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The Situation of vvIBD in the United States

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Identification of vvIBDV in California, USA.

Clinical Presentation

Since it was first identified in Europe, the very virulent form of infectious bursal disease virus (vvIBDV) has spread to many poultry producing countries. Molecular epidemiology has demonstrated that the viruses found around the world are ancestors of the strains originally diagnosed in Europe (Eterradossi et al., 1999; Jackwood and Sommer-Wagner, 2007; van den Berg, T. P. 2000). Although vvIBDV had spread to South and Central America, until recently, vvIBDV had not been identified in North America. In December 2008, mortality ranging from 26-34% was observed on two pullet farms in California, USA. The pullets on one farm were 11 weeks of age and the other farm housed 14 week old pullets. The gross and histologic lesions in these birds were typical of those caused by vvIBDV. They included large edematous bursas that were covered with a gelatinous transudate. They were yellow in color and some were hemorrhagic. Hemorrhages were observed in the skeletal muscles and at the junction of the proventriculus and gizzard. Microscopic lesions included severe lymphoid necrosis and inflammation.

Molecular Analysis

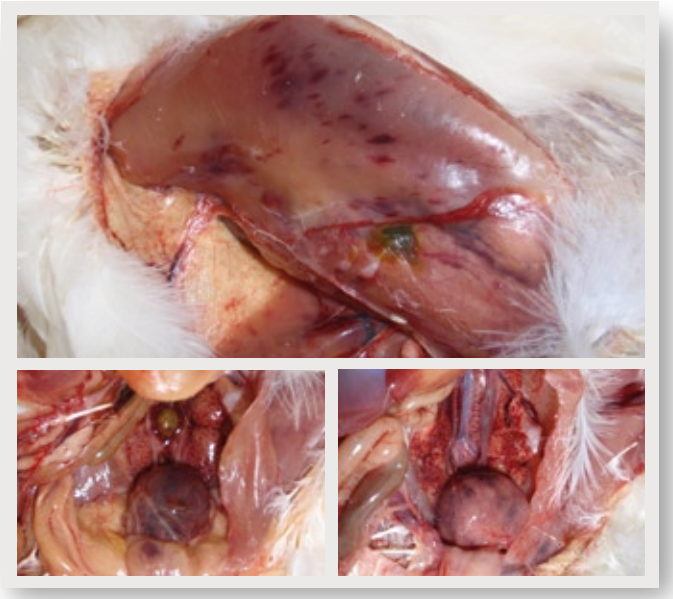
Bursa samples from the two pullet flocks were examined for IBDV. Using RT-PCR, the hypervariable sequence region of the VP2 gene (hvVP2) was amplified and sequenced. Both samples were positive for IBDV and the sequence obtained for the hvVP2 region was identical for both viruses. Furthermore, the predicated amino acid sequences of these viruses were identical to several vvIBDV including the type strains UK 661, OKYM and Harbin. Because vvIBDV reassortant viruses with lower pathogenicity have been identified (Le Nouen et al., 2006), it was necessary to examine the sequence of the smaller genome segment B that encodes VP1 of these viruses. The genome segment B nucleotide sequences examined from the two California viruses were identical and they were a 98.1% match with other vvIBDV strains. These molecular sequence data confirmed the vvIBDV identity of the two viruses from these California pullet flocks.

Pathogenicity Analysis

The two California vvIBDV were used to challenge four-week-old specific-pathogen-free (SPF) layer chickens. At a high dose ($10^{5.5}$ EID_{50}) and a low dose ($10^{2.0}$ EID_{50}) the mortality remained about the same and ranged from 91% to 100% in these birds. The gross lesions observed were typical of vvIBDV in SPF layer chickens.

Current Situation in the United States

Since these first two cases of vvIBDV in December 2008, chicken flocks in California have been carefully monitored for additional occurrences of the disease. A few vvIBDV infections were diagnosed in 2009 and 2010 in the same geographic region but it has not become widespread in California. The virus has been found in commercial broilers as well as other layers flocks in the region. Thus far, it has not been diagnosed outside the state of California. Recently a reassortant virus similar to that described by Le Nouen et al., (2006) was identified in a layer flock in California. This virus has an hvVP2 sequence identical to vvIBDV but the genome segment B sequence is more closely related to non-vvIBDV strains. The pathogenicity of this virus for four-week-old SPF layers was lower as predicted by Le Nouen and co-workers (2006).



The vvIBDV from California, causes hemorrhagic lesions in the skeletal muscles and bursa of 4-week-old SPF layers. Mortality in these birds ranged from 91% to 100%.

References

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A molecular survey of IBD viruses circulating in five European countries in 2008

In this issue of Lymfos NEWS, we have included the abstract of the study “A molecular survey of IBD viruses circulating in five European countries in 2008”, which Hipra presented during the XVI World Veterinary Poultry Congress, which was held in Marrakesh. The full study can be provided upon request.

In recent years, infectious bursal disease outbreaks have been increasing and have been reported in broilers in Europe as a result of the re-emergence of very virulent strains (vvIBDV). This fact demands continuous disease surveillance and the establishment of control measures in a timely way. In this study, a total of 87 broiler farms, located in Belgium, Germany, Poland, Portugal and The Netherlands, were studied for the presence of infectious bursitis both by clinical inspection and laboratory testing. Cloacal bursa samples from all flocks were imprinted on FTA cards for submission to the laboratory. Total RNA eluted from the cards was tested for IBDV by means of reverse transcription-polymerase chain reaction (RT-PCR) of the VP2 gene. IBDV-positive PCR products were characterized by restriction enzyme analysis (REA), partial sequencing and phylogenetic studies. Overall, tested samples showed a significant rate of positivity to IBDV, due to the presence of either vv- or classical-IBDVs. Moreover, the combination of paper-based sample collection and molecular analysis resulted in a rapid procedure for IBD outbreak confirmation. The apparently wide distribution of vvIBDV strains in Europe suggests that the use of current strong Gumboro vaccines is still required in the European poultry industry.

HIPRAGUMBORO® GM97: The safest protection against vvIBDV

We have designed a new 8-page leaflet for the vaccine, HIPRAGUMBORO® GM97.

The leaflet contains a number of trials that prove that HIPRAGUMBORO® GM97 is a comprehensive solution to dealing with most cases of Gumboro, particularly those in which very virulent Infectious Bursal Disease is involved.

The vaccine HIPRAGUMBORO® GM97, is able to confer total protection against the mortality and the reduction of the bursa size due to infections by vvIBDV.

In addition, the leaflet shows that the vaccine is second to none in the colonization of the bursa and the subsequent induction of humoral antibodies.

In comparative trials, the vaccine demonstrates the highest safety standards in the bursa. That is because it induces the lowest bursal damage and, afterwards, the organ experiences the fastest recovery.

The last part of the leaflet includes comparative field trials in which broiler flocks vaccinated with HIPRAGUMBORO® GM97 had an outstanding performance.

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A new package has been designed for the HIPRAGUMBORO® products.

At the farm level, the package makes it easier to identify the product that we are vaccinating with. In fact, the box is white and the name of each particular product is indicated in different lively colours for easy and quick identification.

Furthermore, the name of the product is included in the five sides of the box for more practical storage.

The name of the product range, HIPRAGUMBORO® is printed in blue, while the name of the vaccine strain is orange, in the case of HIPRAGUMBORO® GM97, and green in the case of HIPRAGUMBORO® CH/80.

A fresh look and a more practical use of the HIPRAGUMBORO® vaccines range.

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