Express of progesterone receptor membrane component (PGRMC) 1 and 2, serpine mRNA binding protein 1 (SERBP1) and nuclear progesterone receptor (PGR) in the bovine endometrium during the estrous cycle and the first trimester of pregnancy

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Abstract

Progesterone (P4) is involved in the regulation of essential reproductive functions affecting the target cells through both nuclear progesterone receptors (PGRs) and membrane progesterone receptors. The aim of this study was to determine the mRNA and protein expression for PGRMC1, PGRMC2, SERBP1 and PGR within the bovine endometrium during the estrous cycle and the first trimester of pregnancy. There were no changes in PGRMC1 and PGRMC2 mRNA and protein expression during the estrous cycle, however, mRNA levels of PGRMC1 and PGRMC2 were increased (P < 0.001) in pregnant animals. SERBP1 mRNA expression was increased (P < 0.05), while the level of this protein was decreased (P < 0.05) on days 11–16 of the estrous cycle. The expression of PGR mRNA was higher (P < 0.01) on days 17–20 compared to days 6–10 and 11–16 of the estrous cycle and pregnancy. PGR-A and PGR-B protein levels were elevated on days 1–5 and 17–20 of the estrous cycle as compared to other stages of the cycle and during pregnancy. In conclusion, our results indicate that P4 may influence endometrial cells through both genomic and nongenomic way. This mechanism may contribute to the regulation of the estrous cycle and provide protection during pregnancy.

Keywords

Nongenomic effect; Progesterone; PGRMC1; PGRMC2; Endometrium; Cow