

Studies of Some Normal Biochemical Parameters of Majaheem Breed of Camel (Camelus Dromedarius) in Saudi Arabia

S.I.AL-Sultan

College of Veterinary Medicine and Animal Resources, King Faisal University,
Public Health and Animal Husbandry, P.O.Box11647, Al-Ahsa 31982

Abstract: The biochemical parameter studies were total protein (7.3 g dl⁻¹), Creatinine (1.36 Mg dl⁻¹), Glucose (58 Mg dl⁻¹), Cholesterol (55.74 Mg dl⁻¹), Triglyceride (40.20 Mg dl⁻¹), Calcium (9.89 Mg dl⁻¹), and Magnesium (1.07 mEq l⁻¹). The various biochemical concentrations reported in this study were comparable to those obtained by other workers elsewhere.

Key words: Camel, biochemical parameters, majaheem breed, Saudi Arabia

Introduction

The dromedary is known to survive in desert and semi desert areas (Yagil, 1985). Normal physiological values of various biochemical parameters in serum are important for clinical investigation of any abnormalities, besides they contribute to better understanding of the unique physiological behaviour of this species at different geographical regions. Certain serum biochemical informations about dromedary are available in other countries such as Iran (Rezakhani *et al.*, 1997), Morocco (Bengoumi *et al.*, 1997), Kenya (Nyangao *et al.*, 1997), Pakistan (AnasSarwar and Majeed, 1997), Iraq (AL-Ani *et al.*, 1992), India (Lakhotia *et al.*, 1964 and Ghosal *et al.*, 1975) and Sudan (Barakat and Abdelfattah, 1971). There is a lack of data about the normal serum biochemical values in Saudi dromedary. This initiated the undertaking of the present study to determine the concentration of some biochemical constituents in the serum of healthy male and female Camelus dromedarius in Saudi Arabia.

Materials and Methods

The camels used in this study belonged to Majaheem breed of one-humped Saudi camel (Camelus dromedarius). The examined camel comprised male and female. All animals were clinically healthy with aged ranging from 2-7 year. Ten ml of blood were collected aseptically from a jugular vein of each camel. Sera were prepared and kept at -20°C until used. Volichem-310-Analyser (Spain) was used to determine the different biochemical parameteris of the serum. These included total protein, Triglycerides, Creatinine, Glucose, Cholesterol, Calcium, and Magnesium. Statistical analysis was performed by using analysis of variance (ANOVA) and difference between the means, Minitab 12 (Minitab Inc., State College, PA, USA).

Results and Discussion

The results are shown in Table 1 and 2, Sex seems to have no significant effect on the present findings as comparable results were obtained during the analyses

Table 1: Serum biochemical values in healthy male Majaheem breed of Saudi camel

Constituents	N	Mean	SE Mean	Range
Total protein(g dl ⁻¹)	18	7.3	0.38	5.6-11.49
Creatinine(mg dl ⁻¹)	18	1.36	2.66	9.20-45
Glucose (mg dl ⁻¹)	18	58.0	23.0	1.5-409.6
Cholesterol(mg dl ⁻¹)	18	55.74	7.90	10.161.90
Triglycerides (mg dl ⁻¹)	18	40.20	6.89	13.90-121.70
Calcium (mg dl ⁻¹)	18	9.89	0.47	6.15-15.2
Magnesium (mEq l ⁻¹)	18	1.07	0.04	0.71-1.43

Table 2: Serum biochemical values in healthy female majaheem breed of Saudi camel

Constituents	N	Mean	SE Mean	Range
Total protein (g dl ⁻¹)	67	7.33	0.16	1.25-9.35
Creatinine(mg dl ⁻¹)	61	1.7	0.24	2.4-12.7
Glucose (mg dl ⁻¹)	61	48.06	7.88	3-272
Cholesterol (mg dl ⁻¹)	62	52.03	2.78	6.20-127.70
Triglycerides (mg dl ⁻¹)	62	32.84	4.37	4.30-200.40
Calcium (mg dl ⁻¹)	62	7.45	0.71	22-27.86
Magnesium (mEq l ⁻¹)	51	1.42	0.37	10-11

of male and female serum. Abdel-Fattah and Barakat (1971) and Bengoumi *et al.* (1997) found that sex had no influence during their studies on certain serum biochemical parameters of camel.

The mean serum total protein is almost comparable to that achieved by Bengoumim *et al.* (1997), Rezakhan *et al.* (1997) and Ghodsian *et al.* (1978). The concentration of creatinine recorded in this study was 1.36 ± 2.66 mg dl⁻¹ in male and 1.7 ± 0.24 mg dl⁻¹ in female. These values were in accordance with the values obtained by Anas Sarwar and Majeed (1997). Anas Sarwar and Majeed (1997), Rezakhan *et al.* (1997) and Bengoumi *et al.*, (1997) recorded the concentrations of glucose in camel serum. Comparable means and ranges of glucose in the serum were found during the present study. Cholesterol concentration in the serum obtained in this study was 55.74 ± 7.40 mg dl⁻¹ and 52.05 ± 2.78 mg dl⁻¹ in male and female respectively. Comparable concentrations were reported by Wasfi *et al.*, (1987) and Abu Damin *et al.*, (1990). Higher values were obtained by Anas Sarwar and Majeed (1997). Types of feeding and starvation during sampling may affect the level of serum cholesterol (Mirghani, 1982). The mean triglyceride concentrations obtained in male and female sera in this study were within the range reported by Bengoumi *et al.* (1997). The means serum value of calcium in male and female camel obtained in this study was within the range obtained by other authors (Rezakhan *et al.*, 1997; Anas Sarwar and Majeed, 1997; Wahbi *et al.*, 1980; Abu Damir *et al.*, 1980; Abdulla *et al.*, 1988 and Faye *et al.*, 1995). The magnesium concentration in serum recorded during this study were 1.0685 ± 0.044 ME q L⁻¹ in male and 1.416 ± 0.367 Meq L⁻¹ in female.

The present recorded values of the examined biochemical parameters in camel serum are considered within the normal limits obtained elsewhere. Concerning the few variations between the present values and those reported by other workers, the influence of number of camel examined, breed, nutrition and the environment should be considered.

References

Abu Damir, H., 1980. Studies on minerals status in animals and pasture plants in the Butana with special reference to toxicity of heliotropium ovalifolium and ipomoea carnea in small ruminants. M.V.Sc.Thesis, University of Khartoum.

Abu Dumir, H., D. Scott, J.K. Thompson, J.H. Topps, W. Buchan and K. Pennie, 1990. The effects of a change in blood acid-base status on body composition and minerals retention in the growing lambs. *Animal Production* 51:527-534.

Al-Ani, F.K. and M.R.Al-Sharefi, 1997. Studies on mastitis in lactating one humped camels (*Camelus dromedaries*) in Iraq. *J. Camel Practice and Research*, 4:47-49.

Anas Sarwar and M.A.Majeed, 1997. Interrelationships between 30 parameters of blood in normal one-humped camel in summer. *J. Camel Practice and Res.*, 4: P35-39.

Barakat, M.Z. and M. Abdel-Fattah, 1971. Seasonal and sexual variation of certain constituents of normal camel blood. *Zentralblatt fur Veterinarmedizin A* 18:174-106.

Bengoumi, M., B. Faye, K. El Kasmi and F. De La Farge, 1997. Clinical enzymology in the dromedary camel (*Camelus dromedaries*). *J. Camel Practice and Res.*, 4:25-29.

Ghodsian, I., I. Nowrouzaian and H.F. Schele, 1978. A study on some hematological parameters of Iranian camels. *Tropical Animal Health Production* 10:109-110.

Ghosal, A.K., P.K. Dwarkanath and T.C. Appanna, 1975. A study on the changes of the blood electrolyte of camel (*Camelus dromedaries*) during water deprivation, *India J. Anim. Heal.*, 14: 113-115.

Lakhotia, R.L., A.K. Bhargava and P.N. Mehrota, 1964. Normal ranges for some blood constituents of the Indian camel. *Veterinary Record* 76: 121-122.

Nyangao, J.M.N., W.Olaho-Mukani, J.M. Maribei and J.K.Omuse, 1997. A study of some hematological and biochemical parameters of the normal dromedary camel in Kenya. *J. of Camel Practice and Res.*, 4: 31-33.

Rezakhan, A., S.Nazifi Habibabadi and M.Maghrebi Chojogh, 1997. Studies on normal hematological and biochemical parameters of Turkmen camel in Iran. *J. of Camel Practice and Res.*, 4:41-44.

Wasfi, I.A., A.M. Hafez, F.M. El Tayeb and A.Y. El Taher, 1987. Thyroid hormones, cholesterol and triglycerides levels in the camel. *Res. in Vet. Sci.*, 42: 418.

Yagil, R., 1985. The desert camel: Comparative physiological adaptation. *Comparative animal nutrition*. Karger, Basel.