

Prolonged Gestation in Cows Carrying IVP Calves is Not Predicted by Bovine Pregnancy-Specific Proteins B

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Prolonged gestation is well recognized in cattle carrying *in vitro* produced (IVP) pregnancies, but to date has been largely uninvestigated. Increasing gestational length beyond the typical 285-day average is associated with larger birthweight and poor outcomes in the resultant neonate. Increased incidence of prolonged gestation and large offspring syndrome (LOS) have been reported with the use of IVP and *in vitro* fertilization (IVF). *In vitro*-produced embryos often display inferior binucleate trophoblast cell development and activity compared to *in vivo*-derived embryos, resulting in lower levels of hormones like progesterone and pregnancy-associated glycoproteins (PAGs) in maternal circulation. It has previously been reported that cows carrying conventional pregnancies with prolonged gestation have lower concentrations of PAGs at term. This work aimed to assess maternal serum concentrations of the PAG, Bovine Pregnancy-Specific Proteins B (PSPB), in cows with prolonged gestation and subsequently delivering a LOS affected calf. Blood samples were collected from nine prolonged gestation IVF recipient heifers (GL 290 ± 2 days) and seven control pregnant heifers (GL 275 ± 5 days) with pregnancies conceived by artificial insemination. PSPB was measured using a Sandwich ELISA. Concentrations of PSPB were compared using a Welch t-test. PSPB concentrations in prolonged gestation IVF females (Median: 1.4551 ng/ml, Range: 0.8211 – 2.1345 ng/ml) were not different ($P=0.9459$) from those of control pregnancies (Median: 1.3024 ng/ml, Range: 0.9025 – 2.0434 ng/ml). Our findings suggest that serum PSPB concentration may not be a reliable indicator of prolonged gestation in cattle carrying LOS pregnancies as it is in prolonged gestation of conventional pregnancies.