Epidemiology and current situation of viral haemorrhagic disease of rabbits and the European brown hare syndrome in Italy

F.M. CANCELLOTTI and M. RENZI *

Summary: Rabbit production is of considerable economic importance in Italy. In the last thirty years, meat production has risen and the number of intensive husbandry establishments has grown. The major region of production (about 60%) lies in the northern part of the country. In addition, approximately one million live animals and more than 14,000 tons of meat are imported yearly. More than 150,000 hares are also imported for restocking and hunting purposes. During the second half of the 1980s a "new" disease (X disease), characterised by haemorrhagic and degenerative lesions and high mortality, was observed on traditional farms in some regions. This form spread throughout the country between 1986 and 1988. In 1988, diagnostic research led to identification of a viral agent. Because of its morphology, the virus was at first considered a picornavirus. More recent research has included the virus in the Caliciviridae family. This agent reproduces the disease experimentally. Between 1988 and 1989, many intensive establishments in several regions were affected by the disease, known as viral haemorrhagic disease (VHD); the losses were always very high. In 1989, after mortality among free-living hares had been observed in the northern part of Italy for some years, the agent of the European brown hare syndrome (EBHS) was identified as being morphologically similar to the VHD virus. The antigenic relationship between VHD and EBHS and the possibility of cross-infection between rabbits and hares are currently being studied. Hygienic measures and vaccination are the most reliable methods of control. International cooperation has greatly helped in the study of the disease and in the adoption of control measures.

KEYWORDS: Captive hares - Disease control - Epidemiology - Free-living hares - Haemorrhagic syndrome of lagomorphs (VHD and EBHS) - Italy - Lepus europaeus - Rabbits - Vaccination.

INTRODUCTION

Rabbit breeding in Italy

Rabbit breeding is of considerable economic importance in Italy. Until the end of the 1950s it was of limited scope, however, and small rural farms (with a total of up to 10 does and 50-70 weaned and fattening animals) accounted for most of the production.

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Owing to the general demand for animal proteins, rabbit meat production steadily increased in the 1960s (16). This demand was responsible for important modifications in the rabbit breeding model, which was reconceived along the lines of poultry farming. Along with small farm and family establishments still widespread in rural areas, there was a significant increase in the number of intensive farming systems, leading to a current average size of 233-375 does per establishment in some regions of Northern Italy (15).

The first intensive establishments were set up in Northern Italy (Piedmont, Lombardy, Veneto and Emilia). Some 60-70% of live animals and rabbit meat are now produced in these regions (19).

In the central regions (Tuscany, Umbria, the Marches, Latium and Abruzzo) intensive establishments, though less numerous, are still quite frequent; in the South (Campania, Puglia, Calabria, Basilicata and on the islands of Sicily and Sardinia), small farms continue to provide the bulk of production.

In 1988, about 80 million live animals were raised in Italy (2, 19).

In the last ten years, the growing importance of rabbit production has been accompanied by increasing scientific interest in husbandry and in physiopathological and epidemiological studies. An increase in meetings and reviews was observed as well (10).

More recently, rabbit farming was singled out by the Research Committee of the EEC as a commendable alternative to traditional policies of meat production in Europe (10).

Rabbit meat production and consumption

From the beginning of the 1960s until the end of the 1980s, rabbit meat production and consumption showed a constant increase. In 1960, about 54,000 tons were produced, whereas in 1970 production reached about 100,000 tons; this amount doubled in 1985. At the end of 1988, 210,000 tons were produced. A production increase of 132% was thus obtained between 1970 and 1988.

Between 1970 and 1972, average per capita rabbit meat consumption was 2.2 kg a year, rising to 4 kg a year between 1986 and 1988.

Rabbit meat ranks fourth after beef, pork and poultry in total meat consumption (2).

Importation of live animals and meat

The development of intensive establishments and the increased demand for rabbit meat have led both to the importation of live animals for breeding purposes and slaughter (about 4 million a year, mainly from France, Czechoslovakia, Yugoslavia and Hungary) and to a greater importation of meat (see below).

The importation of better and faster growing breeds has enabled genetic improvements to be made and has also helped to satisfy the demand for meat.

Some 14,000 tons a year of fresh and frozen meat are imported, mainly from Central European Countries, such as Hungary and Czechoslovakia. Another 500 tons a year of frozen meat are imported from the People's Republic of China.
These imports represent 14-15% of the rabbit meat needed for consumption (2).

Moreover, between 150,000 and 200,000 hares are imported yearly from Central Europe and South America, especially Argentina, for restocking and hunting purposes (30).

Animal and meat imports, however, represent a continuous risk of disease introduction.

A “NEW” DISEASE

During the second half of the 1980s a hitherto unknown form of disease, affecting mainly adult and weaned rabbits, was observed in several regions of Italy (1, 5, 33).

The disease was characterised by sudden onset, epistaxis, nervous symptoms and high mortality. At necroscopy, the salient features were thracheitis, thymic hypertrophy, haemorrhages and necrosis affecting several organs.

Small farms were especially affected by the disease and mortality represented 80-100% of stocks (4, 5, 7, 31).

The largest number of outbreaks (more than 300) was observed in 1986 in the northern part of Italy (Lombardy) (30).

Because of unusual epidemiological, clinical and pathological findings and the initially unknown aetiology, this form was named “X disease” (Malattia X). Though no longer appropriate, this name is still widely used.

During the same years (1985-1987), dramatic losses affecting wild rabbits and free-living hares (Lepus europaeus) were recorded in Northern Italy (Friuli-Venezia Giulia and Lombardy) (5).

The gross lesions observed at post-mortem examination in wild lagomorphs were similar to those observed in domestic animals, as mentioned above, including haemorrhages, hepatic and renal degeneration and thracheitis.

SCIENTIFIC MEETINGS AND AETIOLOGICAL HYPOTHESES

In May 1988, a scientific meeting of national experts in rabbit pathology was organised with the following aims:

- to collect all available epidemiological information;
- to verify diagnostic findings and aetiological hypotheses;
- to advise breeders on control measures which might be taken.

This investigation demonstrated the presence of the so-called “X disease” on small farms in most Italian regions (Lombardy, Piedmont, Liguria, Emilia-Romagna, Veneto, Abruzzo, Puglia, Basilicata and Sicily). At that time, no intensive establishments seemed to be affected (14, 15).
Noteworthy data included the dramatic mortality rate of free-living rabbits in Sicily soon after the introduction, for hunting purposes, of wild rabbits from northern regions.

The prevailing opinion favoured a toxic origin for the outbreaks (heavy metals, pesticides, etc.), though the possibility of bacterial infection (*Pasteurella, Bordetella* and others) was also considered. However, the success of experimental infection in adult rabbits by inoculating bacteria and cell free organ homogenate from naturally affected animals was reported, and a viral aetiology was therefore hypothesised (14, 15, 25).

At the same time, scientific reports published by Chinese virologists called attention to a highly transmissible disease called “haemorrhagic pneumonia” or “viral haemorrhagic disease” (VHD) of rabbits (9, 23, 34).

Since 1984, this form has spread throughout the People’s Republic of China, causing heavy losses (23).

Chinese virologists reported the identification of a small (25-30 nm) round viral agent, which they supposed to be a picornavirus or a parvo-like virus (34). The clinical and pathological findings described were similar to those observed in Italy regarding outbreaks of “X disease” (5, 25).

These important findings stimulated several Italian researchers to pursue their studies and to submit the data already obtained to fresh analysis.

In October 1988, the 4th World Rabbit Scientific Association (WRSA) Congress was held in Budapest and a scientific paper, regarding a viral agent supposed to be the agent of VHD in China, was presented by a Chinese virologist (35). Italian scientists presented the results of research concerning haemorrhagic disease outbreaks observed in the Emilia and Veneto regions (4). The report, which dealt with histopathological lesions as well as with epidemiological and virological studies in Italy, occasioned considerable discussion.

In the *ad hoc* working group, veterinarians of different countries discussed the occurrence and spread of the disease in Europe and elsewhere (24).

There was general agreement on the viral aetiology proposed by the research papers. The infection in Central Europe, North Africa and Asia, although not officially declared, was confirmed and the need for international cooperation was recognised (24).

In the same month (October 1988), a congress was held in Uppsala (Sweden) on the diseases of wild lagomorphs. The aetiological aspects of the so-called European brown hare syndrome (EBHS) were discussed at that time (20).

This disease was observed during the 1980s in several European countries and affected both wild and captive hares.

The aetiology of the disease was not established with certainty. The similarities between the pathological features of the haemorrhagic disease of rabbits and EBHS were discussed at the Uppsala congress and a viral aetiology was hypothesised (20).

In March 1989, an international seminar on viral haemorrhagic disease of rabbits was organised in Verona (Veneto region).
The aim of the organisers was to discuss the different points of view of scientists having experience with VHD in their own countries: Italy, the People’s Republic of China, France, Germany, Spain and Hungary.

During the seminar, original studies were presented and discussed on such subjects as the losses caused by VHD infection in intensive systems; control measures adopted at the international level; Chinese and Spanish findings and the results obtained in stopping the clinical disease and mortality by an inactivated vaccine made from formalin treated organ extracts; the aetiology of EBHS and its relationship to the aetiology of VHD among rabbits (6, 8, 13).

Further scientific seminars and meetings devoted to VHD and EBHS at the national and international levels occurred throughout 1990 (28). The great interest shown by the International Office of Epizootics in the epidemiological and aetiological aspects of VHD, as well as in the economic importance of the syndrome, was noteworthy (29, 30).

**DIAGNOSTIC AND RESEARCH METHODS**

Since 1987, almost all veterinary schools and the *Istituti Zooprofilattici* (regional veterinary laboratories responsible for diagnostic research and control of transmissible diseases of animals) have been asked by the Official Veterinary Services and by breeders to make an aetiological diagnosis and to determine suitable therapeutic and control measures.

Laboratory investigations were first performed to determine the presence of some toxin, or particular strain of bacteria, in the organs of dead animals. Several research institutes employed histological techniques to identify the pathogenesis of specific lesions (5, 25, 32).

Primary cells of rabbit origin and cell lines of several animal species (RK13, VERO, Hep2, McCoy, PK15, etc.), and embryonated eggs were used in virus isolation attempts (5, 12).

Electron microscopy (EM), haemagglutination (HA), indirect immunofluorescence and ELISA techniques were developed and routinely employed to detect the viral antigen (3, 4, 7, 8, 18, 26, 28).

For antibody detection, haemagglutination inhibition (HAI) and ELISA tests were used (12, 18, 28).

Convalescent rabbit sera and polyclonal sera produced by immunisation of rabbits were found useful as immune specific reagents in the above tests.

More recently, monoclonal antibodies against purified VHD and EBHS viruses were raised and introduced in EM and ELISA tests (22, 26).

For biological tests and cross-infection experiments, healthy adult rabbits and captive hares, negative for specific antibodies, were inoculated by different routes with rabbit or hare organ homogenates (5, 12).
RESULTS

Diagnostic investigations

Despite toxicological, bacteriological and parasitological investigations of organs of domestic and free-living animals, scientists were unable to determine the aetiology of the disease before 1988 (14, 15).

Early in 1988, the experimental transmissibility of the infection by direct contact and by parenteral inoculation in healthy adult rabbits was confirmed using bacteria and cell free organ homogenates (5, 14, 15).

At the end of 1988, a publication announced the observation by EM of a small virus without envelope. After ultracentrifugation and negative staining of organ extracts from rabbits with specific lesions, it was found to measure approximately 28-32 nm (3).

Because of its morphological features, this viral agent was considered a member of the Picornaviridae family (3). More accurate research subsequently led to its being considered a calicivirus (8, 17, 22, 28).

The clinical and histopathological features of the experimentally-induced infection were similar to the lesions observed in natural infection, and the virus was regularly observed in the spleen, lung, kidney and liver by EM. The haemagglutination activity of the viral antigen greatly helped the diagnostic work and made wide research possible (12).

In 1988 and 1989, several observations made by EM and HA tests confirmed the presence of the viral agent in organs of animals which had died during outbreaks in several regions of Italy. Unfortunately, all attempts to cultivate the virus in vitro, or in eggs or to infect animals other than lagomorphs, have failed (8).

During the second half of 1988 a retrospective study, made in conjunction with the Istituti Zooprofilattici, the Official Veterinary Services and practitioners, allowed a map to be drawn of the onset and spread of haemorrhagic disease among lagomorphs (6, 8).

The onset of VHD outbreaks in rabbits and mortality among free-living hares in regions of Italy from 1986 to 1988 have been reported. Table I shows the presence of the disease in bred and free-living animals in Northern Italy (Lombardy, Emilia-Romagna and Friuli-Venezia Giulia) since 1986 and the spread to rabbitries in other regions during 1987 and 1988. These data show that VHD and EBHS must be considered as endemic.

From 1986 to 1988, almost all VHD outbreaks in rabbits were observed to occur on small farms and among adult animals (aged more than 50 days). The recorded mortality rate was always high: from 80 to 100% (8).

Neither abortion nor newborn mortality was observed (7, 12).

Late in 1988 and during the first months of 1989, outbreaks of VHD occurred for the first time in intensive establishments, all located in the Po Valley (6).

Disease behaviour varied greatly in intensive establishments, as did the mortality rate in adult animals. In most outbreaks, the peracute form was observed with rapid
### Table I

**Spread of VHD and EBHS in Italy**

Situation in December 1988 (regional distribution)

<table>
<thead>
<tr>
<th>Region</th>
<th>1986</th>
<th>1987</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northern Italy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piedmont</td>
<td>rabbit</td>
<td>rabbit</td>
<td>rabbit</td>
</tr>
<tr>
<td>Liguria</td>
<td>rabbit</td>
<td>rabbit</td>
<td>rabbit</td>
</tr>
<tr>
<td>Lombardy</td>
<td>hare; rabbit</td>
<td>rabbit</td>
<td>rabbit; hare</td>
</tr>
<tr>
<td>Veneto</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trentino A.A.</td>
<td>hare</td>
<td>hare</td>
<td>rabbit</td>
</tr>
<tr>
<td>Friuli V.G.</td>
<td>hare</td>
<td>hare</td>
<td>rabbit</td>
</tr>
<tr>
<td>Emilia-Romagna</td>
<td>hare; rabbit</td>
<td>rabbit</td>
<td>rabbit</td>
</tr>
<tr>
<td><strong>Central Italy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuscany</td>
<td>hare</td>
<td>rabbit</td>
<td>rabbit</td>
</tr>
<tr>
<td>Latium</td>
<td></td>
<td>rabbit</td>
<td></td>
</tr>
<tr>
<td>Marches</td>
<td></td>
<td>rabbit</td>
<td></td>
</tr>
<tr>
<td>Umbria</td>
<td></td>
<td>rabbit</td>
<td></td>
</tr>
<tr>
<td>Abruzzo-Molise</td>
<td></td>
<td>rabbit</td>
<td></td>
</tr>
<tr>
<td><strong>Southern Italy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campania</td>
<td>rabbit</td>
<td></td>
<td></td>
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<tr>
<td>Basilicata</td>
<td>rabbit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puglia</td>
<td>rabbit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calabria</td>
<td>rabbit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sicily</td>
<td>wild rabbit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sardinia</td>
<td>rabbit</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Evolution and heavy losses (80-100% mortality); in others, a chronic evolution followed onset of the peracute form, with mortality lasting for some months. The subclinical form was observed in other outbreaks and jaundice was the main clinical feature at post-mortem examination (6, 7).

In some cases, serological surveys performed by the HAI test allowed the authors to correlate the evolution of the disease with the presence of specific antibody in adult animals.

The authors have performed the HAI test on sera of adult rabbits bred on several farms situated in areas heavily infected by VHD or haemorrhagic disease of hares. In cases of onset of VHD, the authors observed a mild form of disease (average mortality 1-5% compared to >50% mortality in unprotected animals) on farms where at least 40-50% of does presented specific antibodies. The origin of the specific antibodies in animals bred on farms supposed to be VHD-free is still unknown. The authors ascribe it to the introduction of healthy rabbits carrying the virus, or to other yet unknown sources of virus (8).

The exact number of VHD outbreaks on small farms is not known, but it is certainly very high.

Table II presents VHD and EBHS outbreaks diagnosed on small farms, in intensive establishments and among free-living hares in the Veneto region (the primary area...
of rabbit production in Italy, responsible for 20% of the does bred) between 1988 and 1990 (30).

TABLE II
Outbreaks of VHD and EBHS recorded in the Veneto region

<table>
<thead>
<tr>
<th>Year</th>
<th>Rabbits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of outbreaks</td>
</tr>
<tr>
<td>1988</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td>1989</td>
<td>888</td>
</tr>
<tr>
<td></td>
<td>24</td>
</tr>
<tr>
<td>1990</td>
<td>268</td>
</tr>
<tr>
<td></td>
<td>24</td>
</tr>
</tbody>
</table>

The opinion of the authors is that this represents only a part of the real number of VHD and EBHS outbreaks. The spread of VHD has never been correlated with season or climatic events.

THE EUROPEAN BROWN HARE SYNDROME

In 1989 a calicivirus, similar to the agent considered as the aetiological cause of VHD in rabbits, was observed for the first time in organs of free-living and captive hares found dead or killed (7, 21).

The diagnosis was also performed in free-living animals imported from Central European countries for restocking and hunting purposes and found dead at customs control.

Virological and serological surveys in 1990 indicate the wide diffusion of the viral agent and specific antibodies in free-living hares in many Italian regions (22).

The numerous observations of hare mortality and contemporary, or subsequent, outbreaks of VHD on small farms and in intensive establishments in the same area led the authors to a hypothesis of cross-transmissibility between domestic rabbits and free-living lagomorphs (6, 8). Experimental assays were performed to validate this hypothesis. Free-living and captive hares have been inoculated with virus of rabbit origin, just as rabbits have been inoculated with virus of hare origin (12). Despite positive results after experimental infection, however, the issue of cross-infectivity in natural conditions is still pending (27).

More recently, a research group from the Istituto Zooprofilattico of Brescia used monoclonal antibodies in an attempt to establish the antigenic relationship
between VHD and EBHS. According to their research, some difference in the molecular composition of the viral polypeptides exists. The biochemical and antigenic results indicate a significant antigenic diversity even if the two viruses are related (22). These preliminary results await confirmation.

**CONTROL MEASURES**

Soon after the spread of VHD in 1988, the Veterinary Services of Emilia, Veneto and Umbria organised meetings and produced information brochures to advise breeders about clinical, epidemiological and pathological features of the disease.

Special attention was given to the main measures of prevention:

- quarantine before animals are admitted to rabbitries;
- avoiding contact between intensive establishments and traditional farms;
- restrictions on visitors;
- cleaning and disinfection of hands, clothes, tools, etc.;
- removal and disinfection of litter;
- stamping out of diseased and living in-contact animals;
- destruction of dead animals;
- disinfection of facilities (i.e. boxes, cages, nests) with hypochlorite, chloramine, sodium hydroxide or products of similar strength;
- all-in all-out policies in intensive establishments, whenever possible;
- cancellation of rabbit markets in areas with outbreaks;
- control of rodents and arthropods.

No vaccine was officially permitted in Italy until the second half of 1990.

The Central Veterinary Services implemented the resolution of EEC member countries by controlling the movements of live animals from foreign countries and collecting data regarding the spread of the disease. The Veterinary Services also made viral haemorrhagic disease of lagomorphs a notifiable disease in Italy (Ministerial Decree: O.M. 8/09/90), following the acceptance of EEC decisions 89/162 10/02/90 and 90/134 06/03/90.

As far as the vaccine is concerned, the Istituti Zooprofilattici were recently authorised to produce an inactivated vaccine made from formalin treated infected rabbit organs (11).

Preliminary experiments suggest that such a vaccine could be effective in reducing the mortality and stopping the spread of infection; nevertheless, control of vaccination results is always difficult.

In the opinion of the authors, the best method of control involves epidemiological surveillance of VHD for one entire year (or longer) in areas in which vaccinated and
non-vaccinated farms are present, with comparison of the results. The presence of antibodies in vaccinated animals may not be indicative of protection.

CONCLUSIONS

The contagious haemorrhagic syndrome of domestic and wild lagomorphs (VHD and EBHS) has been observed in Italy since 1986 (8).

At the beginning, no aetiological diagnosis was possible.

Only clinical and histopathological findings were recorded by the diagnostic laboratories of the Istituti Zooprofilattici and Veterinary Schools (14, 15, 25).

In 1987, numerous toxicological, bacteriological and parasitological studies did not allow conclusive diagnosis.

In 1988, a small round virus of icosahedral symmetry was observed for the first time, by EM, in organs of affected rabbits (3). Because of its morphological features, the virus was considered to be a picornavirus (3). The prevailing opinion more recently, however, is that it should be included in the Caliciviridae family (22).

Since 1988, many regional Istituti Zooprofilattici have undertaken investigations of haemorrhagic disease of lagomorphs throughout the country (8).

A viral aetiology was repeatedly confirmed by EM, HA, immunofluorescence and ELISA tests (12).

Some scientists believe that the viral agent may have come from frozen meat imported from the People’s Republic of China; others ascribe the origin to live domestic or free-living lagomorphs imported from Central European countries. However, the origin of infection has never been proved.

Direct and indirect contact with infected excretions seems to be the main infective route for this highly transmissible disease.

Insects and rodents do not seem to play a role as vector (8).

Free-living or captive hares could play a role and determine interspecific transmission of the haemorrhagic syndrome (7).

Outbreaks of VHD have often been observed contemporaneously, or soon after the onset of haemorrhagic disease in hares in the same area. The antigenic relationship between the viral agents supposed to be the cause of VHD and EBHS, and cross-transmissibility between rabbits and hares in natural conditions, are under investigation.

Preliminary experimental studies have shown the possibility of infection in hares by means of the viral agent of VHD of rabbits, and of infection in rabbits by means of the viral agent of EBHS (12).
The measures adopted by the Regional and Central Veterinary Services aim to:
- advise breeders about the spread of the disease and to provide control measures;
- control the importation of live animals and meat;
- coordinate veterinary actions at the national and international levels to curb the spread of VHD and EBHS;
- make VHD and EBHS notifiable in order to improve epidemiological surveys and control;
- protect farms by an officially approved vaccine.

Since the onset of VHD and EBHS, particular attention has been devoted to controlling the importation of, and trade in, live animals and meat. To avoid the introduction of infected animals and meat, however, guarantees and cooperation among Veterinary Services at the international level are needed. There is little chance for self-protection, especially for importing countries like Italy.

The authors believe that the progress of research on VHD and EBHS has been facilitated by the national and international meetings, workshops and similar gatherings held between 1987 and 1989. They also note that, after an initial reluctance on the part of veterinarians in many exporting countries to acknowledge the infection in farmed rabbit populations, a great spirit of cooperation has developed as the disease has spread across Europe.

The authors further believe that the losses caused by contagious haemorrhagic syndrome of lagomorphs to Italian rabbit production are very high, both from an economic and social point of view.

That many breeders have decided to curtail rabbit production since the onset of the disease could be one cause of the increasing deficit in rabbit meat.

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ÉPIDÉMIOLOGIE ET SITUATION ACTUELLE DE LA MALADIE HÉMORRAGIQUE VIRALE DU LAPIN ET DU SYNDROME DU LIÈVRE BRUN EUROPÉEN EN ITALIE. - F.M. Cancellotti et M. Renzi.

Résumé : En Italie, la production de viande de lapin est devenue une activité économique importante, du fait de la multiplication, ces trente dernières années, des élevages de type intensif. La majeure partie de la production (environ 60 %) a lieu dans le nord du pays. Cependant, chaque année, environ un million de lapins et 14 000 tonnes de viande sont importés. De plus, 150 000 lièvres sont importés pour le repeuplement et pour la chasse. Au cours de la seconde moitié des années 80, une nouvelle maladie («maladie X») est apparue


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EPIDEMIOLOGÍA Y SITUACIÓN ACTUAL DE LA ENFERMEDAD HEMORRÁGICA VIRAL DEL CONEJO Y DEL SÍNDROME DE LA LIEBRE PARDA EUROPEA EN ITALIA. - F.M. Cancellotti y M. Renzi.

Resumen: La contribución de la producción cunicola a la economía italiana es muy significativa. La producción de carne de conejo ha aumentado durante los últimos treinta años y las unidades cunicolas intensivas han crecido numéricamente. El 60% de la producción cunicola proviene de la región norte de Italia. Las importaciones anuales se cifran en 14.000 toneladas de carne y aproximadamente un millón de conejos. A esto hay que agregar no menos de 150.000 liebres que se importan anualmente para reposición y también para la caza. Durante la segunda mitad de la década de 1980 fue identificada una nueva enfermedad («enfermedad X») que se caracterizaba por lesiones hemorrágicas y degenerativas que provocaban una alta tasa de mortalidad en unidades cunicolas rurales de ciertas regiones. Esta enfermedad se extendió a todo el país entre 1986 y 1988. Investigaciones diagnósticas lograron aislar el agente viral en 1988. Este virus fue primero identificado como un picornavirus, pero a la vista de investigaciones más recientes, ha sido incluido dentro de la familia Caliciviridae. Se trata de un agente capaz de producir experimentalmente la enfermedad. En el período 1988-1989 numerosas unidades cunicolas intensivas, ubicadas en diversas regiones, se vieron afectadas por esta enfermedad llamada enfermedad hemorrágica viral (VHD). Las pérdidas son siempre muy elevadas. En 1989, después de varios años con alta mortalidad de liebres silvestres en el norte de Italia, se identificó el agente causal del síndrome hemorrágico de la liebre (EBHS) que presenta similitudes morfológicas con el agente de la VHD. Actualmente se efectúan estudios sobre la relación antigénica entre las dos enfermedades (EBHS y VHD), así como sobre la posibilidad de infección cruzada entre conejos y liebres. La profilaxis debe basarse en el respeto de las medidas de higiene y en el uso de vacunas. La cooperación internacional facilitó el desarrollo de las investigaciones y la adopción de las adecuadas medidas de control.

REFERENCES


