Effect of chronic NSAID administration on ovulation in mares
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Introduction
Nonsteroidal anti-inflammatory drugs (NSAIDs) are routinely used in equine veterinary medicine to manage pain and inflammation. Two studies have recently been published suggesting that administration of NSAIDs to mares in estrus interferes with ovulation. The objective of this study was to determine the effects of chronic NSAID administration on ovulation in mares.

Materials and methods
Quarter Horse type mares (n=18) were evaluated over a total of 24 estrous cycles. Mares were randomly assigned to one of three groups: Group A - control group, Group B - phenylbutazone, and Group C - firocoxib. On Day 8, mares were administered a single intramuscular dose of prostaglandin (cloprostenol, 250 µg) and NSAID treatment was initiated. Nonsteroidal anti-inflammatory drug therapy began with an intravenous “loading dose” (control - sterile saline 8 mLs, phenylbutazone 4.4 mg/kg, firocoxib 0.3 mg/kg) followed by an oral daily “maintenance dose” (control - molasses 30 mLs, phenylbutazone 4.4 mg/kg, firocoxib 0.1 mg/kg) until either ovulation was detected or ovulation failure was determined. Ovulation failure was defined as absence of ovulation within four days after administration of an ovulation induction agent or formation of a hemorrhagic anovulatory follicle. Ultrasound examinations were initially performed every 1 to 4 days based on follicular dynamics. A single dose of the gonadotropin releasing hormone agonist deslorelin acetate (1.8 mg, IM) was administered to induce a timed ovulation. Ultrasound examinations were subsequently performed every 24 hours until either ovulation was detected or ovulation failure was determined.

Results
The ovulation rates were as follows: control 100 % (8 of 8), firocoxib 87.5 % (7 of 8), and phenylbutazone 75 % (6 of 8). Of the mares that failed to ovulate, one mare treated with phenylbutazone formed a hemorrhagic anovulatory follicle while one mare in the phenylbutazone group and one in the firocoxib group ovulated beyond the expected timeframe. There was no significant difference (P > 0.05) in ovulation rates between the treatment groups.

Summary
In conclusion, there was no significant adverse impact of chronic NSAID administration during estrus on ovulation in the mare.

Keywords: Hemorrhagic anovulatory follicle, nonsteroidal anti-inflammatory drug, firocoxib, phenylbutazone, equine reproduction