclinical mastitis was observed more frequently and characterized by absence of apparent clinical symptoms, but presence of chemical and bacteriological changes in the milk and often goes unnoticed. In buffaloes, the prevalence of Subclinical mastitis is 3-40 times more common than the clinical mastitis and causes huge overall losses in most of the dairy herds (Sharma *et al.,* 2018). In Subclinical mastitic animals have a   decrease in Hb, PCV, TEC, lympho cyte, monocyte and ESR in SCM affected animals and concluded that haemato-biochemical parameters can be used as important indicators for pathological state of mastitis animals (Debi prasanna *et al.,*2018).

MATERIALS AND METHODS

Complete blood picture (CBP): Blood sample was collected from jugular vein of the selected buffaloes. Blood samples were transported to the laboratory within one hour keeping in a thermo flask with ice & then fresh blood was examined for TEC,DLC,Hb,RBC,WBC and PCV%.

Hematological parameters like erythrocyte sedimentation rate (ESR), PCV,Hb and RBC of subclinical mastitis affected buffaloes was found lower than the normal buffaloes. In this study the total differential cell count is lower in normal buffaloes than subclinical mastitis buffaloes. Though it was insignificant, but it may be due to nutritional deficiency that occurs in starvation or anorexia that cause neutropenia. Eosinophil was higher in cows and it was significant. Possible causes of eosinophilia in buffaloes were parasitic infestation. Differences in Basophil were not significant.

RESULTS AND DISCUSSION

The hematological parameters of healthy control and subclinical mastitis affected buffaloes were presented in Table-1 and Figure-1.

The mean hemoglobin values of apparently healthy control and subclinical mastitis affected buffaloes were 12.03±0.56 and 10.05±0.37 g/dl, respectively. There was a significant (P<0.01) decrease in the mean Hb values in SCM affected buffaloes as compared to the healthy control buffaloes. The mean total erythrocyte count values of apparently healthy control and subclinical mastitis affected buffaloes were 7.27 ± 0.06 and 06.29 ± 0.17 x 10^6/µl respectively. There was a significant (P<0.01) decrease in the mean values of total erythrocyte count values in SCM affected buffaloes as compared to the healthy control buffaloes. The mean total leukocyte count values of apparently healthy control and subclinical mastitis affected buffaloes were 6.47±0.75 and 07.51±0.42 x 10^3/µl respectively. There was a significant (P<0.05) increase in the total leukocyte count values in SCM affected buffaloes as compared to the healthy control buffaloes. The mean packed cell volume of apparently healthy control and subclinical mastitis affected buffaloes were 25.25 ± 0.26 and 21.06 ± 0.44% respectively. There was a non-significant reduction in the packed cell volume in SCM affected buffaloes as compared to the healthy control buffaloes. The mean neutrophil count of apparently healthy control and subclinical mastitis affected buffaloes were 55.74 ± 0.33 and 64.00 ± 1.47 % respectively. There was a significant (P<0.05) increase in the mean values of neutrophil count in SCM affected buffaloes as compared to the healthy control buffaloes. The mean lymphocyte count values of apparently healthy control and subclinical mastitis affected buffaloes

were 60.70±1.52 and 43.31±0.66 % respectively. There was a non-significant reduction in the mean values of lymphocyte count in SCM affected buffaloes as compared to the healthy control buffaloes. One of the report reveal that a significantly (P< 0.05) lower average values of ESR, RBC, WBC, PCV and Hb with higher DLC count like neutrophil and lymphocyte, monocyte and basophil count in SCM infected animals (Siddiqe *et al.,*2015). Also a significant increase in TLC with lower average values of TEC, Hb and PCV among SCM affected animals (Sarvesha *et al.,*2017) .

Table 1: Mean ± SE values of hematological profile of healthy control and SCM affected animals.

S. No	Parameter	Apparently healthy control n=10	Subclinical mastitis n=40
1.	Hemoglobin (g/dl)	12.03±0. 56	10.05± 0.37**
2.	Total erythrocyte count (TEC) (10^6/μl)	7.27±0.06	6.29± 0.17**
3.	Total leucocyte count (TLC) (10^3/μl)	6.47±0.75	7.51±0.42*
4.	Packed cell volume (PCV) (%)	25.25±0.26	21.06±0.44
5.	Neutrophils (%)	55.74±0.33	64.00±1.47*
6.	Lymphocytes (%)	60.70±1.52	43.31±0.66

* * Significant at (p<0.01)

* Significant at (p<0.05)

Fig.1: Mean ± SE values of hematological profile of healthy control and SCM affected Buffaloes.
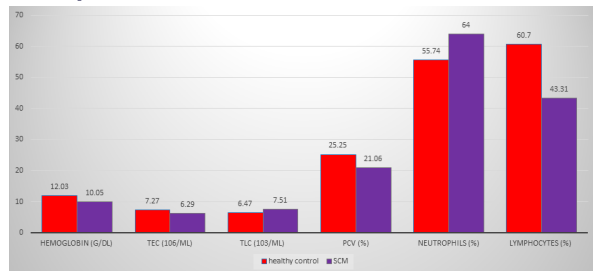
Acknowledgements

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