TRICHINELLOSIS IN ROMANIA: A SHORT REVIEW OVER THE PAST TWENTY YEARS

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Summary :

This paper emphasized the evolution of trichinellosis in man and animals during the last two decades in Romania. Between 1983 and 1993, human cases with *Trichinella* increased from 217 to 3,649. A similar evolution was observed in pigs. This situation was caused by the large spread of trichinellosis from big "industrial" farms. Complex chemoprophylaxis and treatment-chemoprophylaxis gave some positive results to control trichinellosis in pig.

KEY WORDS : annual prevalence, Romania, human, pig, horse, trichinellosis.

During the last two decades, trichinellosis in man and animals became a very serious problem in Romania. Pigs were highly infected particularly in relation with some specific breeding. The aim of this short review is to emphasize the parallel with human cases and the difficulties to control trichinellosis in pig.

TRICHINELLOSIS IN HUMANS

The number of registered cases with *Trichinella* during the last 18 years is presented in Table I. In reality, the total number of trichinellosis in humans is higher. Moreover, 170 necropsies performed in patients who died of different causes, showed that 27.06 % were infected with *Trichinella* (Cristea, 1999).

TRICHINELLOSIS IN ANIMALS

The number of officially registered cases of *Trichinella* in pigs in the last decade is described in Table I. The annual incidence variation can be correlated with some inherent problems of the control (low infectivity and use of trichinelloscopy, lowest number of controls). The number of slaughtered swines decreased in the last few years. Thereby, the number of infected cases with *Trichinella* decreased to 5,250 in 1999, but its prevalence (0.15 %) was similar to the level of trichinellosis in 1993 (Tables II and III). Horses are not slaughtered for human consumption in Romania. In November 1993, in Harghita County, four (36.3 %) out of 11 horses examined by peptic digestion, were found positive. In the following years, 2,370 horses were examined by ELISA. Among these, 12 (0.5 %) had *Trichinella* antibodies (Olteanu, 1999). The annual prevalence of trichinellosis in dogs, reaches 5.49 %, but in some localities higher figures were obtained : 52.15 % in stray dogs in Constantza, 40 % in Jiu Valley and others. Trichinellosis in rats is similar with the spreading of pig trichinellosis. Few studies were performed amongst wild animal. In Constantza county, only wild boar (0,3 %) out of 319 examined, was positive for *Trichinella* (Table III). Pig remains the main "vector" of trichinellosis for humans in Romania. The high inci-

Year	Number of cases with *Trichinella* sp.	
	In men	In pigs
1990	1,031	7,928
1991	1,527	9,359
1992	2,147	6,944
1993	3,649	10,540
1994	3,014	5,226
1995	1,965	5,069
1996	547	2,165
1997	2,037	6,001
1998	794	6,582
1999	848	5,250

Table I. – Evolution of trichinellosis in human and pig during the last 10 years in Romania.

Year	Number of pigs		Prevalence (%)
	Slaughtered and examined	With *Trichinella* sp.	
1992	6112,627	6,892	0.113
1993	6676,640	10,540	0.158
1999	3535,585	5,250	0.150

Table II. – Prevalence of trichinellosis in pigs in 1992, 1993 and 1999 in Romania.

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Year	Pigs			Wild boars			Number of human cases
	Number			Number			
	Examined	Infested	%	Examined	Infested	%	
1990	377,386	477	0.12	48	–	–	–
1991	328,492	218	0.06	22	–	–	–
1992	230,657	99	0.04	22	–	–	37
1993	292,254	276	0.09	45	–	–	201
1994	212,672	399	0.19	12	–	–	41
1995	185,435	2,504	1.35	77	1	1.30	55
1996	217,510	738	0.34	33	–	–	9
1997	2133,722	1,874	0.87	18	–	–	25
1998	123,898	829	0.66	23	–	–	67
1999	123,661	349	0.27	19	–	–	146

Table III. – Trichinellosis in humans, pigs and wild boars in Constantza County between 1990 and 1999 (Olteanu, 1996).

dence of human trichinellosis in Romania was determined by special situation created in the large "industrial" pig farms. During the period 1984-1989 and in the following years, more than 95 % of pigs infected with *Trichinella* were registred in "industrial" farms. For many years, *Trichinella* diffused from these "industrial" farms to the other smaller individual breedings.

Immunodiagnosis of trichinellosis is an alternative that need intensive study despite the fact this method is used in various localities. The main difficulties to use such indirect method resulted of many false positive reactions due to poly-parasitized animals and several positive animal in "industrial" farms and in slaughterhouses were detected by ELISA (Olteanu, 1974, 1996, 1999; Cristea, 1999).

CHEMOPROPHYLAXIS

Complex Chemoprophylaxis (CCP) and Treatment-Chemoprophylaxis (TC) for control of trichinellosis in pigs (as components of a complex of measures) has been applied with good results (Trifoi *et al.*, 1974; Cristea, 1999). CCP consists of a mixture of microdoses of various drugs in association with vitamines, immunostimulants in pigs fed daily during all the periods with a risk of acquiring *Trichinella* and this regimen assure a very good efficiency. From an economic point of view, CCP with microdoses of metrifonate (Neguvon®) 250-300 ppm (mg/kg) was very interesting. The use of this method in the Crivesti-Tutova farms (11,000 swines) decreased the prevalence of trichinellosis from 21.6 % to 0 % (Trifoi *et al.*, 1974).

Good results were obtained also by a chemoprophylaxis with micro-doses of febantel granulate 10% (Rintal®) in Gruia farm (24,000 pigs, 1986-1988 decrease of trichinellosis prevalence from 8.6 % to 0.86 %) as well as in Salcia farm (16,000 pigs, 1986-1989, decrease from 13 % to 2.4 %). By TC with albendazole good results have been obtained in the farm "Gh. Doja», having thousands of pigs (Olteanu *et al.*, 1999). From 1987 to 1999 in Jiu Valley the application of CCP and TC methods resulted in a 10 fold decrease of the prevalence of swine trichinellosis, the removal of infected animals from the food chain and the absence of human outbreaks in 1999.

Trichinellosis remains a serious problem in Romania despite efforts in the control by direct or indirect methods. The structure of big industrial farms was a factor of trichinellosis spreading in the country and in this context, chemoprophylaxis had a significant impact on the control of trichinellosis.

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