RABIES SITUATION IN IRINGA REGION, TANZANIA: PAST AND CURRENT OBSERVATIONS (1960 - 1992)

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SUMMARY

Rabies and its control in Iringa region in the Southern Highlands of Tanzania is reported. The study involved perusal of veterinary and medical records and questionnaires to the district veterinary and medical records and questionnaires to the district veterinary officers with a view of examining the incidence, seasonal variation , control measures and the general importance of rabies in both animals and humans in the region at different times between years 1960 and 1992. It was observed that, the rabies situation had not improved for the better, and that the disease is still prevalent and rampant now as in the past, throughout the region without significant difference by season. There is a correlation between the canine population and the incidence of rabies within the districts and that while in general evidence points at the domestic dog as a major reservoir and vector of the rabies virus, there is evidence that the wild canidae may be playing a similar role in certain rural areas particularly in Ludewa district. The difficulties in controlling the problem are pointed out and some suggestion for improving monitoring and controlling the disease are given.

INTRODUCTION

Rabies is endemic in Tanzania (Rweyemamu *e t al,* 1973) and the Southern Highlands especially Iringa region, forms one of the most core rabies infected area of the country. For proper planning and evaluation of rabies control, information on the ecology of the disease, incidence, geographical distribution, reservoir hosts, methods of persistence in the environment and of transmission from one host to another is required (Ezeokoli *et al,* 1984). It is however very difficult to obtain such information in Tanzania due to inadequate veterinary services and poor reporting system. In spite of this, some useful information can be obtained with some efforts. This paper presents some data on rabies occurrence and its control in Iringa region at different periods between 1960 and 1992 and tries to ascertain the actual rabies situation currently compared to the past.

MATERIALS AND METHODS

The data on rabies incidence and control measures in Iringa region at varying periods between 1960 and 1992 was obtained from records available at the Regional Livestock Office, the Zonal Veterinary Investigation Centre (VIC) and the Regional hospital, all based in Iringa town. In addition a questionnaire was prepared and sent to the four districts of the region where rabies is known to be prevalent (Iringa, Njombe, Mufindi and Ludewa). The information required included, (a) the number of suspect rabies cases each year, the field

criteria for reporting such cases, species involved and laboratory confirmations; (b) The seasonal occurrence of the disease as a public health hazard; (c) Control measures in terms of annual vaccination and destruction of suspect rabid cases and finally (d) problems encountered in implementing rabies control programmes. Whenever extra information was required, the relevant District Veterinary Officers were contacted in person. The data was then compiled in an attempt to assess the overall rabies problem and its control in Iringa region.

RESULTS

Results of the study are summarized in tables 1 to 5. Table 1 shows the domestic canidae and felidae populations as per 1984 National Livestock Census. Little is known of the wild canidae and felidae populations in the region. Table 2 is a summary of reported and confirmed cases of rabies in the region between 1960 - 1981 and shows that a total of 1462 suspect cases were reported during the 22 year period with 389 (26.6%) laboratory confirmations all done at the Animal Diseases Research Institute (ADRI) Dar es Salaam using the standard histopathological technique demonstrating negri bodies (for animal cases) and for human cases at the Regional hospital in Iringa municipality. Of the 389 confirmed cases 342 (87.9%) were dogs while humans were second with 19 (4.9%) cases followed by cattle and cats with low incidence of 10(2.6%) and 5(1.3%) respectively. Interestingly, the contribution by the wild life appeared to be equally very low with 7(1.8%) and 2(0.5%) cases for jackals and hyenas respectively, slightly higher than those of the fox and honey badger at 0.26% positivity (one case each), all originating from the rural areas of Ludewa district (Southern part of the region).

The field criteria for reporting suspect rabies cases was uniform especially for the furious form where animals showed fearlessness, roamed around aimlessly, biting human beings, livestock, or any object. The paralytic form whereby the animal is dumb, was frequently misdiagnosed as witnessed by the authors in one incidence where a dog was submitted for clinical examination and treatment for suspect malicious poisoning just to be proven it was rabies.

It was not possible to retrieve complete data for years between 1982 and 1985. However further enquiries from the districts about rabies as a public health hazard revealed, that between 1986 and 1992, a total of 3543 people in the region were bitten with suspect rabid animals with 64 (1.81%) causalities (table 3). During the same period 22 dogs, one cat and 4 jackals were confirmed for rabies and that during the seven year period (1986 to 1992) records showed that the problem was common in all districts occurring throughout the year without any marked seasonal difference though more rampant in Iringa district which incidentally had more dogs and cats than others (table 4).

Problem faced by the field staff when dealing with suspect cases, insufficient cold chain facilities and dissecting tools. Others included lack of ammunition, transport, operational funds, poor quarantine enforcement measures and inadequate staff

emoluments. These inevitably resulted on the average low and unimpressive number of vaccinated and destructed animals compared to their actual population figures throughout the study period (table 5 (a) and 5 (b).

Table 1: Dog and cat populations of Iringa Region (1984 census)

District	Dogs	Cats
Iringa		
Urban	1,857	1,222
Rural	23,663	7,420
Njombe	12,095	6,916
Mufindi	8,234	3,208
Ludewa	5,674	2,048
Total	51,523	20,814

DISCUSSION

Despite some data deficiencies observed in the reports, results point out that rabies in Iringa region is still rampant, now in the 1990's as it was in the 1960's meaning all efforts that have been vested in trying to control the disease for the past three decades have been by and large unsuccessful.

Records implicate the dog as the main transmitter and disseminator of rabies in agreement with the previous observation by (Rweyemamu *et al* 1973), that dog rabies predominates in Tanzania just as generally observed in other parts of Africa, Latin America and the Middle East (Fraser *et al* 1991). Of all the 4 districts, Iringa recorded a high number of human dog bite cases and hence consequently many human rabies cases (Table 4). This could be due proximity to the Regional hospital and the Zonal VIC both of which are located within this districts, hence easy documentation. But this could also be due to the fact that this urbanized district has a high number of dogs compared with others; four, three and two times more dogs than those of Ludewa, Mufindi and Njombe districts respectively (table 1), hence higher chances of contact between humans and rabies suspect dogs.

The very low incidence of reported and confirmed wildlife rabies may however not reflect the true situation but also signifies the difficulty of getting such information especially from the remote rural areas where wildlife exist. It is quite possible therefore that, although dog rabies is the main public health concern, epidemiologically some overlapping could occur involving wildlife as have the mongoose and jackals been implicated in Southern Africa and certain other parts of Africa (Fraser *et al.*, 1991)

For proper rabies epidemiological studies, diagnosis of the disease plus scrupulous data collection and keeping have to be efficient. The erratic and sometimes outright missing data such as incidence, species involved, reservoir hosts, laboratory confirmations, vaccination and destruction figures, as have been observed during the exercise is detrimental to rabies epidemiologists when plans and strategies formulations are required to combat the malady. A clear and concise protocol in terms of reporting between veterinary and medical departments should be outlined and adhered to. Problems in district have to be addressed to, by provision of zonal diagnostic facilities.

Table 2: Cases of suspected and confirmed rabies in 1960 to 1969

Year	Suspected	Confirmed	Species
1960	48	17	10 dogs, 2 people, 1 cow, 1 goat, 1 cat
1961	48	15	all dogs
1962	21	12	11 dogs, 1 jackal
1963	29	19	all dogs
1964	33	32	19 dogs, 2 people, 1 cow
1965	34	31	28 dogs, 1 person, 2 cattle
1966	47	44	40 dogs, 1 person, 1 cow
1967	109	79	71 dogs, 2 people, 1 person, 1 hyena, 1 jackal
1968	93	23	20 dogs, 3 people,
1969	26	18	16 dogs, 1 cow, 1 donkey
1970	53	28	25 dogs, 3 people,
1971	12	12	all dogs
1972	92	10	9 dogs, 1 hyena
1973	103	9	8 dogs, 1 cow
1974	101	10	9 dogs, 1 cow
1975	5	5	2 dogs. 1 person, 1 jackal, 1 badger
1976	69	5	all dogs
1977	4	4	3 dogs, 1 jackal
1978	49	4	all dogs
1979	18	10	7 dogs, 2 people, 1 fox
1980	20	1	human
1981	448	1	human
Total	1462	389	

Table 3: Human dog bites and rabies confirmed cases in Iringa region in 1986 to 1992.

Year	Human dog bite	Confirmed rabies cases			
		Total	Humans	Dogs	Feline/Jackal
1986-87	702	34	29	1	4 jackals
1988	484	15	9	6	
1989	612	5	4	1	
1990	560	7		7	
1991	543	6		5	1 cat
1992	642	2		2	
Total	3543	69	42	22	

Table 4: Monthly distribution of human dog bite cases in Iringa region in 1988 to 1992.

Month	Iringa	Njombe	Mufindi	Ludewa	Total	Mean
January	123	36	34	30	223	55.8
February	109	36	37	3	185	46.3
March	123	67	52	11	253	63.3
April	131	46	61	0	238	59.5
May	147	51	60	5	263	65.8
June	135	39	49	0	223	55.8
July	145	74	40	2	261	65.3
August	130	31	40	2	203	50.8
September	166	36	55	2	259	64.8
October	178	44	40	12	274	68.5
November	142	40	46	9	237	59.3
December	155	36	28	3	222	55.5
Total	1684	536	542	79	2841	
Mean $\pm$ sd	140.3 ± 19.5	44.7 ± 13.3	45.7 ± 10.4	6.6 ± 8.4		

These are pooled values monthly for all the years.

Table 5: Animals vaccinated or destroyed in Iringa region between 1960 and 1992

Year	Dogs vaccinated	Dogs destroyed, others	Year	Dogs vaccinate	Dogs destroyed, others
1960	3206	1625	1981	5212	177
1961	2255	613	1988	1430	588
1962	2584	574	1989	4606	414
1963	4691	1325	1990	7028	190
1964	8448	1600	1991	3103	179
1965	6223	2553	1992	1617	144
1966	5549	5616	Total 1960-1981	108098	39177, 6 cats, 12 hyenas, 5 jackals
1967	7533	3336			
1968	4935	2305	Total 1988-1992	17784	1515
1969	2495	2950			
1970	5114	4571, 11 hyenas, 5 jackals			
1971	4408	1992			
1972	2090	625, 1 hyena			
1973	4507	658			
1974	4728	933			
1975	7950	1136			
1976	3426	1075			
1977	2140	86			
1978	12934	2653			
1979	1760	1222, 6 cats			
1980	5910	750			

Control of rabies in Tanzania consists of quarantine the district where the outbreak has occurred, issuing of a tie up order, compulsory dog vaccination, destruction of stray dogs and wild animals in contact and as outlined by the World Health Organization (Fraser *et al*, 1991).

Although within the government's ability, lack of planning and enforcement measures make control of rabies hard to implement effectively Only ad hoc arrangements are made following outbreaks. In terms of mass vaccination of 80 % of the susceptible population would reduce the contact rate between entering rabid animals and remaining susceptible animals below the threshold required for a rabies outbreak (Beran, 1971). The four districts in this study with a population of 51,523 as per 1984 livestock census has never been able to reach even one quarter of canine vaccination coverage at any time of the studied periods and it can be safely assumed that a similar situation applies for the years with skipped data.

Epidemiological data show that strict control of the domestic dog will in general result in the control of rabies outbreaks in most of Iringa region particularly in urban and periurban areas. The involvement and importance and of the wild canidae in the maintenance of sylvatic rabies has not been deeply elucidated hence requiring more studies particularly in rural remote area.

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