Abstract

Horse breeding, now getting revived again in Romania, though not extensively, requires knowledge of the factors that could influence its success, among which we mention fighting against diseases as a general trend and, more specifically, against the infectious ones, infectious anaemia being the most important one of all.

The rich and diversified casuistry faced by the veterinaries enforces our conviction that, nowadays, the infectious diseases affecting the equine groups are characterised by high contagiousness and infectiousness.

An aspect which should not be neglected is the fact that the disease generally progresses vaguely and atypically, displaying unspecific clinical forms which can cause confusion or which might be unnoted.

The great importance of the disease derives from its contagiousness, its insidious evolution, the existence of hardly perceivable virus bearers and long-term virus excretors, the impossibility to treat them or the existence of a refractory prophylaxis or of some active unspecific prophylaxis.

This information shows that the curing of this disease represents a major and an urgent problem, as a result of the economic crisis deriving from the necessity to kill the infected animals, from the reduced capacity to use the meat, from the cost of disinfections or from the restrictive measures imposed by the international legislation regarding the removal of horses from the infected areas. Because of all these aspects equine infectious anaemia is considered to be the most important and the most severe equine infectious disease.

Special attention was paid to the examination and the analysis of the epidemiologic factors leading to the appearance and evolution of infectious anaemia. Moreover, special attention was paid to the evolutional clinical aspects, to the macro- and microscopic changes and also to the diagnosis, prevention and control strategies.

The present paper contains research on one of the most important diseases affecting horses – equine infectious anaemia – a disease which seems to have developed

extensively, affecting especially the equine groups belonging to the domestic breeding system. The research was carried out in Moldavia.

The examinations focused on the extent of the disease in the Moldavian counties, making use of the statistics offered by the Veterinary Offices.

The thesis contains 312 pages and it is divided into 10 chapters: the first part (chapters 1, 2, 3 and 4) synthesizes the main data from the speciality literature regarding the morphology, the structure and some biological characteristics of the virus causing infectious anaemia.

There are also included some references related to the "in vivo" cellular tropism, the "in vivo" persistent viral antigenic variation, the effects of the virus interaction inside the hosting body as well as the humoral and cellular immune reaction.

In the part containing our own research – divided into 6 chapters – the analysis focused on: the dominance of the disease in the Moldovian counties (ch. no. 5), the examination of an old focus of infectious anaemia (ch. 6), the morpho–pathological aspects (ch. 7), the diagnosis relevance of the serologic investigation (ch. 8) and the strategy for the prevention and controlling of the disease in Bacau (ch. 9). In the chapter 10 we epitomized the general conclusions drawn from the epidemiologic, clinical, morpho– pathological and laboratory research.

The epidemiologic research was carried on from 1994 to 2006 in the counties from Moldavia: Suceava, Bacau, Neamt and Vaslui, using the statistics offered by the Sanitary and Veterinary Offices.

For this we made use of the data given by the specialists in the Department of Epidemiology functioning in the county Sanitary and Veterinary Offices (Suceava, Bacau, Neamt and Vaslui).

The information is related to the total number of animals diagnosed positively in the affected areas or to the dead or killed animals in the entire county and in AIE focal points existing in the area. It was also considered as useful to interpret some epidemiologic indicators like: the incidence, the dominance or the comparative value of the incidence, which should be done according to the results of the serologic diagnosis tests.

Starting from the examination done between 1994-2006 we can state that anaemia is detectable in variable percentage. The greatest number of focal points and of serologically positive animals was recorded in Suceava (152 regions and 314 animals), Bacau (138 areas with 202 animals), and Neamt (51 areas and 96 animals), whereas the smallest percentage could be identified in Vaslui (27 areas with 32 animals).

The high rate of occurrence regarding these focal points and the increasing number of serologically positive animals could be explained by the illegal circulation of equines and their migration from the highly contaminated areas in Transylvania (Covasna, Harghita, Bistrita Nasaud), as well as by keeping the serologically positive animals within the group, and which can thus represent primary sources of infection. On the other hand, the low occurrence of focal points and the insignificant number of serologically positive animals in Vaslui can be explained due to the great distance between this great distance between this county and the highly affected areas in Transylvania, and also by the reduced possibilities of illegal exchanges of animals among the owners.

Epidemiologic, clinic and serological investigations performed (chapter 6) inside an old EIA burning point (a village) have revealed that the first case of the disease was diagnosed in 1994, for a number of 777 equines, which represents 0,12%. Later on, the disease has spread, developing in an enzootic way, reaching its highest point between 2000 and 2002, when there were registered 27 (3,70%) serologically positive animals, which represents an increase of 12 times the number in 1994. Nevertheless, the numeric increase of the controlled animals (93,13%) and the elimination of the diseased have drawn a considerable decrease of the serologically positive equines from 1,53% in 1994 to 0,35% in 2006.

The clinic examination performed on 46 serologically diagnosed animals showed specific acute manifestations on 3 (6,52%) equines, with instant or after two days feverish bursts.

The hematological examination revealed an increase of the red cell sedimentation rate (values between 69-74%), decrease of red cells number (3,78-4.2 million/mm3), decrease of white cells (4750-6000/mm3), increase of hemoglobin values (21-35 %) and prolongation of bleeding and coagulation time.

The morphological, micro- and macroscopic examinations (chapter 7) performed on the main internal organs of the subjects offered data which molds partially on the results of the recognized specialized literature of doctoral thesis and also revealed new elements in the morphopathogenesis of the EIA.

Morphological investigations, especially hystological distinguish a multilesional picture, acute-subacute, with autoimmune components.In the parenchima organs priveil the hyperplasic changes.

The constant lesion in liver and kidney is the dystrofi. The constant lesion in the spleen is

hemosiderose .The immune amiloidosis appears in the walls of small and mildde arteries from liver, Kidnei and spleen.

In all organs hystological investigated has revealed lymphohihistocitaire hyprplasia, with

variable tissue disposition: diffuse, perivascular, peri bronchiolar in the lung, periglomerular end peritibular in the Kidnei subependima center in the encephalon.

The serological researches regarding the diagnosis signification of the Coggins immunodiffusion test and the ELISA immunoenzimatic method (chapter 8), revealed, through their results, that both methods are specific and precise enough to help detect EIA. Compared to the immunodiffusion test, the immunoenzimatic ELISA test is highly sensitive and offers better diagnosis certitude, because it presents excellent precision, detecting lower numbers of antibodies of recently infected animals, which draws towards a better diagnosis of the disease.

Researches proved that after applying the measures stated in the "Strategic surveillance, prevention and treatment of the EIA program", according to Decision no. 167/2003, and Decision no. 686/2003 a considerable decrease of burning points number and of serologically positive animals in Bacau county has been detected. Thus, the number of infected localities in this area decreased from 17 in 1998 to 2 in 2002. Even if in the year of 2006 there has been an increase of the number of localities up to 18, and of the number of serologically positive animals up to 20, the results of the researches still demonstrate the efficiency of constant and long term application of disease treatment policies.

As a result of the application of the "Strategic surveillance plan for the preventing and fighting against the equine infectious anaemia", in the county of Bacău (chapter 9), according to order number 167/2003 we can infer the following:

The number of the centres (localities) was reduced from 17 in 1998 to 2 in 2004 without

constituting an immediate criterion of reference if we take into consideration the particular effects of the disease combined with the specific conditions of growth and geo-climatic of the area;

The immediate evaluation and insurance of the system of paying the damages to the owners

led to them becoming more interested which led to a significant reduction of the number of animals tested serologically positive, "lost" within the herd;

For the subsequent increase of the efficiency of these measures we need to recognise the

importance of a better involvement of the epidemiological specialists in promoting the particular aspects of the disease, as well as towards the identification and monitoring of the biotopes where the haematophagous insects that transmit the virus live and develop.