Induction of ovulation in donkeys using GnRH or hCG

Ava Kent, Shelby Nester, Erik Peterson, Robert Gilbert, Hilari French
Ross University School of Veterinary Medicine, St. Kitts, West Indies

Ovulation induction agents are commonly used to manipulate reproductive cycles in equine practice to optimize breeding management. Although this procedure is routinely used in horses, limited information exists to support its use in donkeys. This has posed a challenge to conservation efforts depending on improved reproductive efficiency in endangered donkey species. A pilot study was designed to develop a protocol for inducing ovulation in jennies to determine the interval from administration of induction agents, hCG (Chorulon®) and GnRH analogue (SucroMate™) to observed ovulation. Eight reproductively sound, non-pregnant Caribbean jennies between 3 and 12 years old were examined daily via transrectal ultrasonography to monitor ovarian activity and follicular growth. Jennies were randomly assigned to each of 3 treatment groups (hCG, GnRH analogue, and control) and injected (hCG - IV, GnRH analogue - IM) at a follicular diameter of 27 or 30 mm. Starting 24 hours after treatment, jennies were monitored every 6 hours via transrectal ultrasonography until ovulation. Number of jennies ovulating within 48 hours after treatment (or assignment to control group) for jennies treated at a follicular diameter 27 mm was 1/8, 5/8 and 4/8 for control, GnRH and hCG, respectively. Mixed effects logistic regression with jenny as random variable indicated a near significant effect of GnRH ($p = 0.059$) but not of hCG ($p = 0.17$). Results for induction at 30 mm follicular diameter were similar (2/8, 5/8, and 3/8, respectively). Mean interval to ovulation was shorter after induction at 30 mm and variation was less. For this group, interval to ovulation was 81 ± 40 (control), 50 ± 22 (GnRH) and 56 ± 25 hours (hCG) with a $p = 0.03$ for GnRH and 0.05 for hCG by multiple logistic regression, with jenny as random variable. Results indicated that ovulation can be induced in jennies. GnRH induced ovulation within 48 hours more consistently than hCG, but at a follicular diameter of 27 or 30 mm, the effect was not as predictable as it is in horse mares induced at a follicular diameter of 35 mm. Waiting until the dominant follicle was larger may improve response to induction agents, but increases the risk of spontaneous ovulation.

Keywords: Donkey, ovulation, induction, hCG, GnRH analogue