Effect of dexamethasone administration on cortisol concentration and biochemical profile in buffaloes suffering from dystocia

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Abstract

The present study was undertaken to evaluate adrenal response and biochemical changes in the blood following dexamethasone (DEX) administration at the time of parturition and during the immediate postpartum period in buffaloes suffering from dystocia. Plasma cortisol concentration, blood glucose, plasma total proteins, and non-esterified fatty acids (NEFA) were evaluated. Plasma cortisol concentration was higher (P < 0.01) in dystocia groups than the eutocia group on the day of parturition. There was a significant reduction (P < 0.0001) in plasma cortisol concentration on Day 1 postpartum in the DEX-treated group. Dexamethasone treatment maintained higher levels of blood glucose (P < 0.05) and NEFA (P < 0.0001 to P < 0.05) and marginally lowered the total protein level. This study demonstrated that the hypothalamo-pituitary-adrenal axis was responsive to DEX suppression during the immediate postpartum period following dystocia, and DEX treatment was found to be beneficial in promoting metabolism to meet energy demands during stress.

Keywords: adrenal response, buffaloes, cortisol, dexamethasone, dystocia.