S3-O5
DETECTION PATTERNS AND CLINICAL SIGNS CAUSED BY A NOVEL PATHOTYPE OF THE INFECTIOUS BURSAL DISEASE VIRUS IN FRANCE

G. González García [1], M. Pizarro Díaz [2], M. Legnardi [3], C. Chimienti [4], R. Pluchon [5], E. Moreau [1], J. Léorat [1], J. Sarabia Fragoso [1]

[1]*Ceva Santé Animale, Libourne, France*
[2]*Laboratorio de Anatomía Patológica Veterinaria, Av. Puerta de Hierro, s/n, 28040 Madrid, Spain*
[3]*Dept. of Animal Medicine, Production and Health (MAPS), Viale dell'Università 16, 35020 Legnaro, Italy*
[4]*Vet & Sphère Rue de la Corderie, 22800, Quintin, France*
[5]*Chêne Vert Conseil, Châteaubourg, France*

Infectious Bursal disease (IBD) is a disease that causes major economic problems for the poultry industry worldwide. Although it has been present in the European industry for decades, it is still evolving and becoming a less evident, subclinical disease. Previously, some authors have proposed that the genetic events (reassortment, recombination, mutations) of the IBD virus could have a direct impact in the pathogenicity of the virus, thus recommending a closer update of the clinical signs observed by the field veterinarian. Two Hubbard JA87 broiler farms (farm A and farm B) in North-Western France with previous history of IBD were chosen for diagnostic and monitorization of the disease. In both farms, 3 commercial IBD intermediate plus vaccines were used via drinking water with different application programs. Parameters analysed included a general overview of the situation in the farm at time of the visit, general symptoms, necropsy findings, performance and laboratory techniques including serology, RT-PCR and histopathology. Sampling was performed in 84 randomly selected birds in each farm, humanely euthanised according to ethics and regulation standards. Bursa of Fabricius (BF), thymus and spleen were recovered from 5 to 34 days of age (doa) for size measurement, RT-PCR and histopathology investigations. Individual sera were used to monitor the maternally derived antibody level and the general immune response to vaccination or the presence of foreign IBDV, by using a commercial ELISA kit. Differential diagnosis was performed to investigate possible concomitant diseases. 202 samples from BF, thymus and spleen were analysed by RT-PCR from 5-34 doa. Wild-type IBDV was detected in both farms (Genogroup A3, 98.4% homology with reassortant strain D4320/6, genbank accession no. MN786768). From all samples, 68/202 (33.7%) tested positive to wild-type IBDV, with higher detection rate after 21 doa. In farm B, an individual BF tested positive at 12 doa (individual ELISA IBDV titer of 1826). Thymuses and spleens tested positive too at 26 doa in farm B. The thymuses showed mild lesions like petechiae or general congestion. Between 21-34 doa, only 6/108 of the total samples (5.6%) tested positive to any vaccine strain (228E or V877). Detection of wild-type IBDV started at 21 doa (Farm A) and 22 doa (Farm B), with a peak between 25-29 doa, (81.5% positives). Serology showed a similar pattern, with increasing ELISA titres after 21 and 22 doa for farm A and B, respectively. The highest ELISA titres were reached at 32 doa (Farm A: 7984±885) and 29 days (Farm B: 8430±690). The BF increased in size from 19 to 22 doa, however, it shrank after 25 doa. Size came back to pre-peak patterns at 29 doa. This reassortant IBDV strain D4320/6 apparently follows a different lesion pattern when compared to vvIBDV, as already pointed out by other authors in previous works. Lesions are very mild, similarly to variant IBDV strains of the Genogroup A2 which circulate in other regions of the world. The D4320/6 IBDV strain could be detected via RT-PCR in an individual BF sample, as early as 12 doa, and widely after 21 doa. Histopathology confirmed the microscopic changes in the BF and the different degrees of inflammation, atrophy, and regeneration for genogroups A3 and A1. These findings have implications for correct veterinary diagnosis and monitoring in the field in Europe since the lesion patterns are different to that of very virulent IBDV. In face of a wider presence of reassortant strains in Europe, it is recommended to redefine macro- and microscopically the lesions and patterns of IBDV and to consider earlier sampling ages, adapted to the kinetics of these "new variant" reassortant strains. This will help avoiding false negative results for RT-PCR as a result of viral clearance in a regenerative stage.

Keywords
reassortant, gumboro, histopathology, PCR, IBD