

Effect of Antibiotics in the Treatment of Retention of Fetal Membranes in Holstein Fresian x Deoni Cows

Failure of the placenta to be expelled during the third stage of labor, it is a common postpartum complication in ruminants particularly in cattle (Hafeze, 1993), primarily due to failure of the fetal villi to detach themselves from the maternal crypts. It is more common in dairy than beef breeds and adversely affects the milk production and fertility owing to delayed uterine involution leading to increased inter calving period (Blood *et al.*, 1989). Fetal membranes should expel within twelve hours after calving in healthy animals but retention of the placenta beyond twelve hours in cattle is considered as pathologic and it may be due to nutritional deficiency or due to other infectious agents. Retained fetal membranes (RFM) can be removed forcefully but it may cause postpartum septic metritis. Although extensive putrefactive changes occur if the placenta is retained for several days, antibiotic therapy is more effective than manual removal of the placenta (Hafeze, 1993). Hence, this study was made to explore the relative effect of antibiotics on retention of fetal membranes.

Thirty Holstein Fresian x Deoni crossbred cows with retention of fetal membranes were selected for the experiment since 2003-2006 at UAS Dairy Unit, Dharwad. Eighty two calvings were recorded, out of which thirty animals showed retention of placenta. These animals were classified in to 5 groups with 6 animals in each group. Commonly used antibiotics were selected for the study and were administered systemically with standard dose for 5 days to different groups of animals and recorded different parameters from calving to conception. Group T1 treated with Enrofloxacin, T2 with Oxytetracycline (OTC), T3 with Amoxycillin + Cloxacillin, T4 with Cephalixin and T5 acted as control with no medication. The data analyzed statistically with Snedecor and Cochran 1989.

The result shown in table depict that the variation in the different parameter with different antibiotics. Bolinder *et al.* (1988) reported that manual removal caused an immediate problem which may probably due to the physical damage of uterine tissue. Manual removal also prolonged the interval from calving to first functional corpus luteum by 20 days. The mechanism of therapy for RFM in the cow have been extensively reviewed (Paisley, *et al.*, 1986, Peters and Laven, 1996), service index and service period recorded in all the groups of animals.

Involution normally completed by 30-45 days postpartum (Hafez, 1993). In this experiment, involution days ranged from 27.53 ± 1.9 to 41.66 ± 2.29 days. Which is within the normal range in all 4 groups of animals when compared to control (41.66 ± 2.2 days) animals. Among the groups Cephalixin (T4) showed early involution of the uterus with 27.5 ± 1.9 days followed by T3 (32.8 ± 3.6 days), T1 (33.0 ± 2.06 days) and T2 (34.3 ± 3.05 days), groups. Between the groups the difference was statistically ($P < 0.05$) significant. Shivakumar, *et al.* (2001) reported that Enrofloxacin treated group has shown early involution compared to control group.

Resumption of estrus cycle depends upon the nutritional level of the animal. The interval from parturition to first estrus ranges from 30 to 72 days in dairy breed. (Hafeze, 1993). The early FPPO was observed in OTC (T2) administered group (54.33 ± 8.43 days) followed by T1 (67.6 ± 17.7), T3 (85.16 ± 11.2) and T4 (89.8 ± 9.7) but in control group it was 103.2 ± 21.8 days). The results were statistically non significant. Shivakumar *et al.* (2001) reports that animal treated with enrofloxacin showed FPPO as early as 20 days after parturition. Oxytetracycline was very effective in reducing FPPO in bovines was reported by Masera (1980). It is clear that by administering antibiotics FPPO days can be reduced effectively and inter calving period gets reduced. Barrogy (1994) reported that postpartum uterine and ovarian activity in dairy cows may be achieved early when treated with antibiotics. The main objective of a reproductive program in a dairy herd should be to maximize pregnancy rate (PR) to first service (Carlos, 2004).

Service index was least in T3 (Amoxycillin + Cloxacillin) and T2 Oxytetracycline treated group with (1.3 ± 0.2) followed by T1 (1.60 ± 0.3), T4 (1.8 ± 0.3) and conversely in control group it was more (2.10 ± 0.8). But the results were statistically non significant. It indicates that animals with ROP when treated had less number of inseminations per conception compared to control animals. Results concures with Barragry (1994) with respect to Amoxycillin + Cloxacillin combination.

Oxytetracycline (T2 group) was very effective in bringing down the service period (82.83 ± 13.6 days). In other groups the service period was 122.16 ± 5.92 (T4), 128.75 ± 21.9

Table . Effect of antibiotics on reproductive parameters

	Involution (days)	FPPO day	Service Index (No)	Service period (days)
T1 Enrofloxacin	$33.0 \pm 2.06a$	$67 \pm 17.7a$	$1.6 \pm 0.3a$	$128.75 \pm 21.9a$
T2 Oxytetracycline	$34.33 \pm 3.05a$	$54.33 \pm 8.43a$	$1.30 \pm 0.2a$	$82.83 \pm 13.6a$
T3 Amoxycillin + Cloxacillin	$32.8 \pm 3.60a$	$85.16 \pm 11.2a$	$1.3 \pm 0.2a$	$110.75 \pm 12.5a$
T4 Cephalixin	$27.53 \pm 1.92a$	$89.83 \pm 9.70a$	$1.8 \pm 0.3a$	$122.16 \pm 5.92a$
T5 Control	$41.66 \pm 2.29b$	$103.2 \pm 21.1a$	$2.1 \pm 0.6a$	$130.66 \pm 10.7a$
CD	5.8	NS	NS	NS
CV%	16.2	20	18	21

Significant ($P < 0.05$) numbers bearing same superscript do not differ each other

(T1) and 130.66 ± 10.7 (T3) days. In control group the days for conception were 110.75 ± 12.5 days. But the results were statistically non significant between the groups ($P < 0.05$). When retained fetal membranes are left untreated had a longer calving to conception (days) interval (Barragry, 1994), Masera *et al.*, 1980)

Reproductive parameters like SI, SP and FPPO days were lowest in Oxytetracycline (T2) group and involution was

least in Amoxycillin + Cloxacillin (T3) group. The overall effect of antibiotics in treated groups showed early involution, early first postpartum oestrus days, low service index, low service period compared to control (untreated) groups. Treating retention of fetal membranes (ROP) with antibiotics is better rather than without treating. Hence, treating with antibiotics may reduce inter calving period and increase the life time crop production of cows.

Dairy Unit, Main Agri. Res. Station
University of Agricultural Sciences,
Dharwad - 580 005, India

BHAGEERATHI
M. C. SHIVKUMAR
V. S. KULKARNI
G. K. CHANDRAKALA

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