Report on Equine Infectious Anaemia (EIA)

Equine Infectious Anaemia (EIA) is a viral disease found in horses.

Once known as "swamp fever" this is the first animal disease with a recognised viral etiology (in 1904) and which is present in various equine populations throughout the world. EIA is a declarable disease and is listed by O.I.E. (Office International des Epizooties) among those transmittable with a significant socio-economic impact, while not posing a threat of direct zoonosis.

From the clinical point of view it is possible to distinguish an acute and a chronic form, characterised by feverish episodes (40-41° C), lack of appetite, lethargy, presence of swellings and progressive loss of weight. Blood tests reveal significant thrombocytopenia and anaemia. Animals affected in this phase may also die. These clinical symptoms are highly non-specifc and are common in many other equine diseases (piroplasmosis, influenza, etc) and therefore are of little diagnostic help to the veterinarian. The most commonly occurring form of the disease however is unobservable and without symptoms, where the animal seems to be perfectly "healthy".
It is important to underline here that animals with evident symptomatology have a very much higher concentration of the virus in the blood than those who do not present symptoms, and therefore pose a much more dangerous threat with regard to transmission of EIA.

The cases of these infected but not sick horses needs further investigation, since – more and more frequently – their condition emerges after years and years of living in the same place (livery yards, stud farms etc) when they are tested and result positive to an antibody test, yet they have not in all that time infected the other horses all around them. The disease can be carried by brood mares who show no signs of the illness, and their foals are neither infected via the placenta nor through the milk, nor even through the very intimate and close contact mother/offspring which is inevitable in the up to six months before weaning.

The tests actually used to determine the presence of the disease are antibody tests (AGID and ELISA), or viral isolation or biomolecular tests (PCR) but while they do reveal a state of infection on the one hand, on the other any reference to an active illness in any individual, can only be ascertained by accompanying clinical symptoms.

According to the Italian National Association of Veterinarians, "*...horses testing positive present a viral level which is generally insufficient for the transmission of the disease via bloodsucking insects" (ANMVI, 25/11/2005),* and therefore subjects who simply test positive to the disease are not, on the whole, infectious. However, these animals which are apparently "healthy" need to be monitored, since it is possible that a range of stresses could favour the replication of the virus leading to development of the disease. This is very different from the case of the subject actually suffering from the disease itself.

The disease is transmitted via iatrogenic (use of contaminated needles or other surgical instruments), or via blood transfusions, or contaminated blood derivatives, or blood-sucking insects, most commonly tabanids.

What has happened in Italy in the course of the past twenty years is instructional for an understanding of the way in which EIA is transmitted, and the measures to be taken to reduce the risk, without recourse to the extreme action of the physical elimination of all subjects.

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Between 1995 and 2006 in Italy the incidence of positive testing was so low as to constitute non-existence of the disease. In 2006 there was an outbreak of contagion due to an unidentified number of infected plasma doses which were sold on the open market without proper controls. This brought about cases of acute forms of the disease, particularly in foals just a few months old, since blood plasma is frequently used soon after birth to boost the immune system. The 2006 episode was the only one in Italy where the disease was transmitted via contaminated blood products.

In the following period (between 2007 and 2011) Italy operated a blanket monitoring system throughout the country, by testing all equines on a yearly basis.
According to IZSLT (the national centre of reference for this disease) over this period 2007-2011, out of 1,080,043 horses tested 1,479 tested positive, i.e. 0.14%. Mules showed a slightly higher rate of positive testing at 736 out of 12,000, and only 35 cases in the donkey population.
The percentages are very low, above all in horses and donkeys. Yet the fact that strikes the attention the most is that in all these years, at the epidemics observatory of the Centre for EIA, not one case of full-blown disease has been documented.
Dr Marcello Sala of the Ministry of Health comments: "we are talking only of horses testing positive to the antibody test, in which the viremia is *generally insufficient to infect other equines*".

And this is not all: at the international conference held in Rome in 2011 a very interesting clarification on the mode of transmission of the disease was revealed, i.e. that the real risk of contagion lies in an improper management of veterinary surgical instruments, such as syringes, needles and other instruments.
According to Dr Issel of the Gluck Equine Veterinary Center, University of Kentucky, to speak of contagion via insects is little more than a theoretical surmise: a horsefly which ingests blood from a positive-testing horse can only hold in its mouth an amount of blood so infinitesimally small that it would be insufficient to infect a healthy horse (always assuming that the horsefly moves from the first to the second horse). And in any case the virus would very quickly be extinguished in the "mouth" of the horsefly. All of which makes the theory of contagion via insects a very improbable one.
Thus it is perhaps more sensible and correct to say that the real risk factor is not an insect but rather human error: the residual blood left inside a needle, unlike the mouth of a horsefly, is certainly sufficient to infect another horse.

The situation throughout Europe regarding EIA is not properly describable due to lack of uniform data, and many countries declare themselves free of the disease, but it must be taken into consideration that cases of positive testing are not declared simply because the disease is not being investigated.
The control measures of this disease are, however, often tragic, in that the hostility and closed-mindedness of the health authorities usually results in the slaughter of the animal.

The declaration has to be made once a positive result from the test has been determined, in other words when the EIA antibodies have been tested for in the blood.

Italian legislation in 2007 and 2010 (Ministerial Decrees) aimed to prevent and control, rather than to kill: so a positive-testing horse must be "distanced", by which is meant either isolated by a distance of, or greater than, 200 metres from other equines, or slaughtered in the case of horses with a passport declaring them as destined for the food chain, in which case the owner can decide which route to take.

This means, in practice, that in Italy horses resulting positive to the antibody test must be kept separated from "healthy" horses because in theory they could under stress (such as work, other illnesses, medical treatment with cortisones etc which all favour the increase of the EIA virus) become a risk.

This is something which has not occurred once in any of the horses which have been closely monitored since 2007: IHP has a small herd of EIA-positive horses which live in a large field compliant with all recommendations and with full authorisation. The first to go there was Nestore, who had been living for some time in a herd of horses - all of which have remained negative. Nestore was found to be positive when the compulsory national testing began in 2007. Soon Nestore was joined by other positive-testing horses coming from various areas of Italy. Right now, eight horses in perfect health live at liberty in a herd. Not one of them has ever shown any sign of the symptoms of the disease and no horse living anywhere near this herd has been infected in all these years.

Nestore

EIA is a disease which unfortunately strikes terrible fear in horselovers. Yet to date, since the reintroduction in 2006 of compulsory tests, every doubt has been removed about the presence of this virus in Italy, even though it is necessary to undertake further research into the question. For example, more research is needed into the characteristics of the virus strains in order to understand better the transmission and pathology of the disease, which should in itself lead to a betterment of the handling of real EIA cases.

Moreover, given the number of positive-testing animals, the economic value of each one, and above all the growing importance of such animals in the emotional priorities of the owners, the strategy of slaughter or kill would seem, from a political point of view, to be a largely unjustifiable one. Meanwhile it would seem to be necessary to establish rules and measures to be able to "live with" this disease as best we can. Thus it would seem to be a priority to find a clear and consistent management for positive-testing horses, in particular those with no symptoms whatsoever of the disease, who seem perfectly "healthy", as they do present substantial ethical questions and problems.

As the Italian experience shows, and on the grounds of solid recent scientific evidence, slaughter and killing of the positive-testing horse for the containment of EIA are not necessary: it is sufficient to guarantee isolation under due requisites of biosecurity.

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Some of the positive-testing horses at the IHP Rescue Center in Montaione (FI)

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