INFLUENCE OF SEASON ,SEX AND AGE ON HAEMATOLOGICAL CHARACTERISTICS, BODY WEIGHT AND RECTAL TEMPERATURE IN BLACK LOCAL QUAIL.

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ABSTRACT

Effect of age, sex and season were measured during and before sexual maturation of black local quail males and females .Meals erythrocytes count showed higher value compared with that of adult females 6 month .Haemoglobin and hematocrit of adult males were significantly higher than those of adult females. However total leukocyte count and Hetrophil/Lymphocytes(H/L) ratio of the adult female were higher than those of males. Body weight of both sexes increased with age. In the present study the result indicated that erythrocyte, Hemoglobin concentrations and PCV values affected by season. As well as many of the Haematological parameters differed significantly ($P<0.05$) in accordance to the age, sex and season of local black feather.

INTRODUCTION

In the last ten years, it has been observed in the poultry breeding that the quail were benefited as much as hens both for their meat and eggs.Quail industry has been developed in recent years, especially in developing countries, Including Iraq.Haematological profiles is an important index of physiological state of the individual and provide reliable information on the health status of animals (24, 1 and 9).However, blood is probably the most versatile and complex fluid in existence . Therefore most researcher have studied the avian blood and found a great degree of variation in red blood cell and considered it to be normal(2).Several factors affect cellular and plasma haemodynamics . They include, age ,sex(19).Other factors that affect haematological parameters include body data can be useful aids to diagnose of disease in birds ,moreover and managing abnormalities due to diseases change blood parameters (2 and 3). Haematological parameters can act as indicators for health state

of birds (4 and 5). At the same time it is well known that haematological parameters in birds depend on age and sex as well as that they may also vary due to season or based on time of sampling and according to some authors (14).Even due to feed(6). In addition ,that they may also vary due to season or based on time of sampling and according to some authors ,even due to feed(14 and 6) .Other authors found most of difference between males and female in blood parameters for different species (6). Haematological parameters can act as indicators for the state of birds health(7,3 and 4). These indicators making them a useful tool in differentiating normal and health birds from their blood parameters(24).The study was conducted to evaluate the affect of age, sex and season on the haematological parameters in black feather local quail.

MATERIALS AND METHODS

Filed work was conducted in the quail house of agriculture college in basrah university .A total of(20) adult males and females each of them (10) birds.
In addition (10) juvenile males and females 6 months age. The birds were housed in cages under controlled environmental conditions and provided with food and fresh clean water was offered ad llibitum. when more than one bird has select and sampled for a short period and to minimize the heterophil to lymphocytes ratio was obtained by them (5).Birds were select in each group. blood samples were collected during the summer and winter seasons . for with drawl of the blood samples from the Vena Saphead using a syringe containing anticoagulant. Determination of blood parameters were carried out according to procedures described by (12). Haematocrit or packed cell volume (PCV) was estimated using capillary tubes, A haematocrit centrifuge and a haematocrit reader . Total red blood cells (RBC) counts were performed by a manual method using haemocytometer.

Haemoglobin concentration was estimated using sable apparatus. Blood slides for the differential leukocyte counts were stained according to(7). Hetrophil to lymphocyte Ratio was obtained by them .As well as the birds were weighted weekly.

Data were statistical analyzed using Spss (1998). Furthermore the fed data were analyzed to regression using the same computer program to explain the relationship between body weight and age.

RESULTS AND DISCUSSION

The haematological means values of Adult and juvenil black feather quail established by this study are outlined in table(1).

The data distinctly indicate significantly ($p<0.05$) a higher increase in erythrocytes (RBC) count in adult males compared with that of adult females.

In general, the concentration haemoglobin (HB).Haematocrit (PCV) and total RBC count ,resented with age and higher in males than females black feather quail and other ages male and female.

The results of many studies provide considerable empirical evidence in support of the present results (8 and 1).

Moreover , these results are in conformity with similar finding are in other avian species like chickens (12),pheasant (2), geese and ducks (10 and 11) . The mean leukocyte (WBC) count of adult female.

Table(1) The effects of age,sex and season in variation haematological values for adult and juvenile quail black feather (mean ±SE) .

Parameters	Adult males 6 month	Adult females 6 month	Juvenile males	Juvenile females
Erythrocytes	4.65 ± 0.06^{a}	3.50 ± 0.09^{b}	2.77 ± 0.25^{b}	2.30 ± 0.28^{b}
Haemoglobin	15.74 ± 0.2^{a}	13.1 ± 0.73^{b}	11.25 ± 0.12^{c}	14.33 ± 0.27^{a}
Haematocrit	43.71 ± 0.23^{a}	40.35 ± 0.55^{b}	37.7 ± 0.22^{c}	33.50 ± 0.34^{c}
Leukocytes WBC	26.11 ± 0.11^{a}	28.22 ± 0.53^{b}	18.33 ± 0.11^{b}	20.80 ± 0.31^{c}
Eosinophils WBC	1.19 ± 0.44^{a}	1.34 ± 0.44^{b}	0.36 ± 0.31^{a}	0.315 ± 0.35^{a}
Basophils WBC	2.87 ± 0.6^{a}	4.3 ± 0.44^{b}	1.56 ± 0.34^{a}	2.85 ± 0.55^{b}
Monocytes WBC	2.16 ± 0.35^{a}	1.29 ± 0.94^{b}	0.94 ± 0.12^{a}	0.79 ± 0.85^{a}
Hetrophil/ Lymphocytes	1.3 ± 0.5^{a}	1.8 ± 0.45^{b}	0.89 ± 0.17^{a}	0.67 ± 0.21^{a}

a, b, a and d Means figures with different superscripts in the horizontal column were significantly at ($p<0.05$).

Was significantly ($p<0.05$) higher than that of adult male, these results are in agreement with other avian species (14 and 15).The present data showed that adult female quail had higher basophils counts than adult male and young males and females.The findings of (12) are in complete agreement to our results, as well as the present data are provide convert support by (16).The higher basophile counts might be associated with physiological stress probably due to the laying cycle of the adult hens. These results are similar to those reports (17). The heterophil/ lymphocyte ratio in quail adult females did differ significantly ($p<0.05$) between adult and Juvenice birds. This high value may reflect physiological stress due to the egg production. This finding confirm with previous result obtained by (18). Most of blood parameters in both males and females significantly differed in various periods throughout the year.The effect of sex and season on hematological parameters are presented in table (2).The present results indicated that there was significantly decrease in (RBC) count during the summer compared to the winter season in quail. This result is in harmony with that of (20) who found that high ambient temperature decreases RBC counts. In the present study the result indicated that erythrocyte , similar haemoglobin concentrations and PVC values affected by season.These results indicated and supported by (6). The eosinophils and basophils count were not significant during the two seasons. The heterophil / lymphocyte ratio was higher during the summer due to high temperature. Moreover this ratio is a good indicator of stress in birds (21 and 22).Table(3) showed that the effect of sex and season on blood parameters.

Table(2) Sex and seasons in variation in haematological values for adult quail black feather ((Mean ±SE).

Parameters		Adult male 6 month	Adult female 6 month
Erythrocytes	winter	3.95±0.17[a]	3.75±0.7[a]
	summer	4.95±0.13[a]	4.10±0.17[a]
Haemoglobin	winter	15.95±0.35[a]	13.2±0.41[b]
	summer	12.15±0.31[a]	11.75±0.55[a]
Haematocrite	winter	43.45±0.55[a]	41.83±0.75[a]
	summer	41.65±0.71[b]	37.55±0.19[b]
Leukocytes WBC	winter	25.15±0.359[a]	29.25±0.77[b]
	summer	31.50±0.95[a]	35.15±0.97[b]
Eosinophils WBC	winter	1.185±0.44[a]	1.46±0.45[a]
	summer	1.28±0.79[a]	1.57±0.37[a]
Basophils WBC	winter	2.570±0.50[a]	2.311±0.65[a]
	summer	2.66±0.45[a]	2.45±0.70[a]
Monocytes WBC	winter	2.10±0.85[a]	1.38±0.93[b]
	summer	2.22±0.71[a]	1.36±0.98[a]
Hetrophil/ Lymphocytes	winter	1.33±3.5[a]	1.65±0.45[a]
	summer	1.95±2.7[a]	2.07±0.3[a]

a, b, c and d Means figures with different superscripts in the horizontal column were significantly at ($p<0.05$).

Table (3): Effect of seasons on Glucose, Cholesterol body weight andRectal temperature for adult quail black feather(Mean ± SE).

Parameters		Adult male	Adult female
Glucose Mg/100 ml	winter	2.88±39.5[a]	2.78±29.5[a]
	summer	2.65±28.8[a]	2.45±71.6[a]
Cholesterol Mg/100 ml	winter	3.95±78.9[a]	3.11±71.7[a]
	summer	3.75±78[a]	3.33±35[b]
Body weight	winter	160.97±0.8[a]	178.11±0.75[b]
	summer	155.65±0.8[a]	172.35±0.80[b]
Rectal temperature	winter	41.2±0.1[a]	41.3±0.3[a]
	summer	42.1±0.3[b]	41.9±0.1[b]

a, b, c and d Means figures with different superscripts in the horizontal column were significantly at ($p<0.05$).

The data showed that due to the higher temperature. The glucose and cholesterol concentration were higher during the summer and the results were significantly ($p<0.05$) (6 and 13) .The results show that rectal temperature increased during summer as well as body weight. As a conclusion , the high temperature cause stress to the blood serum parameters changed by affecting the metabolism. As a result of the present research, it was included that the high environmental temperature change some blood parameters as well as to affect the body weight and rectal temperature.

تاثير الموسم والجنس والعمر على المعايير الدمويه ووزن الجسم ودرجة حرارة المستقيم في السمان المحلي الاسود

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الخلاصة

ان تاثير الموسم و الجنس والعمر قد قيست للذكور والاناث خلال وقبل النضج الجنسي للسمان المحلي الاسود . ففي الذكور تبين ان مقدار خلايا الدم الحمر اكثر عددا بالمقارنه مع الاناث البالغه . علاوة على ذلك تفوقت قيمة قراءات الهيموغلوبين والصفيحات الدمويه في الذكور البالغه معنويا عن قيمتها في الاناث البالغه.

اشارت نتائج الدراسه بان الصفيحات الدمويه ومنها خلايا الدم الحمر وتركيز الهيموغلوبين وكذلك قيم PVC قد تاثرت بالموسم.

كان اجمالي عدد خلايا الدم البيض ونسبة H/L الخلايا العدله / اللمفيه في الاناث البالغه اعلى من الذكور . ووجد بان وزن الجسم يزداد مع العمر واختلاف المعايير الدمويه معنويا تبعا للعمر والجنس والموسم للسمان المحلي ذو الريش الاسود الاسود.

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