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Haematological studies in pregnant Beetal x Assam local goat*

H.K. BHATTACHARYA[1], B.K. GOSWAMI[2], P. CHAKRAVARTY[3] AND R.K. BISWAS

Department of Gynaecology, Obstetrics and A.I.,
College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati - 781 022

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ABSTRACT

Different haematological constituents were studied in twenty impregnated crossbred (Beetal x Assam Local) goats. The packed cell volume, number of erythrocytes and different leucocytic count did not differ significantly. However, the overall mean values were found to be reduced significantly during early pregnancy for haemogobin content ($P<0.01$) and leucocytic count ($P<0.05$).

Key words : Haematological value, goat, pregnancy

INTRODUCTION

An assiduous analysis of blood profile may reveal haematological changes concomitant with different events of reproduction in animals. Information regarding haematological norms in relation to fertility is yet to be gathered in goat. Hence the present investigation was undertaken to study different haematological constituents during oestrus and pregnancy and to explore the relationship of the haematological parameters with gestation in Beetal x Assam Local crossbred goats.

MATERIALS AND METHODS

Twenty (20) normally cycling crossbred (Beetal x Assam Local) goats aged 2-3 years that were well-fed and maintained under semi-intensive system at the farm of the Department of Animal Physiology, College of Veterinary Science, Khanapara, Guwahati-22, constituted the experimental animals. The animals were inseminated during observed oestrus. Pregnant animals were separated on non-return of oestrus basis. Pregnancy in inseminated goats was confirmed subsequently by actual kidding.

About 2 ml of blood was collected from each goat on day of oestrus (day 0) and day 15, 30, 60 and 120 of pregnancy and on near term for studying different haematological constituents. Haemoglobin (Hb) content and packed cell volume (PCV) were determined by Acid Haematin method (Baker *et al.*, 1955) and Wintrobe's method (Schalm *et al.*, 1975) respectively. Erythrocyte (RBC) and leucocyte (WBC) Counts were enumerated by standard methods using Neubauer counting chamber, while Wright's stain was used for studying differential leucocytic count (DLC). The data were analysed statistically as per the method described by Snedecor and Cochran (1967).

RESULTS AND DISCUSSION

The mean haemoglobin content ranged from 8.03±0.10 to 9.47±0.12 g per cent (Table 1) during different days of pregnancy, which is similar with findings of Vihan and Rai (1987) and Kharbudon (1990). Reduction in haemoglobin content found could be attributed to increase in the number of immature red cell in the circulating blood with advancement of pregnancy (Hawkey and Dennett (1989). The availability of more number of immature RBC in pregnant animals although and not affected the total erythrocyte count at different stages of pregnancy, it had presumably affected the Hb concentration due to development of microcytic type of anaemia, especially during the first term of pregnancy.

The mean packed cell volume ranged from 26.23±0.76 to 29.13±0.68 per cent at different days of pregnancy. The present finding bears resemblance with that of Kharbudon (1990). No significant variation in mean PCV was observed among different days of pregnancy, however a gradual reduction of overall mean PCV was registered from day 0 to day 60 of pregnancy

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Corresponding author - [1]Ph.D. Scholar, [2]Assoc. Dean, L.C.V.Sc. AAU, Azad, N. Lakhimpur, Assam, [3]Assoc. Prof. Dept. of Animal Physioloy. C.V.Sc., Khanapara, Guwahati-22.

Table 1. Overall mean±SE values of haematological constituents of goat during oestrus and pregnancy

Haematological Constituents	Day of Oestrus	Days of Pregnancy				
	(Day 0)	15	30	60	120	Near-term
Hb (g per cent)	9.47±0.12^{a}	9.04±0.21^{ab}	8.87±0.21^{bc}	8.03±0.10^{d}	8.33±0.12^{d}	8.42±0.12^{d}
PCV (per cent)	29.13±0.68	28.33±0.72	27.60±0.68	26.23±0.76	26.60±0.71	27.30±0.72
RBC (million/cmm)	16.99±0.67	16.33±0.53	16.88±0.60	16.26±0.51	16.55±0.64	16.88±0.63
WBC (thousand/cmm)	12.50±0.65^{a}	11.79±0.47^{a}	9.31±0.50^{b}	9.57±0.63^{b}	9.89±0.53^{b}	9.76±0.51^{b}
Neutrophil (per cent)	42.67±1.35	39.12±1.68	37.39±0.33	36.63±1.52	37.63±0.57	36.81±1.62
Eosinophil (per cent)	1.79±0.18	1.77±0.16	1.86±0.63	1.68±0.55	1.94±0.37	1.31±0.24
Lymphocyte (per cent)	55.50±1.30	55.90±1.83	58.01±0.63	58.76±1.12	58.31±0.80	57.69±1.44
Monocyte (per cent)	2.09±0.18	2.91±0.40	2.73±0.49	2.92±0.58	1.83±0.18	2.46±0.49
Basophil (per cent)	0	0	0	0	0	0

Means bearing similar superscritp in a row do not differ significantly.

PCV was registered from day 0 to day 60 of pregnancy although the reduction was not significant. The reduction in PCV might be due to the occurrence of hydremia in pregnancy (Bauer *et al.*, 1989), which might occur as a result of higher level of mineralocorticoids which eventually causes increased water retention that leads to increase in total plasma volume and decrease in PCV. The mean number of erythrocyte (RBC) at different days of pregnancy ranged from 16.26±0.51 to 16.99±0.67 millon/cmm. The values were close to the findings of Vihan and Rai (1987). Statistical analysis revealed no significant difference in mean RBC count among different days of pregnancy.

The mean number of leucocytes (WBC) was found to vary from 9.31±0.50 to 12.50±0.65 thousand/cmm different days of pregnancy. No significant difference in WBC count was found among different pregnancy periods, however, a significant ($P<0.05$) reduction in overall mean WBC count was observed from day 15 to day 30 of pregnancy (Table 1). The mean percentage of neutrophil, eosinophil, lymphocyte and monocyte varied non-significantly among different days of pregnancy and were found to be within the normal range. The overall mean values of different leucocytic count did not fluctuate markedly among differently days of pregnancy. Values recorded in the present investigation were comparable with that reported by Vihan and Rai (1987) in pregnant goat, however, basophil count in the present study was nil.

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