STUDIES ON CLINICAL EFFICACY OF SOME THERAPEUTIC REGIMENS FOR THE MANAGEMENT OF ENDOMETRITIS IN COWS

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Received 03 March 2018, revised 03 May 2018

ABSTRACT: A total of 124 cows were treated with various therapeutic regimens by different routes. In the first group, Ciprofloxacin was administered through intrauterine route with clinical recovery of 87.88 percent and were inseminated in subsequent estrus with conception rate (CR) 48.28 per cent. In second group, clinical response was observed in 95.20 per cent to intra muscular administration of ciprofloxacin with CR of 50.00 per cent. Third group showed clinical recovery in 87.50 per cent animals administered gentamicin intra uterine with CR of 47.62 per cent. Likewise, clinical response and conception rate was 95.40 and 52.63 per cent, respectively after intramuscular administration of gentamicin. Similarly, 0.1 per cent Lugol’s iodine yielded CR of 42.86 per cent amongst 87.50 per cent clinically recovered animals. In untreated control repeat breeder cows, CR was 20.00 per cent whereas amongst normal cyclic cows 55.00 per cent animals conceived. Non-significant (p>0.05) improvement in conception rate was achieved in present study.

Key words: Endometritis, Antibiotics, Conception rate, Repeat breeder cows.

Purulent vaginal discharge and cytological endometritis are associated with impaired subsequent reproductive performance in postpartum dairy cows (Dubuc et al. 2010, Adnane et al. 2017). It affects the general health of animals and adversely affects their reproductive performance (Amiridis et al. 2003). The presence of bacteria in the uterus causes the uterine inflammation, histological lesions of the endometrium and delays uterine involution (Sheldon et al. 2003). In addition, uterine bacterial infection or bacterial products suppress pituitary LH secretion and perturb postpartum ovarian follicle growth and function, which disrupts ovulation in cattle (Opsomer et al. 2000). Thus, clinical endometritis is associated with lower conception rate (CR), increased intervals from calving to first service or conception and more culls for failure to conceive (LeBlanc et al. 2002).

For decades, endometritis in cows has been treated with intrauterine infusion of a bewildering array of substances and these are now receiving a scrutiny. There are no recommended doses for most of the drugs available for intrauterine use (Singh et al. 2004, Gilbert et al. 2005). Therefore, treatment of repeat breeder bovines suffering from endometritis needs proper selection of antibiotics/antibacterials/antiseptics so as to prevent development of resistant strains of microbes and to eliminate the infection as quickly as possible.

Keeping in view the above facts, the present study envisages use of commonly used antibiotics/antibacterials/antiseptics their route of administration and post treatment fertility in affected animals following treatment with specific antibiotics.

The study

The present work was conducted in 124 repeat breeder cows suffering from endometritis presented in the Clinical Complex of College of Veterinary and Animal Sciences, Himachal Pradesh Agriculture University, Palampur, India (32.6°N, 76.3°E, and altitude 1290.8 m). Cows were randomly selected for treatment studies after thorough clinico-gynaecological examination and those showing post treatment clear cervico-vaginal discharge (CVD; n=110) were inseminated in different groups using frozen thawed semen.

In all the groups, the treatment was started on day 0 (first day of estrus with turbid CVD) and continued for...
next 3 days. In subsequent normal estrus, the cows showing clear CVD were inseminated. Another 10 animals with turbid CVD were not given any treatment (untreated controls) and were inseminated. Additionally, 20 normal cyclic cows were employed as normal controls and were inseminated. Pregnancy diagnosis was carried out 60 days post AI by rectal palpation method in cows not returning to estrus within this duration. Distribution of experimental cows in different treatments and insemination groups has been shown in Table 1.

Out of 124 cows given different treatments, 110 (88.71%) animals responded. All these animals (n=110) were inseminated with frozen semen. In present study, 87.80 per cent animals responded clinically to treatment with an overall CR of 48.28 per cent in first group. Similar results (47.00%) with regards to conception have been reported earlier (Singh et al. 2004) following treatment with ciprofloxacin whereas Das (2004) recorded high CR (80.00%) with ciprofloxacin on second insemination basis.

In second group, the clinical response was observed in 95.24 per cent with conception rate of 50.00 per cent. However, quite a high CR (80.00%) with enrofloxacin, a quinolone group antibacterial has been recorded when given through parenteral route at therapeutic doses (Kumar et al. 2004).

In third group, clinical response was observed in 86.36 per cent with CR of 52.63 per cent. When injected intramuscularly, the endometrial tissue concentration of gentamicin sulphate is reported to exceed serum concentrations (Haddad et al. 1987). It has been observed that sufficiently high concentration of gentamicin accumulates in the uterine lumen of cows 6 hours after intra muscular administration @4mg/Kg body weight (Al Guedawy et al. 1983).

In fourth group, clinical response was observed in 87.50 per cent with CR of 42.86 per cent. In untreated control animals (n=10), only 2 (20.00%) conceived. Das (2004) also recorded a similar CR (20.00%) in cows given no treatment. In normal cyclic

<table>
<thead>
<tr>
<th>Treatment groups</th>
<th>Drug and Dose</th>
<th>Route of administration</th>
<th>No. of animals treated</th>
<th>Responded clinically and inseminated</th>
<th>Conceived</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ciprofloxacin @5mg/kg b.wt. o.d X 3 days</td>
<td>Intrauterine</td>
<td>33</td>
<td>29</td>
<td>14</td>
<td>48.28</td>
</tr>
<tr>
<td>2</td>
<td>Ciprofloxacin @5mg/kg b.wt. o.d X 3 days</td>
<td>Intramuscular</td>
<td>21</td>
<td>20</td>
<td>10</td>
<td>50.00</td>
</tr>
<tr>
<td>3</td>
<td>Gentamicin @4mg/kg b.wt. o.d X 3 days</td>
<td>Intrauterine</td>
<td>24</td>
<td>21</td>
<td>10</td>
<td>47.62</td>
</tr>
<tr>
<td>4</td>
<td>Gentamicin @4mg/kg b.wt. o.d. X 3 days</td>
<td>Intramuscular</td>
<td>22</td>
<td>19</td>
<td>10</td>
<td>52.63</td>
</tr>
<tr>
<td>5</td>
<td>Lugol’s iodine (0.1%) @30ml X 3 days</td>
<td>Intrauterine</td>
<td>24</td>
<td>21</td>
<td>9</td>
<td>42.86</td>
</tr>
<tr>
<td>6</td>
<td>Untreated Control</td>
<td>-</td>
<td>10</td>
<td>2</td>
<td>20.00</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Normal Control</td>
<td>-</td>
<td>20</td>
<td>11</td>
<td>55.00</td>
<td></td>
</tr>
</tbody>
</table>
cows without any clinical abnormality, a CR of 55.00 per cent was recorded. This is in close agreement with the findings of Singh et al. (2004) who also recorded 55.00 per cent CR in control group. Kumar et al. (2004) recorded a lower CR (44.40%) in normal breeding cows.

Factors to consider in the selection of antimicrobials for the treatment of endometritis are the uterine environment, pathogen, minimum inhibitory concentration of the pathogen, route of administration of the antimicrobial agent or vehicle, antimicrobial and/ or carrier agent used for the intrauterine therapy, treatment economics and therapy outcome (Sharma et al. 2017).

It has been concluded in a study that systemic, rather than intrauterine treatment achieves adequate concentration of gentamicin in blood serum and endometrial tissue, which is particularly necessary in cases of septic metritis. Also, systemic administration eliminates the risk of damage to genital tract and of introducing new organisms into the site of infection (Haddad et al. 1987). Similar results with regards to CR i.e. intramuscular (52.6%) v/s intrauterine treatment (47.6%) were obtained in the present study.

REFERENCES


