The use of a simplified hormone protocol for nonovulating embryo recipient mares
C.G. Pinto,a M.F. Zerlotti,b E.F. Martinsena
aDepartment of Preventive Medicine, The Ohio State University, Columbus, OH; bZerlotti Equine Reproduction LTD, Pleasanton, TX

Nonovulating, hormonally-treated mares have been used successfully as embryo recipients. However, most hormonal treatments aimed to suppress ovarian activity in embryo recipients require intensive management and frequent administration of hormones. Our hypothesis was that nonovulating recipient mares receiving single treatments of steroids could be successfully used as embryo recipients. Our objective was to compare pregnancy rates after the transfer of embryos into ovulating versus nonovulating mares receiving one injection of estradiol followed by one injection of progesterone. Embryos were obtained from donor mares (n=40) enrolled in a commercial embryo transfer in Texas, between the months of February and August. When in estrus, donor mares received 1.5 mg of deslorelin intramuscularly (i.m.) to induce ovulation and ovulation was confirmed by ultrasonography (Day 0). All embryos were collected on Day 8 post-ovulation. Embryos collected between February and the first week of April were transferred into nonovulating recipients. Within 72 h of the donor’s mare ovulation, nonovulating recipient mares with follicles ≤20 mm and without a corpus luteum received 10 mg of 17β estradiol, i.m.. Approximately 48 h later, mares with significant endometrial edema received 1.5 g of progesterone, i.m. Ovulating mares were used as recipients for embryos collected between April and August. Ovulating mares in estrus received 1.5 mg deslorelin, i.m., to induce ovulation. After collection, embryos (n=90) were transferred nonsurgically into the uterus of ovulating (n=47) and nonovulating (n=43) recipients. Nonovulating recipients received embryos between three and eight days after the progesterone treatment. Ovulating recipients were used between Days 3 and 7 post-ovulation. All recipients (ovulating and nonovulating) were maintained on weekly administrations of 1.5 g of progesterone, from the time of transfer until 120 days of gestation. Pregnancy was diagnosed by ultrasonography on Days 12 and 50 post-ovulation and rates were compared using Fisher’s exact test, with P-value less than 0.05 considered significant. There were no significant differences in pregnancy rates between ovulating and nonovulating recipients either on Day 12 (43/47, 91% vs. 36/43, 84%) or Day 50 (42/47, 89% vs. 31/43, 72%), respectively. Pregnancy rates in nonovulating recipients were significantly higher when embryos were transferred between Days 3 and 6 (33/36, 92%) versus Days 7 and 8 (3/7, 43%) after progesterone treatment. In conclusion, nonovulating mares can be successfully used as embryo recipients following a single administration of 17β estradiol and progesterone. High pregnancy rates were obtained when transferring embryos into nonovulating recipients between three and six days after progesterone treatment. The hormone protocol presented in this study is beneficial to commercial embryo transfer programs because it reduces the need for frequent reproductive examinations of recipient mares and allows synchronization of a smaller number of recipients per donor mare.

Keywords: nonovulating, synchronization, mares, embryo transfer.