INTRODUCTION

Infectious bursal disease (IBD) is a worldwide, highly contagious disease of chickens caused by an Avirnavirus named IBDV (Van Den Berg et al., 2000). IBDV has a bi-segmented double-stranded RNA genome and during its replicative cycle destroys the developing B-lymphocytes in the bursa of Fabricius, resulting in immunosuppression and relevant economic due to the increased susceptibility to secondary infections and sub-optimal response to vaccinations (Balamurugan and Kataria, 2006).

An emerging IBDV genotype (ITA) was detected in Italy in IBDV-live vaccinated broilers without IBD clinical signs. VP2 sequence analysis of field isolates of ITA showed that strains of this genotype clustered separately from other IBDV reference strains, either classical or very virulent, retrieved from GenBank or previously reported in Italy, and from vaccine strains. It seems to be emergent in Italian densely populated poultry areas being the 68 % of the IBDV detections made during routine diagnostic activity over a two-year period (2013-2014) (Lupini et al., 2016).

AIM

To deepen the pathological characteristics of an IBDV genotype strain through the study of the persistence and tissue distribution in SPF chickens.

MATERIALS AND METHODS

1. Experimental design

At one day-old Specific Pathogen Free (SPF) chickens were used in the trial. The chickens were divided into 2 groups: infected group (ITA) composed by 30 birds and a negative control group including 15 birds. The groups were kept in two separate poultry isolators.

At 35 days of the each birth of group ITA were inoculated via oral route with 10^7 HI units of the field isolate IBDV/Italy/1829/2011. The control group was mock-inoculated.

Five animals from group ITA and three animals from the control group were euthanized in the following days post-infection: d.p.i 1, 2, 4, 7, 14, 21 and 28. From each euthanized bird cloacal swabs and tissue samples from bursa of Fabricius, kidney, liver, spleen, caecal tonsils, thymus, harder gland and bone marrow were collected.

RESULTS

1. Distribution and persistence of IBDV/Italy/1829/2011 viral RNA in tissues

Table II. Detection of IBDV in lymphoid and non-lymphoid tissues.

<table>
<thead>
<tr>
<th>d.p.i.</th>
<th>lymphoid tissues</th>
<th>non-lymphoid tissues</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Bursa of fabricius</td>
<td>spleen</td>
</tr>
<tr>
<td>2</td>
<td>5/5</td>
<td>5/5</td>
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<tr>
<td>4</td>
<td>5/5</td>
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<td>21</td>
<td>5/5</td>
<td>5/5</td>
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<td>28</td>
<td>4/5</td>
<td>1/5</td>
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</table>

*IBDV positive / total sampled.

- All lymphoid tissues were positive for IBDV up to the end of the trial.
- Non-lymphoid tissues were positive up to 21 d.p.i.
- Cloacal swabs a clearance point was observed at 4 d.p.i.

DISCUSSION AND CONCLUSION

This study shows that IATA vRNA can be detected in experimental conditions in SPF chickens for up to 28 d.p.i. in lymphoid organs, especially in bursa of Fabricius, caecal tonsil and bone marrow.

Interestingly, similar loads of vRNA in these organs were found in the end of the experiment. Hence, it indicates that caecal tonsils and bone marrow may serve as non-bursal lymphoid tissues that support virus persistence in chickens at later time points post-infection.

REFERENCES


Publications


 Oral communication and posters