Effects of a third-generation GnRH antagonist on reproductive parameters in the stallion
Gluck Equine Research Center, Department of Veterinary Science, University of Kentucky, Lexington, KY

Numerous investigators have attempted to suppress the hypothalamic-pituitary-gonadal axis in the stallion with varying results. We hypothesized that the gonadotropin releasing hormone (GnRH) antagonist acyline would lead to such down-regulation. The objective of the current study was to evaluate the effect of acyline on testis volume, peripheral testosterone concentration, seminal parameters and reproductive behavior in stallions. Stallions (n=4) were treated (330 µg/kg acyline IM every 5 days) for 57 days, and vehicle-treated stallions (n=4) served as controls. Semen was collected and evaluated daily on alternate weeks; time to erection and ejaculation were recorded; and testis volume was measured weekly by ultrasonography. Serum testosterone concentrations were measured by EIA. Data were analyzed using a random-effects mixed model. There was a significant time by treatment interaction (P<0.05) on serum testosterone concentration (Day 3), testis volume (Week 5), total sperm number (Week 1), and total sperm motility (Week 2); with the first significant decline in each parameter noted in treated stallions in parentheses. There was no effect of acyline treatment on time to erection or ejaculation. Following cessation of acyline treatment, serum testosterone concentrations, testis volume, total sperm number and sperm motility appeared to recover their pretreatment values. Overall, this study demonstrates that administration of acyline to the stallion results in a rapid suppression of the hypothalamic-pituitary-gonadal axis with recovery following cessation of treatment. Interestingly, measured behavioral parameters were not different in treated stallions compared to controls.

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