EFFECT OF GESTATIONAL PERIODS ON BLOOD PICTURE AND DIFFERENTIAL COUNT OF WBCs IN IRAQI BUFFALOES

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Abstract

The present study was conducted on 15 local Iraqi buffaloes in AL-Thahab AL-Abiad village, Baghdad provenance during the period between May 2018 – June 2019, their age ranged from 4-7years. The animals diagnosed clinically by rectal palpation the eliminated that the animals were non-pregnant and not suffered from any reproductive problems and reproductive problems and they were taken blood samples (10 ml) from jugular vein in tube containing anticoagulant (EDTA) before inseminated animals and become pregnant, blood samples for blood picture and differential count of WBCs in non-pregnant Iraqi buffaloes (No = 15) and third trimesters after insemination and pregnancy, which include RBCs count, Hb, PCV, MCV, MCH and MCHC as well as differential count of WBCs by using spectrophotometric methods, Micoheamatocite in addition to Giemsa stain to evaluate the effect of pregnancy on blood parameters, the result showed significantly decrease (P<0.05) in blood picture and significantly increase in most differential count of WBCs that they indicated the effect of pregnancy on this parameters include (blood picture and differential count of WBCs).

In conclusions, there which study was to improvement the important evaluation of different WBCs blood picture and counts for effecting on pregnancy in Iraqi buffaloes.

Key words : Blood picture, buffaloes, RBCs, Neutrophils.

Introduction

Blood pictures are getting increase in recent studies in veterinary science as related of the nutrition, metabolic, physiologic and reproductive status of domestic animals (Abd Ellah et al., 2014; Beechler et al., 2009; Yaqub et al., 2013). Reference evolutions from many indices become imperative as to diagnosis, preventing and controlling program of many disease or limitation the gestation period (Ellah et al., 2013; Patel et al., 2016; Paul et al., 2011). they are many different factors include age, breed and physiological status effect on hematological analysis (Jacob, 2012; Kumar et al., 2001), while the pregnancy and lactation are the most important stages in the life of dairy animals that they effect on metabolism and the results recorded alteration of the hematological parameters (Fagiolo et al., 2004; Hussain et al., 2001; Patel et al., 2016). As well as the hematologic values represented the health status of the animal and can be used to help evaluate the health a herd (Hasanpour et al., 2008; Patil et al., 1992). The purpose of this study is to evaluate for complete blood count of clinically healthy local Iraqi buffaloes as well as to study the influence of different stages of pregnancy on different blood parameters of this animals.

Materials and Methods

The present study was conducted on 15 local Iraqi buffaloes in AL-Thahab AL-Abiad village/Baghdad provenance during the period between May 2018 – June 2019, their age ranged from 4-7years. The animals diagnosed clinically by rectal palpation the eliminated that the animals were non-pregnant and not suffered from any reproductive problems and reproductive problems and they were taken blood samples (10 ml) from jugular vein in tube containing anticoagulant (EDTA) before
Effect of Gestational Periods on Blood Picture and differential Count of WBCs in Iraqi Buffaloes

inseminated animals and become pregnant.

Total RBCs count was determined by using hemocytometer according to Blaxhall and Daisley (1973) as well as hemoglobin (Hb) estimated by using spectrophotometric method, while PCV was measured by Microhematocrit, WBCs was achieved by using Neubauer hematocytometer but the differential count by using Giema stain and there procedures was repeated on those animals along gestation period represented by three trimester (1st, 2nd and 3rd), 1st trimester include 1st, 2nd and 3rd months of pregnancy, 2nd trimester include 4th, 5th and 6th months and 7th month to parturated animals was represented the third trimester. Analysis of data were performed and one way ANOVA and least significant difference post hoc test were used according to Steel and Torrie (1980).

**Results**

The results revealed in table 1 recorded superior significantly (P<0.05) related with non-pregnant buffaloes and 1st trimester compared with 2nd and 3rd trimester of pregnancy, which include RBCS Count, Hb, PCV, MCV and MCHC, but recorded non-significantly (P<0.05) in MCH in different groups.

While the result in table 2 were recorded significantly (P<0.05) in WBCs count in 2nd and 3rd trimester of pregnancy compared with non-pregnant and 1st trimester, but the percentage of lymphocyte was recorded significantly (P<0.05) in 1st and 2nd compared with non-pregnant and 3rd trimester, as well as the percentage of monocyte was recorded significantly (P<0.05) in non-pregnant group and 3rd trimester of pregnancy compared with 1st and 2nd groups and there is significant difference (P<0.05) in 1st group of pregnancy compared with 2nd group, but the percentage of neutrophil were recorded significantly (P<0.05) in 2nd and 3rd groups compared with non-pregnant group and 1st group, while the percentage of eosinophil’s was recorded significantly (P<0.05) in non-pregnant groups and 1st group compared with 2nd and 3rd groups and same time recorded significantly (P<0.05) in 2nd group compared with 3rd group, as well as the results recorded the percentage of basophils there is significantly (P<0.05) in non-pregnant and 3rd groups compared with 2nd and 3rd groups.

**Discussion**

In pregnant Iraqi buffaloes the blood picture observed in table 1 that they recorded significantly differences (P<0.05) related with RBCs, Hb, PCV, MCV and MCHC in non-pregnant and first trimesters of pregnancy and this findings agree with Ciaramella et al.

**Table 1 :** Blood picture in non-pregnant and in different stages pregnant Iraqi buffaloes.

<table>
<thead>
<tr>
<th>Blood parameters</th>
<th>Non-pregnant buffaloes M±SD</th>
<th>First trimester of pregnancy M±SD</th>
<th>Second trimester of pregnancy M±SD</th>
<th>Third trimester of pregnancy M±SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>RBCs (x10⁶/µl)</td>
<td>7.9±2.1a</td>
<td>7.6±1.8 a</td>
<td>6.8±1.3 b</td>
<td>6.3±0.8 b</td>
</tr>
<tr>
<td>Hb(g/dl)</td>
<td>11.6±1.7a</td>
<td>11.5±2.5 a</td>
<td>10.4±1.02 b</td>
<td>9.8±0.9 b</td>
</tr>
<tr>
<td>PCV(%)</td>
<td>36.4±3.8 a</td>
<td>34.5±3.2 a</td>
<td>29.6±2.7 b</td>
<td>27.8±2.3 b</td>
</tr>
<tr>
<td>MCV(µm³)</td>
<td>46.4±11.4 a</td>
<td>45.3±10.8 a</td>
<td>43.5±9.2 b</td>
<td>42.4±8.7 b</td>
</tr>
<tr>
<td>MCHC(%)</td>
<td>31.2±1.8 a</td>
<td>30.6±1.5 a</td>
<td>28.4±0.9 b</td>
<td>28.8±0.8 b</td>
</tr>
<tr>
<td>MCH(pg)</td>
<td>14.6±3.6 a</td>
<td>15.2±3.1 a</td>
<td>15.3±2.8 a</td>
<td>15.5±2.9 a</td>
</tr>
</tbody>
</table>

Different small letters mean in the same row significantly different (P<0.05)

**Table 2 :** Differential count of WBCs in non-pregnant and pregnant Iraqi buffaloes in different stages.

<table>
<thead>
<tr>
<th>WBCs types</th>
<th>Non-pregnant buffaloes M±SD</th>
<th>First trimester of pregnancy M±SD</th>
<th>Second trimester of pregnancy M±SD</th>
<th>Third trimester of pregnancy M±SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBCs (x10³/µl)</td>
<td>9.6±3.4 b</td>
<td>10.2±3.6 b</td>
<td>10.8±3.4 a</td>
<td>11.2±3.8 a</td>
</tr>
<tr>
<td>Lymphocytes (%)</td>
<td>51.2±7.80 b</td>
<td>53.3±7.92 a</td>
<td>55.2±8.62 a</td>
<td>49.4±7.58 b</td>
</tr>
<tr>
<td>Monocytes (%)</td>
<td>4.7±2.03 a</td>
<td>3.6±1.84 b</td>
<td>2.4±1.34 c</td>
<td>4.8±2.14 a</td>
</tr>
<tr>
<td>Neutrophils (%)</td>
<td>37.2±9.36 b</td>
<td>38.1±8.32 b</td>
<td>40.2±8.72 a</td>
<td>42.3±8.79 a</td>
</tr>
<tr>
<td>Eosinophils (%)</td>
<td>5.6±2.47 a</td>
<td>4.5±2.12 a</td>
<td>3.7±1.78 b</td>
<td>2.2±1.04 c</td>
</tr>
<tr>
<td>Basophils (%)</td>
<td>1.3±0.56 a</td>
<td>0.5±0.13 b</td>
<td>0.5±0.11 b</td>
<td>1.3±0.32 a</td>
</tr>
</tbody>
</table>

* Different small letters mean in the same row significantly different (P<0.05).
(2005), Ellah et al. (2013) and they believed that the fetus caused stress on dam and need to blood supply to the uterus for increased nutrition, while the MCH recorded non significantly (P<0.05) in all stages of pregnancy and non-pregnant animal, but the differential count of WBCs was recorded significantly differences (P<0.05) in number of WBCs and neutrophils in 2nd and 3rd trimesters compared with non-pregnant and 1st trimester of pregnancy (Ellah et al., 2013; Lal Vegad, 2000) as well as monocytes and basophils recorded superior significant (P<0.05) in third trimester compared with other trimesters and non-pregnant and these finding agreement with (Ciaramella et al., 2005; Ellah et al., 2013).

Conclusion
The blood picture and differential count of WBCs play an important and improvement method to eliminate the effect of pregnancy in Iraqi buffaloes.

References