Pregnancy outcomes in Thoroughbred mares administered different doses of cloprostenol

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The dose of prostaglandin F2α (PGF), age of the corpus luteum, and follicle size have effects on the interval between PGF administration and ovulation, and the type of luteolytic response in mares.1 The objectives of this study were to determine: (i) if mares with large diestrus follicles (>30 mm) at the time of PGF administration had a difference in pregnancy rate at 13-16 days, 25-28 days, and 40-45 days post-ovulation when compared to mares bred on a natural estrus, (ii) if there was a difference in pregnancy rate at the same time points between mares administered PGF with small diestrus follicles (<30 mm), and mares bred on a natural estrus, and (ii) associations between follicle size and days to ovulation following PGF administration. Retrospectively, 522 estrous cycles from one practitioner’s records during the 2013 and 2014 breeding season were evaluated. Thoroughbred mares were divided into three groups: 1) mares that were administered 125µg of cloprostenol (Estrumate®, Schering-Plough Animal Health Corp., Summit, NJ) with ≥ 30mm diestrus follicles and were bred (n=23), 2) mares that received 250µg of cloprostenol with < 30mm diestrus follicles and were bred (n=87), and 3) mares bred on a natural estrus (n=412). All mares were administered an ovulation inducing agent (SucroMate™, Bioniche Animal Health, Louisville, KY) 24 hours prior to breeding, when the dominant follicle was ≥35mm. Data were compared using one-way ANOVA for continuous response variables and Chi-square test for two nominal variables. The pregnancy rate was significantly lower in mares that received 125µg of cloprostenol with large diestrus follicles when compared to mares bred on natural heat (13-16 days: 50% vs 71%, 25-28 days: 41% vs 68%, and 40-45 days: 41% vs 65%). There was no significant difference in pregnancy rate at the same time points for mares with <30mm diestrus follicles administered 250µg cloprostenol compared to mares bred on a natural heat. There was a significant difference in the mean interval from cloprostenol administration to ovulation for mares receiving 125 µg of cloprostenol with >30 mm follicles (4.1 days) when compared to mares given 250µg with <30mm follicles (8 days). The mean interval from cloprostenol administration to ovulation was inversely proportional to follicle size when looking at mares administered 125µg of cloprostenol (5.9 days for 30-39 mm and 4.7 days for 40-49 mm) and mares administered 250µg of cloprostenol (7.7 days when follicle size was 20-29 mm). Administration of cloprostenol to mares with a large diestrus follicle appears to be associated with a lower pregnancy rate when compared to mares bred on a natural estrus.

Keywords: Prostaglandin F2α, cloprostenol, pregnancy rate, diestrus follicle

Reference