

Evaluation of BioRelease Altrenogest LA 150 For Maintenance of Pregnancy in Mares

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Introduction

Progestin-treated non-cyclic mares are now frequently used as embryo recipients in large commercial programs. The practice is becoming particularly popular early in the year when cyclic recipients are frequently in short supply. Based on current research, only daily oral altrenogest (Hinrichs et al 1986; McKinnon et al 1988; 2000; Carnevale et al 2000, progesterone in oil given every 24 to 48 hours, or once weekly long acting progesterone treatments (Ball et al 1992; Vanderwall et al 2003; Bringel et al 2003; 2004; Pessoa et al 2004) appear suitable for pregnancy maintenance in non-cyclic or ovariectomized recipient mares. The new once weekly controlled release formulations are advantageous in commercial programs because of the reduced labor and the associated handling stress to the animals and producers. Furthermore, such formulations offer veterinarians an important means of maintaining effective compliance rates on farms with wide varieties of management systems. The present study was designed to evaluate the effectiveness of 2 doses of a new sustained release injectable altrenogest formulation on the maintenance of pregnancy in prostaglandin treated mares.

Materials and Methods

Nine pregnant light-horse mares (18.33; range 16 to 21 days) were maintained on native pasture and ad libitum hay at the MPV horse unit for this study. Verification of pregnancy was determined by ultrasound, between day 12 and 16 post-ovulation and again the day of prostaglandin and altrenogest treatment (Sept 6, 2006). After confirmation of pregnancy, mares were bled for progesterone determination and randomly assigned to one of two treatments which are presented in table 1.

Table 1 BioRelease Altrenogest Treatments	
Treatment 1A –Low Dose	Treatment 1B
1.5 mL BioRelease Altrenogest LA 150** (225 mg) 2 mL of the prostaglandin dinoprost tromethamine^^	1.5 mL BioRelease Altrenogest LA 150 (225 mg)
Treatment 2A -High Dose	Treatment 2 B
3 mL BioRelease Altrenogest LA 150** (450 mg) 2 mL of the prostaglandin dinoprost tromethamine^^	3 mL BioRelease Altrenogest LA 150 (450 mg)
**Compounded Prescription : Mt Laurel Veterinary Pharmacy, Mt Laurel, AL ^^ (Lutalyse®, Pfizer Animal Health, www.lutalyse.com)	

Day of treatment 1 (d 0) was simultaneous with the injection of Lutalyse. A second progesterone sample was collected on Day 2 following prostaglandin treatment to confirm luteal regression. Mares received a second altrenogest injection 7 days later and were then followed to pregnancy loss or Day 20 after the second treatment which ever occurred first. The mares were examined via ultrasound on days 2, 5 and 7 after treatment 1 and on day 2, 5, 7, 9, 12, 14, 16, 18 and 20 or pregnancy loss after the second altrenogest treatment . Endpoints examined were serum Progesterone levels on Day 0 and 2 after PGF treatment and days to pregnancy loss. Injection site assessments were made on d 0, 2, 5, 7, after each altrenogest injection. Scores were based on a subjective scale of 0-3 (0 = none, 1 = slight – diameter of swelling 12.5 mm, 2 = moderate - diameter of swelling 12.5 mm to 25 mm, 3 = significant – diameter of swelling about 25 mm or larger). Data were analyzed via a one way ANOVA. Data from injection site scores and progesterone were analyzed for effects of treatment, time, and treatment by time interactions with repeated measures. When a significant F was detected ($P < 0.05$), the least significant difference (LSD) test was used to determine differences between groups within times.

Results

All Injection site scores were 0 for mares in both treatments so statistical analysis of the data were not conducted. Results for Progesterone concentrations and Days to pregnancy loss are presented in Table 2.

Table 2 Progesterone and Pregnancy Loss Data For Mares Treated with BioRelease Altrenogest LA 150				
Treatment	P4 on Day 0	P4 on Day 2	Days to Pregnancy Loss after Trt 1	Days to Pregnancy Loss after Trt 2
Altrenogest LA 150 1.5 mL (225 mg) n=4	6.3 ^a ± 1.9	0.2 ^b ± .06	All Pregnant	12 ^a ± 0
Altrenogest LA 150 3 mL (450 mg) n=5	3.9 ^a ± 1.3	0.12 ^b ± .06	All Pregnant	13.6 ^a ± 0.84
^c Means ± SE; means with different superscripts differ (P < 0.05)				

Conclusions

The results from this preliminary study suggest that weekly 225mg or 450mg doses of BioRelease Altrenogest are very biocompatible and effective at maintaining pregnancy in prostaglandin treated mares. However, based on our extensive clinical experience with BioRelease P4 LA 150 or 300 for pregnancy maintenance in recipient mares we would recommend the use of natural progesterone BioRelease formulations until additional larger studies with BioRelease Altrenogest LA 150 have been completed.

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