

Comparison of Estrous Synchronization in Mares treated with CIDR -B, Estradiol 17- β , Estradiol Cypionate and Prostaglandin $F_{2\alpha}$

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There is a need to develop more efficient estrous synchronization protocols which are shorter in duration and that align estrus and ovulation. The objective of this study was to compare different estrous synchronization protocols using CIDR-B devices and estrogens. Mares (n = 203) with a mean of age of 3 yrs (range 2 – 20) were used for the study. Mares were randomly assigned to a treatment group (Group A: CIDR - B 8 days; Group B: CIDR - B 8 days plus 5 mg estradiol cypionate day 0 and 5; Group C prostaglandin $F_{2\alpha}$ (Lutalyse, 5 mg SQ); Group D: CIDR-B alone; Group E: CIDR - B 8 days plus 10 mg estradiol 17- β day 0; and Group F: CIDR - B 8 days plus 10 mg estradiol 17- β day 5. Group A, B, and C mares were bred with frozen semen; (data not shown). Ultrasound examinations (Aloka 500, 5 MHz rectal probe) were performed on day 0, at day 8 (CIDR-B removal) and commencing 4 days after CIDR-B removal until ovulation. Follicular size, free intrauterine fluid, endometrial edema (range 0 – 4) and CL status were recorded on day 0. All CIDR - B treated mares were administered 5 mg of prostaglandin $F_{2\alpha}$ (PG) on the day of CIDR - B withdrawal, and then 2,500 IU of hCG IM (Chorulon, Intervet) when a follicle ≥ 35 mm (f35) in diameter was detected. The character of the vaginal discharge at CIDR-B withdrawal was noted in groups D, E, and F. Chi square analysis and Kruskal - Wallis non-parametric ANOVA and post hoc comparison of mean ranks were used to evaluate the data at $p < 0.05$. Comparisons were made between CIDR – B treated groups, and then all groups together. The following parameters were evaluated: interval from day 0 to follicle ≥ 35 mm after CIDR-B removal, hCG to ovulation, interval to ov, number of ovulations, PG to f 35 mm, PG to ov. Mares (n=135) completed the trial n = 33, 34, 19, 13, 14, 17 a - f respectively. Five mares from Group A and 7 mares from Group B ovulated before day 4 post CIDR-B removal. All CIDR-B devices were coated with vaginal secretion at removal, and one mare lost the device.. Vaginal discharge was noted as yellowish or purulent in groups D 13/25 (52%), E 9/25 (36%), and F 10/27 (37%). Median time interval (days) from day 0 to f35 post CIDR-B, hCG to ov, interval to ov, was shortest in Group C (PG treated) mares. In CIDR – B treated mares, Group A had a longer interval to f35 than group F [median and interquartiles for Groups A – F: 14 (12-16); 14 (12-16); 7 (3 – 10); 16 (10.5 – 17.5); 14 (11.5 – 15.5); 11 (9-14)]. PG to f35 was also longer in Group A than F [median and interquartiles for Groups A – F: 6 (4-8); 6 (4-8); 8 (3–10); 7 (2-9.5); 4 (1-6); 3 (1-6)]. In conclusion a 8 - day treatment period with the CIDR-B device resulted in estrous synchronization and similar ovulation rates to Group C mares. Vaginal discharge was moderate to severe in 36 - 52% of the CIDR-B treated mares monitored. Estrogen treatment in Groups B, E and F did not significantly influence the outcomes of interest. Keywords: CIDR-B, mare, estrous synchronization.