

1 follicle measured ≥ 15 mm in diameter, 50 μ g deslorelin in aqueous solution (Precision Pharmacy, Bakersfield, CA) was given intramuscularly every 12 hours until at least 1 follicle reached 32 mm in diameter with uterine edema. Subsequently, the LDD protocol was discontinued, allowing for 24 hours without hormone treatment. After collection, oocytes deemed mature (expanded cumulus) or immature (compact cumulus) were handled accordingly, prior to ICSI with frozen semen from a single ejaculate. Presumptive zygotes were evaluated at 24 hours for evidence of cleavage and again at 4, 6, and 8 days. Comparisons were made utilizing a Student's and Welch's *t*-tests with significance established at $p \leq 0.05$ and reported as the mean \pm standard deviation. In total, 41 estrous cycles were included (24 control and 17 treated). On average, 7.41 ± 2.3 injections of LDD were given during treated estrous cycles. Average number of follicles observed or number of follicles > 25 mm in diameter at OPU did not differ between groups ($p = 0.13$ and $p = 0.46$, respectively). Average number of follicles aspirated in the treated group (2.1 ± 1.9) tended to be higher ($p = 0.09$) than control (1.9 ± 1.4); however, the number of oocytes collected in treated cycles (1.2 ± 1.4) compared to control (0.75 ± 1.0) did not differ ($p = 0.28$). A total of 36 oocytes were subjected to ICSI from the treated and 38 from control estrous cycles. The cleavage rate was similar ($p = 0.89$) for treated (56%; 20/36) compared to control (61%; 23/38). Finally, the blastocyst rate for treated was similar ($p = 0.66$) (19%; 7/36) compared to control (24%; 9/38). In conclusion, the utilization of a low dose deslorelin protocol did not affect the number of follicles or oocytes collected within estrous cycles for OPU/ICSI. Additionally, cleavage and blastocyst rates were similar between the 2 groups indicating that this protocol did not affect the quality of oocytes. More research is necessary to identify an ovarian superstimulation protocol effective for OPU/ICSI.

Keywords: Mare, oocytes, follicles, deslorelin

Pregnancy rates and ovarian activity after uterotubal infusion of n-butyl cyanoacrylate via a hysteroscopic approach in mares: a pilot study

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Sterilization of mares requires surgical removal of ovaries or ligation of uterine tubes and is performed for behavioral reasons, treatment of ovarian pathology, and preparation of tease or mount mares. However, it is invasive, costly, and may be associated with adverse outcomes. Objective was to determine the effect of bilateral uterine tube infusion with n-butyl

cyanoacrylate on fertility and estrous cycle activity of mares. We hypothesized that bilateral infusion of n-butyl cyanoacrylate in the uterine tubes causes infertility but does not affect mare's estrous cycle activity. Light horse mares ($n = 8$) ranging in age from 5 - 23 years, were selected for potential fertility using transrectal ultrasonography examination, uterine culture and cytology. A proven fertile Thoroughbred stallion that successfully bred mares in 2015 was used. Mares were sedated, perineum cleansed, and the uterine tubes of treated mares ($n = 6$) were infused with 0.5 ml n-butyl cyanoacrylate, and control mares ($n = 2$) were infused with 10 ml saline, using the endoscopic hydrotubation method.¹ Treated mares were hand mated through 2 or 3 breeding seasons ($n = 78$ estrous cycles), and control mares were hand mated through 1 breeding season ($n = 4$ estrous cycles). Biweekly blood samples were obtained from mares during the breeding season for progesterone (P_4) concentrations by RIA. Per cycle pregnancy rate, established by transrectal ultrasonography of the uterus and interestrus intervals, were recorded. Stallion's seasonal pregnancy rate (SPR) in 2015 ($n = 24$ mares) was compared to the SPR of treated ($n = 6$) and control mares ($n = 2$) for years 2016 - 2018. Data were evaluated using Fisher's Exact test at $p < 0.05$. Per cycle pregnancy rates of treated (0/78) and control mares (1/4) were different ($p = 0.048$). SPR for the stallion in 2015 prestudy breeding season (20/24 mares pregnant) was different ($p < 0.001$) than the SPR of treated mares, wherein 0/6 became pregnant in each year. Interestrus intervals of 6 treated mares averaged 20 days (range 18 - 22 days), and serum P_4 profiles were consistent with estrous cycle activity. The n-butyl cyanoacrylate may function to physically obstruct sperm, oocyte and embryo movement in the uterotubal junction or uterine tube, disturb the milieu required for sperm capacitation, oocyte fertilization, and embryonic development, or a combination of these. Uterotubal infusion of n-butyl cyanoacrylate via a hysteroscopic approach may serve as an effective management strategy for induced infertility in mares of at least 3 years duration and may cause permanent sterilization.

Keywords: Mare, infertility, n-butyl cyanoacrylate, uterine tube, progesterone, estrous cycle

Reference

1. Inoue Y, Sekiguchi M: Clinical application of hysteroscopic hydrotubation for unexplained infertility in the mare. *Equine Vet J* 2018;50:470-473.

Daily sperm output, spermatogenic efficiency, and sexual behavior of donkey jacks mounting jennies in estrus

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Assessment of daily sperm output (DSO) and spermatogenic efficiency are critical components of breeding soundness evaluation