

RABIES IN TURKEY, 1987 - 1996

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TÜRKİYE'DE KUDUZ, 1987 - 1996

ÖZET

Türkiye, Asya ve Avrupa kıtaları arasında değişik coğrafi bölgeleri olan bir yerleşime sahiptir. Ülke köpek kuduzunun görüldüğü tek Avrupa ülkesi olma özelliğine sahiptir. 1970'lerin sonlarına doğru büyük şehirlerin merkezinde ve çevresinde insan popülasyonunun artışına bağlı olarak köpek sayısında da artışlar olmuş, buna paralel olarak kuduz vakalarında artış gözlenmiştir. Son on yılda ülke genelinde bildirilen vaka sayısı belirgin derecede azalmıştır. Ülkede, diğer salgın hayvan hastalıkları ile birlikte kuduzla mücadeleyi de Tarım ve Köy İşleri Bakanlığına bağlı Koruma Kontrol Genel Müdürlüğü yürütür. Bu mücadelenin yürütülmesinde İl ve İlçe Teşkilatları, Veteriner Kontrol Araştırma Enstitülerindeki Veteriner Hekimler görev alır.

SUMMARY

Turkey forms a bridge between Asia and Europe, and consists of various geographic regions. It is the only European country with dog mediated rabies; 74.4% of all cases were reported in dogs. Towards the end of 1970s the rapid urbanisation was followed by an increase in the number of dogs in urban areas. Hence, in and around several big cities, especially İstanbul, the rabies incidence increased. In the last decade, the number of registered rabies cases decreased significantly in the whole country, from 1005 cases in 1987 to only 125 in 1996. The General Directorate of Protection and Control, Ministry of Agriculture and Rural Affairs, has initiated several rabies control and eradication programmes. For the implementation of these programmes, the provincial and local veterinary authorities, as well as the Veterinary Control and Research Institutes, were responsible

CURRENT RABIES SITUATION

Turkey's location at the junction of the continents Europe and Asia accounts for a great diversity of habitats and a rich fauna. Turkey is the only European country with dog mediated rabies, however several cases of wildlife rabies have been confirmed. These cases can originate through the transmission of rabies from dogs to wildlife, as well as being an indicator of a rabies reservoir in wildlife.

Between 1987 and 1996, 74.4% of all registered rabies cases were in dogs, only 65 (1.5%) cases were diagnosed in wildlife (Table 1). Nowadays, rabies is becoming more and more an urban problem. Towards the end of 1970s, mass migration from rural areas to cities like İstanbul, Ankara, İzmir, Bursa, İzmit started and continues to this day. As a result of this, also an increase in the urban dog population was observed. The growing number of dogs in the urban areas resulted in an increase of rabies cases in some of these areas, often a result of the lack of adequate rabies control programmes.

Table 1. Rabies incidence in Turkey between 1987 - 1996, according to the animal species involved (Source: Müller, 1994).

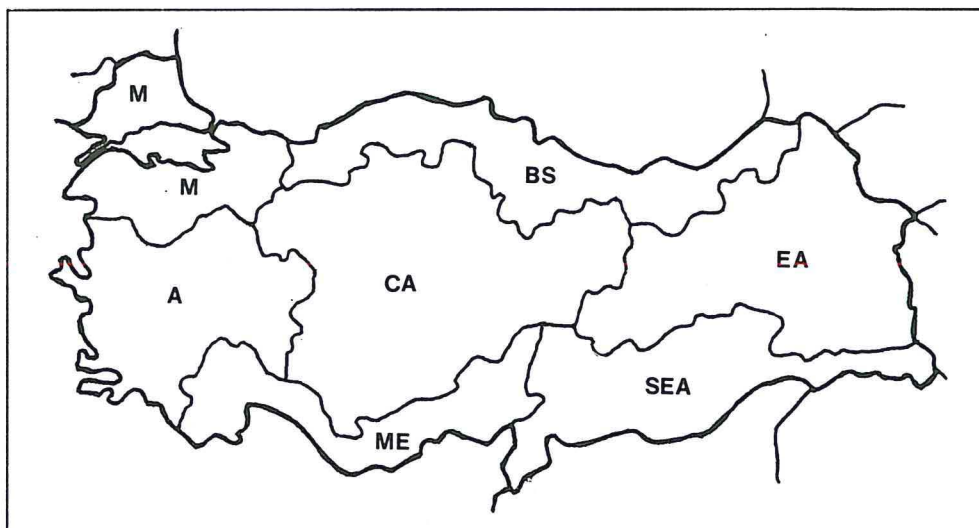
Animal species	'87	'88	'89	'90	'91	'92	'93	'94	'95	'96	Total	
											n	%
dog	695	546	439	431	315	239	203	143	143	103	3257	74.4
cattle	168	106	80	81	57	45	47	19	19	14	636	14.5
cat	71	14	31	36	28	11	21	3	4	4	223	5.1
sheep ¹⁾	6	23	14	13	10	12	3	4	1	4	110	2.5
donkey ²⁾	3	2	6	6	3	5	6				31	0.7
horse	9	9	8	3	3	2	2	1			37	0.8
other dom. animals	7	7		3	3						20	0.5
wolf	3		3	6	2		1				15	0.3
fox	3	2			6						11	0.3
badger						2	1		1		4	0.1
bear					1		1				2	0.1
mouse	18	1	3	3		4	2				31	0.7
other wildl. species	2										2	0.1
Summary												
domestic animals	979	707	578	573	419	314	282	170	167	125	4314	98.5
wildlife animals	26	3	6	10	8	6	5		1		65	1.5
TOTAL	1005	710	584	583	427	320	287	170	168	125	4379	

1) - sheep and goat together

2) - donkey and mule together

In the last decade, the rabies incidence decreased significantly in the whole country; between 1987 and 1996, the number of rabies cases dropped from 1005 to 125. This decrease was observed not only in dogs but in all domestic animals. In 1987, 695 rabid dogs were registered, whereas this number dropped to 103 in 1996. Rabies cases in bovines, after dogs the animal species with the highest rabies incidence, dropped in this period from 168 to 14. The decrease can partly be explained by the successful implementation of certain control measures (e.g. vaccination campaigns).

Figure 1. The seven major geographical regions of Turkey (M-Marmara, BS-Black Sea, A - Aegean, ME - Mediterranean, CA - Central Anatolia, EA - East Anatolia, SEA - Southeast Anatolia).



Turkey is divided into seven major geographical regions; Marmara, Aegean, Mediterranean, Central Anatolia, Black Sea, East Anatolia and Southeast Anatolia (Figure 1). Presently, the highest rabies incidence is observed in the Province of İstanbul (Marmara region). In contrast to other areas, the number of rabies cases increased here during the last two years (Table 2). Other provinces in the Marmara-region with large urban centres, Bursa and Sakarya, showed a steady decrease in the rabies incidence. In İzmir, the third largest city of Turkey, in the neighbouring Aegean-region, the number of rabies cases dropped also sharply from 105 to only 2 cases between 1987 and 1996. In other provinces with large urban centers, which were previously infected, no rabies cases have been diagnosed in 1995-96; e.g. Ankara, Konya, Kayseri, Diyarbakır and Gaziantep. In various rural

provinces in the Eastern and South-eastern part of Turkey the rabies incidence has always been low, due to economic problems, low human population density and certain cultural traditions.

Table 2. The rabies incidence in the different regions of Turkey, between 1987 - 1996.

Region	'87	'88	'89	'90	'91	'92	'93	'94	'95	'96	Total
Marmara	169	184	226	229	156	100	79	84	159	117	1503
Aegean	288	137	71	79	70	71	43	28	6	2	795
Mediterranean	65	62	41	39	59	44	30	13	3	1	357
Central-Anatolia	81	59	50	79	46	20	21	6		1	363
Black Sea	338	201	130	86	34	21	67	21		2	900
East-Anatolia	25	17	19	19	17	4	6	4			111
Southeast-Anatolia	39	50	47	52	45	60	41	14		2	350
Total	1005	710	584	583	427	320	287	170	168	125	4379

PROGRAMMES FOR RABIES CONTROL

In Turkey, the diagnosis of rabies is performed at eight Veterinary Research and Control Institutes (VCRI) by methods proposed by the World Health Organization (WHO); rapid microscopic examination for Negri-bodies, Fluorescent Antibody Test - FAT, Mouse Inoculation Test - MIT (Koprowski, 1996; Tierkel & Atanasiu, 1996; Dean et al., 1996). The Rapid Fluorescent Focus Inhibition Test - RFFIT (Smith et al., 1996) and Rabies Tissue Culture Infection Test - RTCIT (Barrat et al., 1988; Webster, 1987) have been used at research level at the VCRI-Etlük. At the same Institute in Etlük, the production of the live attenuated lyophilised Kelev Rabies vaccine was set up in 1968. This vaccine is prepared in embryonated eggs (7 days) by using the Kelev strain. Only cats and dogs are vaccinated with the Kelev Rabies vaccine. The vaccine gives a guaranteed immunity of one year. The annual production figures are shown in Table 3. The observed decrease in production is a result of the decreasing demand (low rabies incidence)

The General Directorate of Protection and Control, Ministry of Agriculture and Rural Affairs, has initiated several rabies control and eradication programmes, as in the case with other contagious diseases. For the implementation of these programmes, the provincial and local veterinary authorities, as well as the VCRI's, were responsible. For example, the province of Zonguldak in the Black Sea-region was chosen for a pilot-project in 1991. As a result of systematic control efforts the number of rabies cases decreased to zero in this area in 1995.

Table 3. The annual production of Kelev Rabies vaccine (Number of doses) at VCRI-Etlik in Turkey, 1987 - 1996.

Year	Dose	Year	Dose
1987	444.554	1992	375.028
1988	350.102	1993	239.890
1989	362.170	1994	208.288
1990	359.162	1995	166.529
1991	377.730	1996	172.449

Control of rabies in Turkey is carried out by the following methods:

- (i) Control of stray dogs
- (ii) Vaccination
- (iii) Quarantine measures
- (iv) Public information and training programmes

To (i): Turkey is faced with an increasing number of stray dogs, especially in urban areas. The elimination of stray dogs is the task of the municipalities. However, these removal programmes meet increasing opposition from the public due to a better animal welfare awareness. Hence, more and more shelters to facilitate re-homing of dogs are set up. Also, several neutering programmes have been initiated.

To (ii): The first vaccination programme took place in 1946 in Turkey, when Semple Rabies Vaccine was first produced here, using phenol as inactivating agent. Nowadays, besides the locally produced Kelev Rabies vaccine, many imported inactivated vaccines are available.

To (iii): Quarantine measures are implemented in an area where a rabies case has been diagnosed, transportation of animals (pets and livestock) to and from this region is banned for 6 months. If applicable, suspected animals can not be killed for consumption, neither are dairy products of these animals to be consumed.

To (iv): As important as the former measures are training and informing the public. For this purpose, television, radio and other communication means are used in schools.

Eradication of rabies in Turkey is possible in the near future. However, due to the increasing dog population, future control schemes should focus on 'responsible dog ownership' programmes. Meanwhile, intensified vaccination campaigns should be carried out in areas where rabies is still present.

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