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Blood Test

|                | Control | Group I | Group II | Group III | Group IV |
|----------------|---------|---------|----------|-----------|----------|
| Total Proteins | 8.5±0.2 | 7.2±0.3 | 6.3±0.2  | 4.5±0.46  | 4.3±0.3  |

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**CLINICAL AND PATHOLOGICAL FINDINGS IN SPONTANEOUS B.R.S.V. INFECTION IN YEARLING LAMBS**

*E. Redondo, J. Masot, E. Durán, A. Gázquez, V. Roncero*

Since 1968, when Dogget et al. first neutralized human R.S.V. in bovine serum, the involvement of R.S.V. in respiratory disease has been confirmed in cattle (Castlemann et al., 1985) as well as in other species, notably sheep (Cutlip et al., 1979). The purpose of this study was to analyze the clinical, hematological and pathological characteristics of a group of 8 lambs with B.R.S.V.

**Material and methods**

A clinical examination was carried out and rectal temperature, heart-rate and respiration-rate were recorded. Blood counts were accompanied by hemochromometric tests. Lambs were slaughtered and samples were routinely processed for virological analysis using cell cultures (Giemsa and T.E.M.), pathological analysis (T.E.M. and light microscopy) and immunological analysis (immunohistochemistry and IFI).

**Results**

*Clinical examination*

| Animals           | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| General condition |     |     |     |     | <   | <   | <   | <   |
| Anorexia          | 50% | 50% | 50% | 50% | 50% | 50% | 50% | 50% |
| Conjunctivitis    | +   | +   | +   | +   | ++  | ++  | +++ | +++ |
| Nasal discharge   | ++  | +   | +   | +   | ++  | ++  | +++ | +++ |
| Cough             |     | +   | -   | -   | +   | ++  | ++  | +++ |
| Heart-rate        | 81  | 78  | 92  | 94  | 101 | 100 | 110 | 107 |
| Respiratory-rate  | 60  | 63  | 76  | 73  | 65  | 60  | 65  | 80  |

(-) = Absence; ( ) = moderate decrease; (<) = severe decrease; (+) = moderate increase; (+++) = severe increase.

Blood counts

| Animals                         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |
|---------------------------------|------|------|------|------|------|------|------|------|
| Erythro. (10 <sup>6</sup> ) mm  | 11.2 | 11.5 | 9.8  | 10.2 | 10.5 | 10.6 | 8.9  | 8.9  |
| Hematocrit. (%)                 | 34.4 | 34.8 | 32   | 33.6 | 33.5 | 34.9 | 30.6 | 30.9 |
| Hb (gr/100 ml)                  | 11.9 | 11.7 | 10.8 | 10.9 | 11.2 | 11.6 | 10.2 | 10.2 |
| Leukocyte (10 <sup>3</sup> ) mm | 14.8 | 13.8 | 13.7 | 15   | 14.2 | 14.3 | 15.5 | 16.1 |

**References**

1. Redondo E. et al. (1987): Clin. Vet. 110, 195-206. — 2. Rosenbruck M. et al. (1984): Zbl. Vet. Med. B. 31, 413-423. — 3. Shiota K. et al. (1983): Jpn. Vet. Sci. 48, 15-22.

*Virological findings:* The observation of syncytia gave evidence of a cytopathic effect. Each syncytium contained 7-8 nuclei. Ultrastructural analysis revealed mature and gemmating viral particles on the cell surface and within the cytoplasm.

*Pathological findings:* Gross pathology: Animals 1-6 showed in dorsocaudal areas evidence of acute interstitial pneumonia, with interlobular edema and subpleural and interlobular interstitial emphysema. Animals 7 and 8 simultaneously showed lesions caused by fibrinous bronchopneumonia in cranioventral areas.

*Histopathological findings:* In animals 1-6, interstitial pneumonia was accompanied by a thickening of interalveolar septal due to abundant mononuclear infiltration. Clusters of inflammatory cells linked in syncytial configurations were visible in the alveolar and bronchial lumen. Animals 7 and 8 showed evidence of bronchiolitis obliterans with fibrino-cellular exudation, particularly in cranioventral areas.

*Immunological findings:* Fluorescence obtained with various anti-gens:

| Animal | BRSV  | IBRV | PI III virus | BVD virus | P.hemolyt. |
|--------|-------|------|--------------|-----------|------------|
| 1      | 1/640 | -    | -            | -         | -          |
| 2      | 1/640 | -    | -            | -         | -          |
| 3      | 1/640 | -    | -            | -         | -          |
| 4      | 1/320 | -    | -            | -         | -          |
| 5      | 1/320 | -    | -            | -         | -          |
| 6      | 1/640 | -    | 1/20         | -         | -          |
| 7      | 1/640 | -    | -            | -         | 1/320      |
| 8      | 1/320 | -    | -            | -         | 1/320      |

*Immunohistochemistry (PAP):* Positive reactions were observed in non-ciliated cells of bronchial epithelia, in macrophages and mononuclear cells in the bronchial and alveolar lumen and in macrophages in the alveolar interseptum.

**References**

1. Castleman W. L. et al. (1985): Am. J. Vet. Res. 46, 547-553. — 2. Cutlip R. C., Lehmkuhl H. D. (1979): Am. J. Vet. Res. 40, 1479-1482.