

Efficacy of pre and post AI administration of sterile Ceftriaxone sodium on conception rate in normal and repeat breeding crossbred cattle*

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ABSTRACT

A total of 77 normal and repeat breeder crossbred cows were treated with single dose sterile Ceftriaxone sodium. The Ceftriaxone sodium were infused intra-uterine 8-12 hr either pre or post-insemination during same estrus to evaluate the efficacy of the medicine on the conception rate of apparently normal and repeat breeding cows. In normal animals the conception rate percentages with pre & post A.I. Ceftriaxone sodium treatment were 53.84 and 57.14 as compared to 33.33 and 33.33%, respectively for control group. Similarly in repeat breeding cows, the conception rates were 50 and 50.14% with pre and post AI treatment as compared to 16.66 and 16.33%, respectively for control group. The differences were highly significant ($P < 0.01$).

Key words : Repeat breeding, conception rate, antibiotic infusion, artificial insemination

The success of dairy cattle economics lies in ensuring proper and optimal reproductive rhythm of each individual female in the herd within the normal physiological limits. A wide variety of microflora infect female genital tract and play a significant role by causing inflammation of endometrium. In addition, metabolites of bacteria and inflammatory exudates alter the pH of uterine and vaginal fluid resulting in failure of conception due to death of spermatozoa or fertilized ovum (Hatch *et al.*, 1949 and Raghavan *et al.*, 1971).

Various antibacterial drugs have therefore, been tried from time to time to over-come the problem of conception failure in cows with variable results, as the majority of repeat breeding cases are due to low grade bacterial infection (Krishnamurthy, 1974). The present trial was conducted with the aim to evaluate the efficacy of sterile Ceftriaxone sodium at single dose levels in normal and repeat breeder cross-bred cows.

MATERIALS METHODS

The study was carried out on 77 cross bred cows belonging to private organized farms at Ranchi (Jharkhand). The cows which failed to conceive for three

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or more than three times either naturally or artificially were included in the trial. The cows included had a regular estrus cycle with normal genital tract and estrous period without any palpable pathological abnormalities in their reproductive tract. The experimental animals were allotted to 4 treatment and 4 control groups.

One gram of sterile Ceftriaxone sodium was dissolved in 30 ml of sterile distilled water and infused intra-uterine 8-12 hours either pre or post AI. Each cow was inseminated at mid-heat with good quality frozen semen. The response of treatment was assessed on the basis of pregnancy diagnosis performed between day 50-60. The efficacy of sterile Ceftriaxone sodium was worked out by considering the conception rates in the treatment and control groups.

RESULTS AND DISCUSSION

During the present study one gm of sterile Ceftriaxone sodium diluted in 30 ml sterile distilled water was infused intra-uterine either pre or post AI in normal and repeat breeding cross bred cows.

The conception rates observed in normal and repeat breeding cows after pre AI infusion of drug were 53.84 and 50.00 %, respectively as compared to 33.33

Table 1: Effect of pre AI Vetaceph infusion on conception rate in normal and repeat breeding cases.

Animals	No. of animals treated	No. of animals conceived	C.R.	χ^2 value (%)
Normal	13	7	53.84	3.1287*
Control R.B.	6	2	33.33	
Control	12	6	50	3.1201**
Control	6	1	16.66	

** = P < 0.01

Table 2: Effect of post AI Vetaceph infusion on conception rate in normal and repeat breeding cases.

Animals	No. of animals treated	No. of animals conceived	C.R.	χ^2 value (%)
Normal	14	8	57.04	3.809**
Control R.B.	6	2	33.33	
Control	14	7	50.14	3.809**
Control	6	1	16.66	

** = P < 0.01

Table 3: Effect of pre & post A.I. Vetaceph infusion on conception rate in normal and repeat breeding cases.

Animals	No. of animals treated	No. of animals conceived	C.R.	χ^2 value (%)
Normal	Pre AI 13	7	53.84	0.0229 ^{NS}
R.B.	Post AI 14	8	57.14	
	Pre AI 12	6	50	0.1547 ^{NS}
	Post AI 14	7	50	

NS= Non-significant

Table 4: Comparison of normal vs repeat breeding cows in pre & post AI Vetaceph infusion.

Animals	No. of animals treated	No. of animals conceived	C.R.	χ^2 value (%)
Normal	Pre AI 13	7	53.84	0.0369 ^{NS}
R.B.	Pre AI 12	6	50	
Normal	Post AI 14	8	57.14	0.00732 ^{NS}
R.B.	Post AI 14	7	50	

NS= Non-significant

and 16.66 % in control group for normal and repeat breeding animals. The chi-square test (table 1) indicated significant ($P < 0.01$) effect of pre AI. Intra-uterine infusion of sterile Ceftriaxone sodium in both normal and repeat breeding cows. Similarly in the case of post AI intrauterine sterile Ceftriaxone sodium infusion, higher conception rates were observed in normal (53.84%) and repeat breeding (50.14%) cows, as compared to their respective controls (33.33% and 16.33%). Chi-square test also (table 2) indicated significant ($P < 0.01$) effect of post AI intra-uterine infusion of Ceftriaxone sodium in normal and repeat breeding cows. No report on the use of Ceftriaxone sodium through intra-uterine route for improvement of conception either in normal or repeat breeding animals could be gathered from the available literature; hence the present result could not be compared. However, the beneficial effect of intra-uterine infusion of antimicrobial agents in the repeat breeding animals have been reported by various workers (Sharma *et al.*, 1978; Dabas *et al.*, 1995; Roy, 2002; Srivastava and Kharche, 2003).

The conception rates obtained with the pre and post AI, drug infusion were compared with each other, but the differences were found to be non-significant in both normal and repeat breeding groups (table 3). In the normal animal, the conception rate was higher in post AI (57.14%) than that in pre AI (53.84%) drug infusion groups. In the case of repeat breeding cows the conception rates was almost equal (50.00% and 50.14%) both in pre and post AI treatment (table 3). Although the conception rates with pre and post AI Ceftriaxone sodium administration were higher (53.84% and 57.14%) in normal animals than the repeat breeding animals, the differences were statistically non-significant.

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