Resarches Regarding the Evolution of some Sanguine and Metabolic Parameters in Calves with Respiratory and Digestive Affections Treated with Natural Products

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Abstract. The experiment was made on an effective of 30 calves of races Austrian Simmenthal. In this study, there were taken 15 individuals which represented the experimental lot (E). with symptoms as diarrhea, tachypnea, nasal discharge, cough, epiphora, normothermy and decreasing of fertility. The witness batch (M) is constituted of healthy calves, without digestive and respiratory symptoms. The calves from the (E) batch were given, oral, the medicinal extract. The laboratory exams were focused on determining the total number of erythrocyhes, hemoglobin, leukocytes and transaminases. The leukocyte formula of leucocytes reveals that after administration of medicinal extracts it is found evidence of an increased number of lymphocyte and a decrease in the number of neutrophils.

Keywords: calves, lingonberry, roadweed, treatment, hematological, biochemical,

INTRODUCTION

Enteropathy, pneumopathy an other inflammatory affections in cattle contribute to a series of important losses because of high procentage of morbitidity and mortality on young bovines in the first two months of life.

Digestive and respiratory diseases in calves produce important losses in cattle farms by losing in growth factor and by slaughter need, which are uneconomic measures.

Classic curative drug therapy based on antiinfectioous needs an administration of expensive drugs, whis is not always efficient and effective (Catănă, 1998, Fodor et. al., 2000).

Growing interest worlwide for alternative and complemetary veterinary medicine, especially for phytotherapy, made us investigate the effects of some medicinal extracts obtained from lingonberry (Vaccinium vitis idea) and roadweed (Plantago species) in some lung and digestive disorders (Birdane and Aslan, 2003).

MATERIALS AND METHODS

The experiment was made in a private cattle farm from Timis district, on an effective of 30 calves of races Austrian Simmenthal.

The calves are located in common boxes (5 calves in one box), and were being treating in the same conditions of microclimate and nutrition.

In the study, there were taken 15 individuals which represented the experimental group (E). Clinically, they were presenting symptoms as diarrhea, tachypnea, nasal discharge, cough, epiphora, normothermy and decreasing of fertility.
The control group (M) is constituted of healthy calves, without digestive and respiratory symptoms. The calves from the E group were given, oral, the medicinal extract: 5ml/twice daily/individ, for 10 days.

For evaluating the phytoterapeutical effects of the medicinal extract, calves have been harvested blood at the beginning and at the ending of experiment.

The laboratory exams were focused on determining the total number of erythrocytes (haemocytochromia), of hemoglobin (Sahli) and of leukocyte formula (Diff and Quick). Biochemical were determined transaminases from the blood serum (GOT, GPT), of gammaglutamyl transferase (GGT).

**RESULTS AND DISCUSSIONS**

The evaluation of phytotherapy with vegetal extracts in calves with digestive and lungs affections was made upon results reveaved from laboratory tests, before and after the 10 days of applying the treatment. Those results are presented in the table 1.

<table>
<thead>
<tr>
<th>Group</th>
<th>Erythrocytes</th>
<th>Hemoglobin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td>E group</td>
<td>5,0</td>
<td>5,2</td>
</tr>
<tr>
<td>M group</td>
<td>5,7</td>
<td>5,8</td>
</tr>
<tr>
<td>Reference values</td>
<td>6,8±1,4</td>
<td>6,8±1,4</td>
</tr>
</tbody>
</table>

Analysis of data presented in Table 1 that studied calves, both the group E, and the group M, throughout the experiment, it was found that calves had low values of the number of erythrocytes compared with data from literature.

Clinically, was installed a state of anemia, shown by a color (porcelain white) more open of the apparent mucosal. Expression state of anemia, both clinical and laboratory adverse can be put in evidence by low hemoglobin values. This condition is itself a risk factor, both for digestive disease and respiratory (Meyer and Harvey, 2004).

The average percentage of leukocyte formula to the two categories of groups studied is shown in Table 2.

<table>
<thead>
<tr>
<th>Group</th>
<th>Harvest I</th>
<th>Harvest II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>N</td>
</tr>
<tr>
<td>E group</td>
<td>60</td>
<td>31</td>
</tr>
<tr>
<td>M group</td>
<td>58</td>
<td>36</td>
</tr>
<tr>
<td>Reference values</td>
<td>57±10</td>
<td>37±11</td>
</tr>
</tbody>
</table>

L – lymphocytes, N – neutrophils, M – monocytes, B – basophiles, E – erythrocytes
In the analysis of data presented in Table 2, in terms of percentage values presented in leukocyte formula of the two types of plots taken in the study, were found following:

- the number of lymphocytes in experimental group increased gradually at the end of the experiment, this value was 72±1%, value that indicates a significant increase of the lymphocytes from the beginning of the experiment;
- increased recorded at the end of the experiment may be in direct correlation with the fact that these blood elements are involved in specific cellular defense of the organism.

While if the second harvest is a pretty significant decrease of the percentage of neutrophils from 31 percent at the beginning to 20 percent at the end.

Neutrophils calves subjected to the experiment are included in the physiological limits, both the E group, and M group, recording a significant decrease in the E lot at the end of treatment.

The percentage of eosinophile of calves treated is included in physiological limits, in both groups, in the case of the second harvest of blood, and it was found an insignificant eosinophilia early treatment.

The percentage of monocytes, respectively basophils of all experimental groups are included in the reference limits.

Hepato-enzyme profile of the experiment refers to the significance of laboratory transaminases from the blood serum (ASAT, ALAT) and of the gammaglutamyl transferase (GGT).

<table>
<thead>
<tr>
<th>Group</th>
<th>I</th>
<th>II</th>
<th>I</th>
<th>II</th>
<th>I</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td>E group</td>
<td>14</td>
<td>18.5</td>
<td>50.2</td>
<td>42.4</td>
<td>64</td>
<td>68</td>
</tr>
<tr>
<td>M group</td>
<td>14.5</td>
<td>16</td>
<td>45</td>
<td>32</td>
<td>62</td>
<td>64</td>
</tr>
<tr>
<td>Reference values</td>
<td>15±3</td>
<td>37±12</td>
<td>30÷60</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Activity of serum GGT, serum enzyme affinity with hepato biliary, evident in calves subjected to treatment during the whole experiment, are included in the normal limits.

The exception, the calves in the experimental group E, at the second harvest of blood, was obtained a value included well above the upper limit of the reference data – 18,5 UI.

Aspartate aminotransferase (ASAT) encountered frequently in calves study, recorded relatively high values at the beginning of the experiment, compared to the end, when the reduction becomes evident.

From the biochemical perspective, of all lots of calves, in the entire experimental period, registered values of Alanine aminotransferase (ALAT) are relatively increased by reported reference values.

This it has a direct correlation to this state of anemia characterized by reduced values of the number of erythrocytes and hemoglobin.

CONCLUSIONS

The study in calves before, during and after the experiment, the blood serum is found in this state of anemia.
The leukocyte formula of leucocytes reveals that after administration of medicinal extracts it is found evidence of an increased number of lymphocyte and a decrease in the number of neutrophils.

Preparations based on medicinal herbs do not contain antiinfectious, they are not remaining in tissues and organs, and they are representing an alternative to alopatic therapy.

In serious cases, complicated, phytotherapy are recommended to be associated with classical antiinfectious.

REFERENCES