

## A COMPARATIVE STUDY OF SOME HEMATOLOGY AND BIOCHEMICAL PARAMETERS OF CLINICALLY HEALTHY ALSATIAN AND LOCAL DOGS

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*The effect of breed on serum biochemistry and hematological parameters of clinically healthy dogs was studied by collecting blood from the cephalic vein of ten (10) Alsatian and ten (10) local dogs. The parameters evaluated were not significantly different between the two breeds.*

*Key Words: Breed, Hematology, Biochemistry, Dogs*

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### INTRODUCTION

The blood is an important medium in assessing the health status of animals. Both the physiological and pathological conditions of animals can be assessed by the evaluation of hematological and biochemical analyses of the blood (Coles, 1986; Bush, 1991).

Factors such as nutrition, age, sex, breed and climate were known to affect biochemical and hematological parameters of clinically healthy dog (Coles, 1986; Awah and Nottidge, 1998). Variations have been observed in these indices between temperate and tropical animals (Awah and Nottidge, 1998). These variations had been thought to be due to the effect of nutrition, climate and sub clinical diseases (Ogunsanmi et al., 1999; Awah and Nottidge, 1998).

Though ample work has been done on establishing the base line values of biochemical and hematological parameters of dogs (Oduye, 1978; Awah and Nottidge, 1998), earlier workers have either concentrated on the local dogs or combined different breeds of dogs together thus making it difficult to determine the sole effect of breed on these parameters. This study was carried out to investigate the effect of breed on some hematological and biochemical parameters of clinically healthy dogs.

### MATERIALS AND METHOD

**Animals:** Twenty healthy dogs presented for routine check up at the clinic were used for this experiment. The dogs were made up of two groups comprising (10) Alsatian and (10) local

dogs. Their ages ranged between 2½ years and 4 years. Their diet is made of rice and meat. All the dogs had been dewormed and vaccinated against rabies, distemper and hepatitis virus. They were also free from external parasites at the time the samples were collected.

**Procedure:** Five milliliter of blood were collected from the cephalic vein of each dog using a 21 guage needle into a plain test tube and those containing ethylene damine tetra acetic acid (EDTA) to obtain serum and uncoagulated blood respectively.

The packed cell volume (PCV), Hemoglobin concentration and white blood cell count were determined as described by Jain (1986). The plasma protein and albumin were determined by the Biurette method as described by Coles (1986) while globulin were calculated by subtracting the albumin from total plasma protein. Serum urea, creatinine, Serum glutamate oxaloacetate transferase (SGOT), serum glutamate pyruvate transferase (SGPT) and alkaline phosphate were all determined using a photoelectric colorimeter (GallenKamp and Son's, Ltd, England) as described by Coles (1986).

### RESULTS

The mean values of hematological and biochemical indices of clinically healthy female Alsatian and local dogs and between male Alsatian and local dogs are compared and presented in Table 1. There were no significant differences between these two breeds of dogs for all the parameters evaluated.

When the parameters were compared between sexes, plasma urea was significantly higher  $P < 0.05$  in the male Alsatian than in the female Alsatian. However, other parameters evaluated did not differ significantly between the male and female groups of both breeds.

**Table 1:** Hematological and biochemical indices in Local and Alsatian dogs.

Parameter	Alsatian		Local	
	Male	Female	Male	Female
PCV (%)	40.0 ± 2.55	41.8 ± 2.42	38.6 ± 2.87	36.8 ± 3.06
Hb (g/dl)	13.3 ± 0.86	14.3 ± 0.82	12.9 ± 0.95	13.0 ± 1.34
Wbc (g/dl)	15.2 ± 1.29	12.9 ± 2.38	10.4 ± 3.4	13.3 ± 1.52
TPP (g/dl)	63.7 ± 15.04	70.8 ± 8.82	70.60 ± 7.97	81.2 ± 8.13
Alb (g/dl)	27.6 ± 2.48	36.0 ± 6.19	25.6 ± 1.81	33.2 ± 1.28
Creant (mg/dl)	1.3 ± 0.21	5.5 ± 0.15	1.7 ± 0.32	1.0 ± 0.19
Urea (mg/dl)	6.0 ± 1.15	5.5 ± 0.87	8.9 ± 1.85	6.1 ± 1.42
ALP (IU/L)	57.6 ± 17.73	76.8 ± 16.40	46.0 ± 15.10	50.2 ± 20.95
GOT (IU/L)	14.0 ± 2.98	21.2 ± 5.13	16.2 ± 5.04	20.0 ± 6.28
GPT (IU/L)	11.8 ± 2.44	17.4 ± 4.80	12.6 ± 4.78	17.2 ± 6.24

## DISCUSSION

The PCV, Hb and WBC did not differ significantly ( $P > 0.05$ ) both between two breeds of dogs and within each breed of dogs. The values of these parameters obtained in this study were consistent with earlier reports for tropical dogs (Oduye, 1978; Saror, et al., 1979; Awah and Nottidge, 1998), but slightly lower than values reported for temperate dogs (Coles, 1998).

The serum, total protein and albumin were higher in Alsatian dogs than in the local dogs. Although this is not statistically significant ( $P > 0.05$ ). Similarly, the total protein and albumin values were higher in the female than in the male dogs for both breeds of dogs, though similar to earlier observation by Awah and Nottidge (1998).

The serum urea was not significantly different ( $P > 0.05$ ) between the Alsatian and local dogs. The values obtained for

both breed of dogs were lower compared to those reported for both temperate and tropical dogs (Bush, 1991; Awah and Nottidge, 1998). However, the plasma urea level was significantly higher ( $P < 0.05$ ) in the male Alsatian than in the female Alsatian.

The serum ALP, GOT, GPT, and creatinine did not differ significantly ( $P > 0.05$ ) between the two breeds and within each breed. The result of this study is similar to that reported for temperate dogs (Kelly et al., 1982).

In conclusion, the hematological and biochemical indices for the Alsatian dogs were similar to that reported for temperate dogs. No significant difference occurred in these indices when compared with local dogs especially when both were raised under the tropical climate. It was therefore, concluded that the breed of dogs does not significantly affect the hematological and biochemical parameters of clinically healthy dogs.

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Received: April, 2000

Accepted in final form: August, 2002