

EPIDEMIOLOGY OF SCRAPIE I IN ITALY: AN UPDATE

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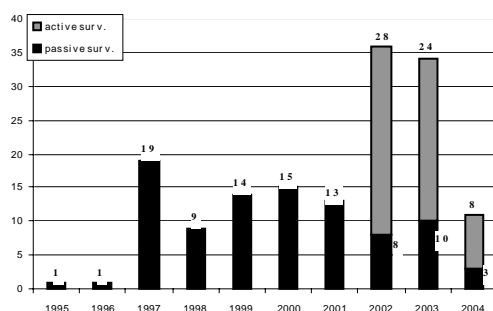
Introduction. Scrapie in sheep and goats is the longest known Transmissible Spongiform Encephalopathy (TSE) and to date it is considered non pathogenic for humans at least under natural conditions, but, under experimental conditions, sheep are easily orally infected by the agent of Bovine Spongiform Encephalopathy (BSE). Therefore the EU priorities small ruminants TSE research, surveillance and control because of theoretical possibility that BSE has entered in the European sheep and goats population, and may pose a threat to public health. The need of effective surveillance of TSE in small ruminants led the EU Commission to launch an intensive EU-wide programme of monitoring; from the 1^o January 2002 besides the passive surveillance (PS) has been implemented a scheme of active surveillance (AS) which targets a large sample of healthy slaughtered animals and fallen stock, over 18 months of age.

In Italy, where the small ruminants population is over 9 millions, the disease was reported firstly in 1976. Up to 1990, 25 outbreaks were identified in sheep. After the mandatory reporting system was enforced in 1991 scrapie apparently disappeared till 1995. Aim of this study is to provide data on the descriptive epidemiology of the disease in Italy since 1995.

Material and Methods. The National Reference Laboratory (CEA) is in charge for collection, review, clean-up, analysis and interpretation of national data on scrapie. Crude rates of prevalence and incidence and their rate ratios were obtained from collected data; herd incidence rates (outbreaks per 10,000 herds) by region were computed to show the geographical distribution of the disease. The current study covers the years since 1995-till May 2004; the genotype of the prionic protein was obtained from affected sheep.

Results. 153 outbreaks have been identified (Fig 1). During 2003, in Italy 45.133 animals have been tested in the frame of AS, with 29 positives (16 healthy slaughtered and 13 fallen stock).

Fig 1. The epidemic curve by year of diagnosis



The crude prevalence rate obtained from AS during 2003 is 6.3 cases per 10,000 tests.

Fig 2: Active surveillance in Italy 2003 vs 2002

TSE testing activity:			
Fallen stock	6.204 / 6.000*	(103,4%)	
Healthy animals	38.495/ 60.000*	(64,2%)	
prevalence (+ives/10,000 test & 95%CI)			
	Italy 2003	vs.	Italy 2002
crude	6.3 (4.2 – 9.2)	vs.	14,1 (10.0 – 19.4)
H.anim.	4.2 (2.5 – 6.9)	vs.	9.7 (6.2 – 14,6)
F.stock	19,3 (10.5 – 34.8)	Vs.	46.2 (25,9 – 76.3)

*sample size for Italy required by EU

With respect of risk categories, the probability of detecting a case is much higher among fallen stock than among healthy animals. In the first five months of 2004, 11 new outbreaks were identified (8 in the frame of AS and 3 of PS), in the previous years AS detected the most of outbreaks. The number of Italian Regions involved in the epidemic has increased year by year; animals affected are mostly sheep. More than 64,000 animals were subjected to culling or alternatives safeguards procedures on the basis of the Italian legislation in force. The PrP^{sc} genotypes of 194 affected sheep belonging to different breeds, from Italian outbreaks, was distributed as below: 166 ARQ/ARQ, 26 ARQ/AHQ and 2 ARQ/VRQ.

Conclusion

Despite the low number of outbreaks identified, the available data suggest that scrapie is widely spread in Italy; the introduction of active surveillance led to a significant improvement of the scrapie surveillance system based previously just on mandatory reporting. Worthy of note is the low frequency of the allele VRQ in Italian scrapie affected sheep and high frequency of allele ARQ.

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