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Hormonal Profile in Superovulated Buffaloes following Ablation of Dominant Follicle

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Variability in superovulatory response and the recovery of transferable embryos is due to variation in hormonal profile induced by superovulatory treatment and individual variation in their ovulatory response to treatment. The most important factor that affects the superovulatory response and quality of embryos is endocrine changes that occur following superovulatory treatment (Roberge *et al.*, 1995). The present study was designed to evaluate the hormonal profile in superovulated buffalos following dominant follicle ablation.

Materials and Methods

Fourteen experimental buffaloes were randomly divided into two groups; group 1 (treated; n=7) had dominant follicle aspirated by ultrasound (Pie Scanner-200, Pie Medical Equipments B.V., Netherland) guided transvaginal needle aspiration on Day 9 (Day 0 = Day of estrus) and group 2 (control; n=7) in which no dominant follicle ablation was done. Buffaloes were subjected to similar superovulatory treatment starting from day 10 of estrous cycle with a total i/m dose of 600 mg NIH-FSH-P1 per animal in tapering split doses over 5 days at 12 h intervals. Luteolysis was induced with Tiaprost trometamol (0.98 mg, i/m) after initiation of superovulatory treatment (Day 13). Both the ovaries of superovulated buffaloes were palpated per rectally a day before embryo collection for number of CL to evaluate superovulatory response. Embryo flushing was performed by gravitational method on day 5½ of estrus.

Blood samples from buffaloes of both groups were collected before starting superovulatory treatment (Day 9), on day of PG administration (Day 13), day of superovulatory estrus, day 1 and 2 of superovulatory estrus and on day of embryo collection (Day 20) for progesterone and estrogen estimation. Sampling at 4 h intervals over a period of 32 h was commenced 26 h after the administration of PG for LH estimation. Blood serum was separated and stored at -20°C till analysed. Serum samples were estimated for progesterone and estradiol by Radioimmunoassay (RIA) using RIA kits (Immunotech®, France). Luteinizing hormone was estimated in blood serum by Enzyme Linked Immunosorbent Assay (ELISA) using ELISA kits (BIOSERV Diagnoistics GmbH, Rostock, Germany).

Data generated during the study were analysed and the differences between means were compared using analysis of variance.

Results and Discussion

The serum progesterone concentration in both treated and control groups (Table), before initiation of superovulatory treatment (day 9 of estrus) were almost similar to the findings (3.35±0.51 ng/ml) of Chauhan *et al.* (1994). A significantly higher progesterone concentration was recorded on day 13 ($P<0.05$) in treated animals (Kharche *et al.*, 2001) following hormone (hCG) induced ablation of dominant follicle. This might be due to the luteotropic action of administered FSH and due to presence of functional CL. The progesterone concentration declined following prostaglandin injection and again increased 72 hr after superovulatory estrus constantly until day of embryo collection in both the groups (Beg *et al.*, 1996). The mean serum progesterone concentrations on day of embryo collection (day 20) in treated and control animals (Table) were

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