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Short Communication

Induction of parturition with prostaglandin in Black Bengal goats*

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ABSTRACT

The present study was conducted on twenty-four healthy pregnant Black Bengal goats. Parturition was induced successfully in advance stage of pregnancy using intramuscular injection of 0.15, 0.22 and 0.30 mg of Tiaprost, a $PGF_2\alpha$ analogue on day 136. The parturition induction interval, time from onset of kidding to expulsion of fetus (es), time from delivery of last fetus to expulsion of fetal membranes were shortest with 0.22 mg Tiaprost followed by 0.30 and 0.15 mg dose. There was no adverse effect of treatment on fetal membranes expulsion. It was concluded that parturition could be induced successfully by using different doses of $PGF_2\alpha$ analogue.

Key words: Goat, induction, parturition, prostaglandin

Controlled or desired time parturition offers several advantages out of which the major one is better supervision of parturition process which enhances survival of new born. Maintenance of pregnancy in goat is dependent throughout gestation period on the secretion of Progesterone by functional corpus luteum (Irving *et al.*, 1972). By virtue of luteolytic effect, $PGF_2\alpha$ injection causes prepartum luteolysis (Bretzlaff and Ott, 1983), a consequent fall in Progesterone level (Tanaka *et al.*, 1983) and rise in estrogen level (Thakur and Verma, 1990) leading to induction of parturition (Wentzel *et al.*, 1978).

Therefore, $PGF_2\alpha$ and its analogues have been used successfully to induce parturition in goats (Thakur and Verma, 1990). $PGF_2\alpha$ has also been reported to shorten parturition interval (Singh *et al.*, 1985) without any adverse effect on fetal membranes (F.M) expulsion, kid weight, kid survivability and post partum fertility (Haibel and Hull, 1988; Thakur and Verma, 1990).

The present experiment was conducted on twenty-four pregnant Black Bengal goats maintained under semi intensive system in Goat Breeding Farm of Ranchi Veterinary College, Ranchi. The animals were allotted to four groups consisting of six animals in each. Tiaprost (Illiren) a $PGF_2\alpha$ analogue was administered on day-136 of pregnancy in 3 dose regimens as 0.15 mg im in T_1, 0.22 mg im in T_2, and 0.30 mg im in T_3 group. The T4 group served as control, which received 1 ml NSS im on day 136. The time and date of injection was noted and the interval from injection to onset of kidding, interval from induction of parturition to expulsion of fetus (es), parturition of last fetus to expulsion of fetal membranes were also recorded. Statistical analysis of data was done by using standard formulae and methods described by Snedecor and Cochran (1968).

In the present study the interval from injection to onset of parturition varied from 35.33 ± 1.11 to 48.17 ± 0.26 hr in different treatment groups. It was significantly ($p<0.01$) shorter in the $PGF_2\alpha$ groups than the saline treated control (151.75 ± 13.35 hr). The interval was shortest with 0.22 mg dose (35.33 ± 1.11hr) followed by 0.30 mg (35.50 ± 2.89 hr) and 0.15 mg (48.17± 0.26 hr) dose. No significant differences ($p< 0.05$) could be observed among different doses of PGF2α. Similar observations have also been reported by Bretzlaff and Ott (1983); Karakaya & Elicin (1995); Arsoy Basaran *et al.* (1997). However, the interval from treatment to

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Table 1. Average time taken for induction of parturition and expulsion of fetus and fetal membranes after treatment.

Groups		Interval from injection (hrs.)				Expulsion of fetal membranes
		Onset of Parturition	Expulsion of fetus (es)			
			1st	2nd	3rd	
Treatment groups	T1	48.17 ± 1.52[b]	48.68 ± 1.05[b]	48.68 ±0.00[b]		50.81 ± 1.47[b]
	T2	35.33 ± 1.11[b] (6)	35.81± 1.11[b] (6)	35.58±1.30[b] (5)	35.68±0.00 (1)	37.94±1.36[b]
	T3	35.50±2.89[b] (6)	35.99±2.90[b] (6)	41.29±3.69[b] (3)		38.09±2.95[b]
Control		151.75±13.35[a] (6)	152.25±13.34[a] (6)	143.49±18.26[a] (3)		154.31±13.29[a]

Figures in parenthesis are number of observations.
Values bearing same superscript in a column didn't differ significantly.

onset of parturition was higher than that reported by Ott *et al.* (1980); Singh *et al.* (1985); Haibel & Hull (1988); Thakur & Verma (1990); Christopher *et al.* (1997), where as slightly lower values have been reported by Mc Dougall (1990); Elicin *et al.* (1995) and Romano *et al.* (2001). Variations in the results might be due to differences in age, breed, parity and weight of the does, individual variations, season, climate, nature/ dose of drug or day of injection.

There is paucity of reports on the study of average time taken for expulsion of fetus (es) and fetal membranes after parturition onset in the case of induced as well as natural parturition. During the present study, treatment did not show any significant effect on the course of parturition. However, present results are in accordance with findings of Singh *et al.* (1985) who reported that $PGF_2\alpha$ treatment had no significant effect on the time interval between start of parturition pain to kidding. FM expulsion time in $PGF_2\alpha$ treated groups were also slightly longer than that reported by Romano *et al.* (2001). Variations in the duration of parturition and expulsion of FM might be due to difference in breed. Thus the result of present study showed that $PGF_2\alpha$ could be used safely for desired time parturition in goats for better animal husbandry practices.

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