

Analysis of causes of death in camel

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Camel is a unique species of desert ecosystem. It is a ruminant but differs from other ruminants in having a fused omasum and abomasum. Diseases play a major role in the economics of camel husbandry. This study was, therefore, planned to envisage the causes of death in the camel and about its any preference to breed, sex or age.

The mortality data of the camel herd consisting of Bikaneri, Jaisalmeri, Kachchhi and Arab cross animals, maintained at the National Research Centre on Camel, Bikaner, from January 1986 to March 2001 were studied. The farm camel herd was maintained under semi intensive system of management with daily watering. Female camels were reared in 2 herds, one of young and dry females and second of advance pregnant and lactating females. Breeding males were kept separately in individual pens.

An epidemiological study along with system-wise causes of death was attempted, and the chi-square test (Snedecor and Cochran 1967) was used to test the variance for homogeneity of the binomial distribution.

The breed, sex, and age wise mortality data are presented

in Table 1 according to the system involved. The mortality was highest in Arab cross (16.83%) followed by Kachchhi (14.07%), Bikaneri (10.35%) and Jaisalmeri (9.76%). The chi-square test revealed that no preferential breed mortality has occurred ($P > 0.05$).

In all 878 males and 946 females were available during the study. The mortality was higher in males (13.10%) than the females (9.51%). The value of chi-square obtained in this case was significant ($P < 0.05$), indicating preferential sex mortality. The males had higher deaths than females in almost all systems. The reasons for this preferential sex mortality are yet to be explored.

The life span of camel was divided into 4 age groups. The mortality was maximum in adults above 3 years of age (21.57%) followed by 1-3 years age group (9.66%), 0-3 month age group (9.06%) and 3-12 month age group (5.03%). Chi-square variance test indicated highly significant effect ($P < 0.01$) of age group on mortality.

Considering the average life span of camel to be of about 20 years, the stay of the animals in the 1st, 2nd, 3rd and 4th

Table 1. Breed, sex and age-wise mortality at the NRCC, Bikaner (January 1986 to March 2001)

System	Breed				Sex		Age group				Pooled
	Bikaneri	Jaisalmeri	Kachchhi	Arab cross	M	F	0-3 months	3-12 months	1-3 years	Above 3 years	
Digestive ¹	43	21	27	9	51	49	13	8	22	57	100
Respiratory	20	8	5	3	21	15	21	5	3	7	36
Cardiovascular	2	2	4	0	5	4	0	1	2	6	9
Genital	1	0	0	0	1	0	0	0	0	1	1
Urinary	0	0	0	1	0	1	0	0	0	1	1
Nervous	4	3	3	0	7	3	3	0	3	4	10
Others	31	6	7	4	30	18	9	9	10	20	48
Total mortality	101	41	46	17	115	90	46	23	40	96	205
Available animals	976	420	327	101	878	946	508	457	414	445	1824
Chi-square	$\chi^2=7.4815^{NS}$ df-3 $P>0.05$				$\chi^2=5.83^*$ df-1 $P<0.05$		$\chi^2=68.69^{**}$ df-3 $P<0.01$				

group was for about 90, 270, 730 and 6 205 days respectively. Higher mortality in the fourth age group was expected because the camels stay in this age group for the maximum period. Further, 7 camels, which were euthanised due to fracture of

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long bones/incurable diseases were also included in this group. Also, a number of animals reached the fag end of their life in this age group. The average age at death in this group was worked out to be 3 119 (n=66) days. Second highest mortality was in the third age group, where the stay is also second highest. The average age at death in this age group was 691 (n=39) days. Here improved management practices and timely supplementary feeding can be of great use in reducing the mortality. Third highest mortality was there in first age group, probably due to well known reason that the newly born calves are more susceptible to various infections. Here, the year wise mortality in this group suggested that in general the calf mortality is less because out of 46 deaths in this group, 7 and 10 calves died in 2 years, 1994 and 2000 respectively. Rest of the years, right from 1986 to 2001 had almost equal calf mortality ranging from 0 to 4. The average age at death in this group was 52 (n = 43) days. Lowest mortality was recorded in second age group where the average age at death was about 490 (n=23) days.

Deaths due to different systems were analysed by chi-square test with the assumption of equal mortality due to all systems. The mortality due to different systems differed significantly ($P < 0.01$). Maximum mortality (48.78%) was due to the involvement of digestive system. Involvement of digestive system as a main cause of mortality has also been reported by Khanna *et al.* (1992), Sayed *et al.* (1998) and Agab (1998). Respiratory system was involved in 17.56% cases. Similar findings for the involvement of respiratory system in causing mortality in camels have been reported by Thabet (1994) and Baba *et al.* (1994). The nervous system was involved in 4.88% cases whereas the cardiovascular, urinary and genital systems were involved in 4.39, 0.44 and 0.44% cases. The present results are in agreement with the findings of Agab (1998), Musa and Tageldin (1994), Ahmed and Nada (1993), Baba *et al.* (1994) and Hegazy *et al.* (1998). Deaths in 23.41% cases were due to poisoning, euthanasia due to fracture of long bones/incurable disease, pica etc. These observations are in conformity with those described by Agab (1998).

Improved management practices and timely supplementary feeding can be of great use in reducing the mortality, especially in young animals. The number of acute cases was less, this means sufficient time remains available to the veterinary officer to treat the camels and reduce the mortality due to specified diseases. Fractures are very common and fracture of long bones is very critical in camels because such animals die due to non-natural deaths. Cost effective management of long bone fractures will be of great use not only in reducing the mortality but also in saving the life of priced animals.

SUMMARY

The causes of death in camel, and effect of breed, sex and age on mortality were studied. In all 1 824 records belonging to the centre's herd were analysed. The mortality was highest in Arab cross (16.83%) followed by Kachchhi (14.07%), Bikaneri (10.35%) and Jaisalmeri (9.76%). The mortality was significantly ($P < 0.05$) higher in males (13.10%) than females (9.51%). Highly significant effect ($P < 0.01$) of age group on mortality was observed. Maximum mortality (48.78%) was due to the involvement of digestive system. Respiratory system was involved in 17.56% cases. The nervous system was involved in 4.88% cases whereas the cardiovascular, urinary and genital systems were involved in 4.39, 0.44 and 0.44% cases. Deaths in 23.41% cases were due to poisoning, euthanasia due to fracture of long bones/incurable disease, pica etc. Improved management practices, cost effective management of long bone fractures and timely supplementary feeding can be of great use in reducing the mortality in young and adult camels.

REFERENCES

- Agab H. 1998. Camel pastoralism in the Butana region of eastern Sudan: Common diseases with emphasis on brucellosis. *Journal of Camel Practice and Research* 5(1): 131.
- Ahmed W M and Nada A R. 1993. Some pathological affections of testis and epididymis of slaughtered camels (*Camelus dromedarius*). *International Journal of Animal Sciences* 8(1): 33-36.
- Baba S S, Ambali A G, Zaria L T and Kalra S. 1994. Abattoir records of slaughtered camels (*Camelus dromedarius*) in Nigeria. *Bulletin of Animal Health and Production in Africa* 42(3): 253-57.
- Hegazy A A, El-shazly M O A, Wahbah, M A, Amer H A and Håssan O F. 1998. Pathological studies on the uteri of she camels in relation to bacteriological infection. *Egyptian Journal of Comparative Pathology and Clinical Pathology* 11(2): 13-21.
- Khanna N D, Tandon S N and Sahani M S. 1992. Calf mortality in Indian camels. *Proceedings of First International Camel Conference*, Feb. 2-6, Dubai 89-92.
- Musa B E and Tageldin, M H. 1994. Swelling disease of dromedary camels. *Veterinary Record* 135(17): 416.
- Sayed A S, Sadiq A H, Ali A A and Ismail M N. 1998. Clinical and laboratory investigations on diarrhoea in camels in association with stress factors in Assiut, Governorate. *Assiut Veterinary Medical Journal* 40(79): 83-96.
- Snedecor G W and Cochran W G. 1967. *Statistical Methods*. Oxford and IBH Publishing Co., New Delhi.
- Thabet A El R. 1994. Some microbial studies of lung of clinically healthy and respiratory infected camels (*Camelus dromedarius*). *Assiut Veterinary Medical Journal* 30(59): 188-95.