

Epidemiology of infectious bursal disease virus in Portugal: replacement of local strains by Northwestern European reassortants as dominant field type

Legnardi Matteo¹, Duarte Isabel², Silva Marco Campelo², Poletto Francesca¹, Tucciarone Claudia Maria¹, Koutoulis Konstantinos, Cecchinato Mattia¹

¹ Department of Animal Medicine, Production and Health (MAPS), University of Padova, Legnaro, Italy

² Ceva Saúde Animal, Algés, Portugal

³ Department of Poultry Diseases, Faculty of Veterinary Science, School of Health Sciences, University of Thessaly, Karditsa, Greece

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Infectious bursal disease (IBD) is arguably the most relevant immunosuppressive disease to affect the worldwide poultry industry. It is caused by infectious bursal disease virus (IBDV), a highly resistant RNA virus featuring a significant genetic variability which in turn reflects on disease presentation, diagnosis and control. Encouraged by the recent proposal of multiple standardized classification systems based on phylogeny, many epidemiological surveys were conducted in the last years, greatly improving the understanding of IBDV epidemiology. In Portugal, the epidemiological scenario is seemingly undergoing a shift in terms of circulating field strains. Within the context of molecular diagnostic activities conducted since late 2020, pooled bursal samples were collected from broiler and layer flocks immunized with different vaccine types and protocols (37 in 2020, 69 in 2021, 56 in 2022, 43 in 2023). A first RT-PCR targeting the VP2 gene was performed, followed by Sanger sequencing to discriminate between vaccine and field strains. Then, the latter were subjected to another assay targeting the VP1 to genotype them according to the updated guidelines. This led to the discovery of a novel genotype with unique VP2 features, named A9B1, which despite the recent characterization appears to have circulated locally for more than a decade. Later analyses also captured the appearance in the country of the so-called Northwestern European reassortants (genotype A3B1), likely occurred during 2021. Following the entry of this second IBDV type, A9B1 strains rapidly went from being the sole field viruses (100% of field detections in 2020) detected in Portugal to representing a minority (50% in 2021, 11% in 2022, 17% in 2023) with A3B1 IBDVs becoming predominant instead. This finding mirrors what occurred in many countries across Western, Northern and Central Europe, where A3B1 reassortants quickly displaced historically circulating strains. The reasons for such evolutionary success are still undetermined, although their subclinical nature certainly thwarts diagnostic efforts and makes their clinical and economic consequences easy to underestimate. Despite the limited scale of this study, these results are significant not only for the Portuguese poultry sector, but also for all countries interested by the circulation of Northwestern European reassortants, calling for further monitoring to track how the epidemiological situation might evolve.