REPRODUCTIVE PERFORMANCES OF CRESTAR AND PMSG ADMINISTERED TO POSTPARTUM ANOESTRUS COWS

H.C. Nath, D.J. Dutta, A. Dutta and R.K. Biswas*
Department of Animal Physiology, College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati - 781 022, India

ABSTRACT

The reproductive activities like oestrus, conception and cyclicity in postpartum anoestrus cows following Crestar ear implant and PMSG injection were studied. Out of 10 postpartum anoestrus cows, 9 exhibited oestrus 30.81±1.43 hours after Crestar ear implant was removed after 9 days with PMSG injection @ 300 IU on the day of implant removal. The duration of induced oestrus was 19.11±0.34 hours. All oestrus cows had ovulated. Five out of 9 cows conceived at induced oestrus. Four animals which did not conceive, exhibited first natural oestrus after 20.8±3.61 days. Out of these four cows, only three conceived. The remaining one cow resumed normal cyclicity. The animals completed their term on an average 280.44±2.35 days after insemination. The mean birth weight of calf was 10.56±1.32 kg with male and female ratio of 1:3.

INTRODUCTION

Failure of the cows to express postpartum oestrus early in the breeding season is a serious problem. The availability of hormonal therapy to overcome acyclicity in true anoestrus, irrespective of primary cause, would be of great advantage where husbandry and nutrition are often only marginally adequate. Attempts were made earlier to overcome the problem of postpartum anoestrus in crossbred cattle of Assam (Ahmed, 1998, Tamuli et al., 2002) with certain hormone-like substances. However, reports on efficacy of hormonal treatments in postpartum anoestrus indigenous cows of Assam are lacking. Therefore, the present study was undertaken to observe the reproductive performance of postpartum anoestrus cows following Crestar ear implant and PMSG administration.

MATERIAL AND METHODS

A total of 10 postpartum anoestrus cows with a history of normal calving that had no signs of oestrus upto 90 days following parturition having smooth ovaries were taken for the present experiment. The cows were maintained under semi-intensive system of rearing with standard managemental practices. Clinicogynaecological examination was carried out in all cows as per the procedure of Zemjanis (1970) during the experiment.

The selected cows were subjected to Crestar ear implant (Intervet Pvt. LTD.) containing 3 mg norgestomet at the base of the ear. Each application was followed immediately by intramuscular administration of 2 ml Crestar injection containing 3 mg norgestomet and 5 mg oestradiol valerate. The day of implant insertion was considered as day of treatment. The implant was removed on day 9 of the treatment. On the day of implant removal, Folligon (PMSG : Intervet Pvt. LTD.) @ 300 IU was administered intramuscularly to each of the treated animal.

The animals were observed for occurrence of oestrus following implant removal, by parading a vasectomised bull and repeated at 2 hours interval. The time at which the female allowed the male to mount over her was considered as onset of oestrus and the time when the female refused the male to mount over her was considered as cessation of oestrus.

Artificial insemination was carried out on two occasions during 8-10 hours of oestrus.

*Department of Veterinary Gynaecology, Obst. and AI, College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati – 781 022, India.
and 15-17 hours after the onset of oestrus. Ovulation was confirmed by the presence of corpus luteum over the surface of the ovary on day 9 of post oestrus by rectal examination and serum progesterone estimation. Conception was confirmed by rectal palpation on day 45 of post insemination and serum progesterone profile. Animals that had conceived, completed their term and recorded the gestation length. Animals which failed to conceive were observed for occurrence of subsequent oestrus. Birth weight of calf born following insemination was recorded.

RESULTS AND DISCUSSION

In the present study, 9 out of 10 postpartum anoestrous cows exhibited oestrus following hormonal treatment. The mean interval from completion of hormonal treatment to oestrus exhibition was 30.81±1.43 hours with a range of 22.00 to 37.50 hours.

The time interval of oestrus exhibition in the treated group corroborated with the findings of Tjondronegoro et al. (1987) who detected behavioural oestrus within 24 to 36 hours after completion of hormonal treatment in postpartum anoestrous cows. The shorter time interval to exhibit oestrus after hormonal treatment observed in the present study might be due to the administration of PMSG in combination with progesterone and oestrogen. Gonzalez-Stagnaro et al. (1981) also reported that postpartum cows showed induced oestrus within 48 hours after the end of treatment that included norgestomet implant for 7 to 9 days plus PMSG at the time of implant withdrawal.

The mean duration of induced oestrus was 19.11±0.34 hours with a range of 18 to 21 hours. This findings corroborated with the results of earlier workers (Pawshe et al., 1991; Dhande et al., 1994 and Krishnakumar and Subramanian, 1999).

Oestrous females showed 100 per cent ovulation confirmed by rectal palpation on day 9 post onset of oestrus. Petit et al. (1978) also observed that cent per cent postpartum cows ovulated after treatment with progesterone, oestradiol benzoate and PMSG. Five out of 9 cows that ovulated at induced oestrus conceived, the percentage of conception was being 55.56. This was in agreement with the findings of Gonzalez-Stagnaro et al. (1981) who reported 56.2 per cent conception rate in postpartum crossbred cows following combined hormonal treatment of progesterone and PMSG. The lower conception rate might be due to failure of fertilization owing to the fact of delayed ovulation. Four out of 9 cows that were induced to oestrus exhibited first natural oestrus after 20.8±3.61 days interval. All (100%) animals that exhibited natural oestrus with ovulation following induction of oestrus. Pant and Gupta (1996) reported 90 per cent ovulation at the first natural oestrus in postpartum buffalo cows. The 100 per cent ovulation rate recorded in the present study might be due to adequate preovulatory LH surge from the hypothalamus due to sufficient amount of oestrogen released from ovarian follicle. The number of cows that conceived after resumption of natural oestrus was found to be 3 out of 4 that had ovulated after oestrus, the conception rate being 75 per cent. Similar findings were also reported by Das (1995) in postpartum cows, who recorded 100 per cent conception rate at first natural oestrus followed by induced oestrus. However, a lower conception rate of 62 per cent was recorded by Kyle et al. (1992) during first natural oestrus after induced oestrus in postpartum cows. The difference in conception rate might be due to inclusion of small number of cows in different study. The animals that conceived, completed their normal term (Roberts, 1971 and Hafez, 1987) with an average 280.44±2.35 days. The mean birth weight of calf born following insemination at induced oestrus was 10.49±1.30 kg with
similar birth weight of 10.61±1.28 kg at first and female ratio of calves was 1:3. natural oestrus in indigenous cattle. The male

REFERENCES