CERTAIN HAEMATO-BIOCHEMICAL ALTERATIONS DURING POST-PARTUM UTERINE PROLAPSE IN BUFFALOES (BUBALUS BUBALIS)

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ABSTRACT

The present study was carried out on 12 buffaloes, six having uterine prolapse and six animals having normal parturition. The blood samples were collected from each animal on the day of occurrence of uterine prolapse (day 0) and on the seventh day. For comparative studies blood samples were collected from normal parturited buffaloes on the day of parturition (day 0). In present study changes in the haemoglobin, total leucocyte count, serum calcium, inorganic phosphorus and magnesium were studied. The mean values of serum calcium and inorganic phosphorus were significantly (p<0.01) lower in the buffaloes with prolapsed uteruses on the day of uterine prolapse. The values came to nearly normal on the seventh day after treatment and statistical variation was non significant. The mean concentrations of haemoglobin and serum magnesium did not differ significantly. The mean leucocyte count was significantly (p<0.01) greater in the buffaloes suffering from uterine prolapse.

Key words: Uterine prolapse, buffalo, genital prolapse.

INTRODUCTION

Prolapse of uterus is regarded as one of the major reproductive disorders in buffaloes and causes great economic loss to farmers (Seth, 1970). However, the exact etiology and epidemiology of this condition remains unclear. Hypocalcemia results in atony of the uterus and delay in cervical involution, both of which could predispose to uterine prolapse in buffaloes (Odegaard, 1977 and Roberts, 1986). The purpose of this study was to investigate the possible relationships of certain haemato-biochemical changes, viz. haemoglobin, total leucocyte count, serum calcium, inorganic phosphorus and magnesium with buffaloes suffering from uterine prolapse.

MATERIALS AND METHODS

The study was conducted on 12 buffaloes, six having uterine prolapse and six animals having normal parturition. The blood samples were collected from each animal on the day of occurrence of uterine prolapse (day 0) and on the seventh day. For comparative studies, the blood samples were collected from normal parturited buffaloes on the day of parturition (day 0).

Fifteen ml of blood was collected from the jugular vein of each buffalo. Two ml of blood was poured in sterile vial containing anticoagulant (ethylene diamine tetra acetic acid @ 2 mg/ml of blood) for haematological studies.

The remaining 13 ml of blood was collected in a centrifuge tube and allow to clot. After clotting, samples were transported immediately to the laboratory and the serum was separated out. The separated serum was centrifuged at 2500 rpm for 10 minutes (Brar et al., 2002). The serum was collected in sterile vials and kept at -20 °C till biochemical estimations. Student’s ‘t’ test was applied to compare the significant changes, as per the method described by Snedecor and Cochran (1994).

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Table 1. The mean values of haemato-biochemical parameters in buffaloes with prolapsed uteruses and normal buffaloes (Mean ± SE).

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Buffaloes with prolapsed uteruses</th>
<th>Normal buffaloes</th>
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<tbody>
<tr>
<td></td>
<td>0th day</td>
<td>7th day</td>
</tr>
<tr>
<td>Haemoglobin (gm/100 ml)</td>
<td>11.50 ± 0.45</td>
<td>11.60 ± 0.44</td>
</tr>
<tr>
<td>Total leucocyte count (thousand/cu.mm.)</td>
<td>10.21 ± 0.38**</td>
<td>7.09 ± 0.25</td>
</tr>
<tr>
<td>Serum calcium (mg/100 ml)</td>
<td>7.05 ± 0.23</td>
<td>9.12 ± 0.25</td>
</tr>
<tr>
<td>Serum inorganic phosphorus (mg/100 ml)</td>
<td>3.64 ± 0.15</td>
<td>5.17 ± 0.18**</td>
</tr>
<tr>
<td>Serum magnesium (mg/100 ml)</td>
<td>3.00 ± 0.14</td>
<td>3.47 ± 0.15</td>
</tr>
</tbody>
</table>

** Highly significant (p<0.01)

Figure 1. Uterine prolapse in buffalo

The Hb and total leucocyte count was estimated as per the procedure described by Jain (1986). Serum calcium was estimated by OCPC method using an Erba Manheim kit as described by Moorehead and Briggs (1974) and values are expressed in mg/100 ml.

Serum inorganic phosphorus was estimated by a modified Metol method using Qualigens Diagnostic kit as described by Gomorri (1942) and the values are expressed in mg/100 ml.
Serum magnesium was estimated by the colorimetric method using a Merck lab diagnostic kit as described by Gindler (1971) and the values are expressed in mg/100 ml.

RESULTS AND DISCUSSION

In the present study, mean values of haemato-biochemical norms are presented in Table 1. The haemoglobin concentration did not differ significantly between normal buffalo and those with uterine prolapse on days 0 and 7. Similar findings were reported by Pandit et al. (1982a). The total leucocyte count was significantly higher (p<0.01) in buffaloes suffering from uterine prolapse on day 0 when compared to control and day 7. However the values were found to be non significant in comparison to the values of the seventh day. The significantly higher leucocyte count in buffaloes with uterine prolapse may be due to stress or urinary tract infection. Sharma et al. (1977) reported genital prolapse due to urinary tract infection.

The mean levels of serum calcium and inorganic phosphorus were significantly lower (p<0.01) in buffaloes with prolapsed uteruses on the day of prolapse (day 0) in comparison to the levels on the seventh day and to control animals. The levels of serum calcium rose to nearly normal on the seventh day and the statistical variation was non significant. Similar findings were reported by Pandit et al. (1982b) and Mandali et al. (2002). It seems that calcium is required for cell membrane permeability, muscle contraction and nerve impulse transmission, and its deficiency can result in reduced uterine muscle tone and ultimately the resultant uterine prolapse (Herrick, 1977 and Roberts, 1986). The mean levels of serum magnesium did not differ significantly from the values of control animals.

REFERENCES


