

A comparison of two protocols for pregnancy termination in mares

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In horses, pregnancy termination may be performed to eliminate unwanted or twin pregnancies, after a diagnosis of embryonic/fetal or maternal abnormalities, to eliminate a conceptus of an undesired sex, or after legal disputes between parties. While a single systemic injection of prostaglandin F_{2α} (PGF_{2α}) is effective to terminate equine pregnancies during the first 4 wks of gestation, mares are more resistant to the abortifacient effects of PGF_{2α} from 5-12 wks of gestation, and thus require multiple systemic injections (3-5 injections of sodium cloprostenol, 250 μg/mare q 24 h) to be effective. Recently, investigators reported that intracervical administration of 500 mcg sodium cloprostenol effectively terminated 85-100% of 60-d pregnancies in 24 h. While this approach could potentially result in uterine infection, it has the advantage of requiring only a single administration. We hypothesized that systemic administration of sodium cloprostenol is equally effective to the intracervical administration. Thus, the objective of this study was to compare two protocols of pregnancy termination in mares by assessing maternal progesterone concentrations, fetal heart rate, and time from treatment to loss of fetal heartbeat. Light breed pregnant mares (60 d of gestation) were randomly assigned to receive cloprostenol intramuscularly (500 μg, IM, q 12 h, n=4) or intracervically (500 μg extended in 10 mL of saline solution, q 48 h, n=5).¹ Immediately after intracervical cloprostenol infusion, the cervix was manually dilated as previously described. Immediately before cloprostenol administration, and then at 6-hour intervals, mares were assessed for pregnancy fluids appearance and fetal heart rates using a sectorial convex rectal transducer (5.5 MHz Ivo Ibex). Plasma samples were collected immediately (0h) before and after (1 h, 6 h, 12 h, 24 h, and 48 h) cloprostenol administration for progesterone determination with an immunoassay. Statistical analyses were performed with ANOVA (one-way and repeated measures), significance was set as $p < 0.05$. There were no differences in time from administration of cloprostenol to loss of fetal heartbeat (intramuscular 31.5 ± 6.1 h, range 18-48.5 h; intrauterine 40.2 ± 4.3 h, range 23.5-48 h), in fetal heart rate preceding death, or in maternal plasma progesterone concentrations ($P > 0.05$). Progesterone concentrations decreased rapidly after either route of cloprostenol administration ($p < 0.05$). By 48 h after treatment, only two mares in each group had progesterone concentrations below 1 ng/mL. Cloprostenol is known to present fewer side effects (e.g., colic-like signs) than dinoprost, and negligible side effects (sweating, discomfort, and loose manure) were observed after either route of drug administration in this study. The mean time to abortion with intrauterine administration of cloprostenol observed here was longer than the seminal report¹ but similar to a recent study by the same authors.² It is unknown whether this difference would be observed in a larger number of treated mares. Regardless, our results suggest that both intrauterine and systemic methods of cloprostenol administration are equally effective to terminate 60-day equine pregnancies.

Keywords: Abortion, early fetal loss, prostaglandin F_{2α}, horses

References

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