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Some normal hematological values of Arabian camels reared in Western desert of Al-Najaf governorate/ Iraq

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Abstract

This study was designed to study some normal hematological values of Arabian camels reared in western desert of Al-Najaf governorate/ Iraq. Blood samples was collected with anticoagulant tube from 78 free breeding Arabian camels in western desert of Al-Najaf governorate/ Iraq at January 2015. Complete blood count CBC were done for each sample and data were reported. The results showed low mean value of red blood cells (RBCs) in calves and lactating females and high hemoglobin level in adult males. Moreover, the lymphocytes: neutrophils ratio (L: N) was close to 1:0.6 and all blood indices were increased with age. In conclusion, this study revealed the normal hematological values of free breeding Arabian camels in western desert of Al-Najaf.

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Introduction

Dromedary camels is an important part of economic resource in arid and semi-arid areas due to their adaptation on harsh arid environment (Abbas and Tilley, 1990). In Iraq, the number of camels are about 58,000 (Tara, 2011). Most communities that live in desert, is depending on camels to perform their daily activities. Camels are used for packing and riding as well as all bedouin consumes the camel milk and meat. Moreover, camel skin leather is used for different purposes. Blood examination helps in assessment of animal general health (Dessouky, 1992). Many authors provide data references about hematological values of dromedary in several camels reared countries (Holler and Hassan,

1966; Majeed *et al*., 1980; Nyangrao *et al.,* 1997). The present study was designed to study the effect of sex, age and lactation on blood values of Iraqi dromedary that reared in Al-Najaf desert /Iraq.

Materials and methods

The study was carried out at January 2015 in Haydia village about 35 km western /Al-Najaf city. Eighty-seven camels of different age and sex were examined. All examined animals were under veterinary care with annual deworming and prophylactic treatment program against Surra disease. The animals were kept in semi closed barns at night and free grazing at day. The blood samples were collected from the jugular vein by 18 Gauge disposable syringe and placed in plastic tubes containing EDTA. All samples were sent to laboratory for further haematological examination. The red blood cells, packed cells volume, hemoglobin and total leukocytes count were assessed manually according to Coles, (1986). Blood indices (mean corpuscular volume MCV, mean corpuscular hemoglobin MCH and mean corpuscular hemoglobin concentration MCHC) were calculated according to the formulas of Wintrobe *et al.*, (1976). The differential leukocytes count DLC were made by staining of dried blood smear with Leishman's stain and the Total leukocyte count (TLC) expressed in percentage. All obtained data were analyzed by Statistical Analysis System (SAS).

Results

Erythrocyte indices were presented in (Table.1). The RBC count were significantly lower in calves and lactating she camels, while the highest hemoglobin value was recorded in adult males. Meanwhile, the result of this study revealed that all blood indices were increased with age. The lowest total and the highest leukocyte count were appeared in calves aged less than one year and above one year respectively. While, the adults were revealed same parameters in both sex. The ratio between lymphocytes: neutrophils in all examined animals is close to 1:0.6.

Discussion

The present study provides data about hematological values in camels in Al-Najaf governorate. The results of this study is compatible with previous studies (Hussein *et al.*, 1992; Amin and Abdelatif, 2007; Busadha and Osman, 2000). However, the results of this study is disagreed in some aspects from others due to variation in geographical zone, nutrition level, genetic factors and sampling method (Rezakhani *et al*., 1997). The results showed that the means of RBCs and hemoglobin were significantly higher ($P \leq 0.05$) in adults compared to means in calves and this fact supporting other previous findings (Hussein *et al.*, 1992; Al-Ani *et al.*, 1992).

Table. 1: Shows the mean of erythrocyte indices of examined camels

Indices	Unit	Male (No.11)	Dry female (No.28)	Lactating Female (No.18)	Less 1year calves (No. 6)	Above 1 year calves (No.15)
Rbc	g/dl	9.02a	9.03a	7.94b	6.93 b	b7.72
Hb	10^6/µl	11.29a	9.92 b	9.99b	8.55b	8.95b
PCV	%	27.1a	26.78a	25.9a	23.58b	26.25a
McCV	pg	30.57a	30.14a	32.83b	34.12 ab	34.29 ab
MCH	pg	12.67a	10.75b	12.73 a	12.45a	11.56 a
MCHC	%	65.43a	37.68 b	53.10 ab	36.39b	33.85b

Table. 2: Shows the means of leukocyte indices of examined animals

Indices	Unit	Male (No.11)	Dry female (No.28)	Lactating Female (No.18)	Less 1year calves (No. 6)	Above 1 year calves (No.15)
Wbc count	10^3 / µl	13.36a	13.58a	11.74	8.22	19.25
Lymphocytes	%	57.95a	58.39a	55.49a	65.62b	58.31a
Monocytes	%	2.05a	2.08a	2.13a	2.67a	1.93a
Neutrophils	%	39.2a	38.98a	40.88a	30.92b	38.16a
L:N ratio		1:0.68a	1:0.6a	1:0.71a	1:0.46	1:0.65
Eosinophil	%	0.7a	0.54a	1.2a	0.8a	1.4a
Basophils	%	0.1	0. 0	0.3	0	0.2

The means of blood indices is in agreement to other studies (Busadha and Osman, 2000; Babeker *et al.*, 2013). The MCHC was higher in adults and the relative increase of MCHC in comparison with human may reveal the oxygen carrying capacity as benefit of unique camel physiology. The means of WBC obtained in the present study were in normal ranges reported by other researcher (Sarwar and Majeed, 1997; Busadha and Osman, 2000). Significantly increase ($P \leq 0.01$) is reported in adult animals than in calves aged less than one year and these findings is in agreement with (Rezakhani *et al*., 1997), who reported that the TLC increased continuously with advancement of age. As other ruminant the lymphocytes: neutrophils ratio recorded in present study was about 1:0.6 and this ratio is compatible to findings of Al-Ani *et al.*, (1992). Al-Ani et al., (1992) is recorded 1:1 lymphocytes: neutrophils ratio. There are no significant difference in the percentage of monocytes, eosinophil and basophils among different ages this finding was in agreement with Babeker *et al*., (2013).

References

Abbas B, Tilley P. (1990). Pastoral management for protecting ecological balance in Halaib District, Red Sea Province, Sudan. Nomadic Peoples. 29:77–86.

Al-Ani, F.K., W.A.R.A. El-Azzawi, M.S. Jermukly, K.K. Razzaq. (1992). Studies on hematological parameters of camel and llama in Iraq. Bull. Anim. Prod. Africa. 103-106.

Al-Busadaha K A, and Osman T E A. (2000). Haematological parameter of adult dry,lactating and camel calves in Saudi Arabia. Pakistan journal of biological sciences. 3 (10):1749-1751.

Amin A S, Abdoun KA and Abdelatif AM. (2007). Seasonal variation in blood constituents of one- humped camel (*Camelus dromedaries*). Pakistan J. Biological Sci., 10: 1250-1256.

Babeker E A , Elmansoury Y H A. and Suleem A E. (2013). The Influence of Seasons On Blood Constituents Of Dromedary Camel (*Camelus Dromedarius*). Online J. Anim. Feed Res. 3(1): 01-08.

Coles E H. (1986). Veterinary clinical pathology. 4th ed. Baillier, Tendal, London.

Dessouky M I. (1992). Studies on the hemogram and blood biochemical constituents in camel in health and disease. Proceedings of the Training Course on Camel Diseases, April 11-30, 1992, Arab Organization for Agricultural Development, Cairo. 333-344.

Holler H and Hassan Y M. (1996). Some blood constituents of camel in Sudan. Dt. Tierarztl.Wschr . 73:553-556.

Hussein M F, Liman M M. Mogwar M N, Bakkar H H and Garel Nabi A R. (1992). The haematology of growing camels during the first year of life. AJAS. 5(3):519- 525.

Majeed M, Hur G, Z. Rahman and Ahmed A. (1980). Effect of sex and season on 10 haematological values of normal adult one humped camel. Rev. Med. Vet. Pays Trop. 33:135-141.

Nyang'ao J M, Olaho-Mukani NW., , Maribie J M and Omuse JK. (1997). A study of some haematological and biochemical parameters of normal dromedary camel in Kenya. J. camel practice and research, 4:31-33.

Rezakhani A S, Nazifi Habibadi and Magrebi Ghojogh M. (1997). Normal haematological and biochemical parameters of Turkman camel in Iran. Journal of camel practice and research. 4:41-44.

Sarwar A. and Majeed MA. (1997). Interrelationships between 30 parameters of blood in normal one humped camel in summer. J. Camel practice and research.4:36-39.

Tara Mohamed Anwar Omer. (2011). FAO. Country Pasture/Forage Resource Profile http://www.fao.org/ag/AGP/AGPC/doc/Counprof/Iraq/Iraq.html.

Wintrobe MM , Rich G, Lee D R, Boggs T C, Brithell J W, Athens and Forester J. (1976). Clinical Hematology. 7th ed. P. 26, Lea & Fabiger, Philadelphia, USA.