

Use of a Compounded Proprietary Long-Acting Progesterone Formulation for Maintenance of Pregnancy in Mares

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Despite a paucity of data supporting its efficacy, administration of exogenous progesterone to pregnant mares in an effort to enhance maintenance of pregnancy continues to be a widespread practice. Progesterone supplementation is often empirically performed in mares that have a history of repeated pregnancy failure when no specific factor causing pregnancy loss is identified. Two forms of progesterone commonly used for this purpose require daily oral administration of the synthetic progestin altrenogest (ReguMate®) or daily intramuscular administration of progesterone in oil; however, the need for daily administration of these products is a major drawback to their use. Although there have been attempts to develop a long-acting formulation of progesterone that can be administered at weekly (or longer) intervals, an efficacious commercially-available product is not currently available. The objective of this study was to test the efficacy of a compounded proprietary long-acting progesterone formulation (BioRelease P4 LA 150; BETPHARM, Lexington, KY) containing 150 mg progesterone/ml for pregnancy maintenance in mares after prostaglandin (PG) $F_{2\alpha}$ -induced luteolysis.

Mares were randomly assigned on Day 18 of gestation (ovulation = Day 0) to one of four groups (n = 7/group): 1) saline-treated control (Saline), 2) PGF $_{2\alpha}$ -treated control (PGF), 3) PGF $_{2\alpha}$ - and ReguMate-treated (ReguMate) and 4) PGF $_{2\alpha}$ - and BioRelease P4 LA 150-treated (BioRelease). On Day 18, Saline mares received 1 cc sterile saline IM, while PGF, ReguMate and BioRelease mares received 250 μ g cloprostenol IM. Beginning on Day 18, ReguMate mares received 10 cc ReguMate orally once daily and BioRelease mares received 10 cc BioRelease P4 LA 150 IM once every seven days; these treatments were continued until Day 45 or until pregnancy loss occurred. Pregnancy diagnosis was performed every three days between Days 18 and 45 (or until the time of pregnancy loss). Pregnancy loss was defined as complete absence of a discernable embryonic vesicle. Pregnancy loss rates between Days 18 and 45 were: Saline, 1/7; PGF, 7/7; ReguMate, 1/7; and BioRelease, 0/7. The pregnancy loss rate was higher ($P < 0.01$) in PGF $_{2\alpha}$ -treated control mares compared to the other groups. There was no difference ($P > 0.1$) in pregnancy loss rates between saline-treated control, ReguMate-treated and BioRelease P4 LA 150-treated mares. These results indicate that administration of BioRelease P4 LA 150 every seven days provided sufficient levels of progesterone to maintain pregnancy throughout the study period in mares that lacked an endogenous source of progesterone; therefore, this long-acting formulation of progesterone is an efficacious and suitable alternative to currently available progesterone formulations that require daily administration.