DETERMINATION OF HAEMATOLOGICAL PROFILE OF HEALTHYMALE DOGS OF KOMBAI BREED IN THENI DISTRICT, TAMILNADU.

ABSTRACT

The hematological profiles of healthy maleKombai dogs in Theni district was studied in this research. The blood samples were collected by venipuncture from the cephalic vein randomly from 12 male kombai dogs and examined. The hematological parameters measured were red blood cells count, hematocrit, mean corpuscular volume, mean corpuscular hemoglobin, mean corpuscular hemoglobin and hemoglobin content; total white blood cell count, including eosinophils, neutrophils, lymphocytes, monocytes, granulocytes counts, and platelets; The present study has presented preliminary information on the range of hematological profile of Kombai breed of male dogs in Theni, TamilNadu which may be useful to biomedical researchers and veterinary clinicians.

Key words: Kombai breed, haematologicalparameters, RBC count, WBC count.

1. INTRODUCTION

Reference values are required in veterinary medicine in order to interpret laboratory results in a relevant way. Accurate interpretation requires reference values that are particular to the tested species as well as the tools and reagents utilized Due to the time and cost required in developing their own values, many veterinary reference laboratories choose to use published or historic values. Utilizing these parameters impedes accurate and timely diagnosis and maintains errors (Klaassen, J.K, 1999). Hematological examination is also useful in assessing how the environment affects blood characteristics, which may have ecological and physiological implications (Ovuru, S.S. et al. 2004), particularly when choosing animals that are genetically resistant to particular illnesses and environmental factors (Mmereole, 2008 and Isaac et al. 2013). Animals' physiological state can be accurately predicted by looking at hematological characteristics (Khan. T. A, 2005). Hematological parameters are those parameters that are related to the blood and blood forming organs (Waugh et al, 2005 and Bamishiyae et al, 2009).

When evaluating an animal's clinical status, the hematological profile must be evaluated because blood is the primary transport system for the body and the input and output materials for nearly all metabolic processes. Any deviations from normal brought on by pathogen invasion, other types of injury, deprivation, or stress are frequently reflected in changes in the blood picture(Coles, 1986; Klaassen,1999; Schalm et al, 1975; Ihedioha et al, 2004 and Ihedioha et al, 2012). Finding the hematological profile of a male Kombai dog breed in Theni District, Tamil Nadu, that appeared to be in good health was the goal of this study. The aim of this study was to determine the hematological profile of apparently healthy male kombaidogbreedin Theni District, TamilNadu.

2. STUDY AREA

The Study area is varied by multiple ranges and hills and is located at the base of the Western Ghats. The district and Kerala State, to the south, are divided by a range of hills that run parallel to the Western Ghats. Covering an area of 2871.48 km2, the district is located between 9530 and 10220 north

latitude and 77170 and 77670 east longitude. The region receives about 950 mm of rainfall on average each year. With a high of 40 degrees Celsius and a low of 20 degrees Celsius, and has a pleasant climate.

3. MATERIALS AND METHOD

The blood samples were collected by venipuncture from the cephalic vein randomly from 12 male kombai dogs in the K3 EDTA containing tubes. The samples were obtained and analyzed on the same day. However, samples were stored at 2-8°C while transferring to the test laboratory. A portion of blood was directly used to estimate red blood cell (RBC), hemoglobin (Hb), hematocrit (PCV), mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC), platelet count (PLT) and white blood cells count (WBC). These parameters were measured in a hematology analyzer (Exigohematology analyzer) provided with software for Dog. All hematological examinations were performed within 24 hours of sampling to avoid errors due to cell lysis.

4.EXPERIMENTAL DESIGN

Sampling was done for three months on male dogs ofkombai breed belonging to area in and around Theni which were randomly selected. History of the dogs were evaluated which was followed by physical and clinical examinations of the dogs carried out after proper restraining. Whole blood samples were collected from the healthy male dogs for hematological analysis in the Department of Veterinary Physiology and Biochemistry, Veterinary College andResearch Institute, Theni. The results from physical and clinical examinations were used to determine apparently healthy Kombai breed of dogs which were finally used to study the hematological profile of dogs in the study area after proper history evaluations.

Inclusion Criteria: Dogs that were not under medications or just completed its medications; dogs not having fever or showing any clinical sign of diseases.

5. HAEMATOLOGY PROFILE

Two millilitres of blood was collected for haematology from each of the dogs by cephalic venipuncture. The blood was dispensed into a sample bottle containing 2 mg of ethylene diamine tetra-acetic acid (EDTA) to prevent clotting. The Hematological Parameters including estimate red blood cell (RBC), hemoglobin (Hb), hematocrit (PCV), mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC), platelet count (PLT) and white blood cells count (WBC), lymphocyte (LYM), Monocyte (MON), Neutrophil (NEU), Eosinophil (EOS), Mean platelet value (MPV) were measured in a hematology analyzer (Exigo hematology analyzer) provided with software for Dog.

6. RESULT AND DISCUSSION

The Mean±SE, ranges of haematological (Hb, PCV, MCH, MCV, MCHC, TEC, TLC, DLC) parameters in blood ofKombai Male Dogs are given in Table 1.

Table1: Results of haematological Parameters

Haematology Parameter	Unit	Mean ± S.E
Pack cell volume	%	28.23 ± 2.59
Red blood cell count	$x10^6$ /µl	4.89 ± 0.51
Hemoglobin concentration	g/dl	11.28 ± 1.07
Mean corpuscular volume	fl	59.50 ± 0.33
Mean corpuscular hemoglobin	Pg	23.94 ± 0.39

Mean corpuscular hemoglobin concentration	g/dl	40.07 ± 0.53
White blood cell count	($\times 10^3$/ µl)	14.39 ± 1.28
Lymphocyte	%	4.32 ± 0.71
Monocyte	%	1.45 ± 0.24
Neutrophil	%	9.12 ± 0.63
Eosinophil	%	0.21 ± 0.07
PLT	Lakhs	167.75 ± 13.15
MPV	fL	8.77 ± 0.24

The different normal constituents of blood varied with breed, time of sampling, effect of storage, age, type of feed, season, managemental practices and methodology employed for estimation (Swanson, 2004). The haematological profile was consistent with the reference values mentioned in Dukes' Physiology of Domestic animals 13th edition. The minor differences in the values could be attributed to the breed difference and to the different dietary conditions, physical condition and also to metabolic status.

6. CONCLUSION

Hematological parameters in healthy male dogs of kombai breed show several variations in relation to breed and age. The establishment of reference values of hematological parameters is essential for evaluating the health and physiological status of the animals. Establishing and utilizing breed-specific reference intervals for specific dog breed would be challenging for the laboratory and veterinarian alike, but knowledge of differences in certain haematologicalparameters for breed types is essential to clinical interpretation of blood values.. The results obtained in the present study increase our understanding of hematology of male dogs of kombai breed and may serve as reference values which could help veterinarians to interpret laboratory data appropriately and to monitor animal's health status, in order to improve the management and conservation of these breeds.

7.COMPETING INTERESTS

Authors have declared that no competing interests exist.

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