

Superovulation in Mares: Initial Studies on a Product for Commercial Use

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Equine pituitary extract (EPE) has been used successfully to induce multiple ovulation in mares. This product generally has been made in private labs and has resulted in inconsistent responses due to varying amounts of eFSH and eLH among batches. A commercial source of EPE for use in the horse industry has recently been made available. The objective of this study was to evaluate the effectiveness of a commercially prepared eFSH product to superovulate mares and determine optimal dose.

Forty-nine light horse mares were assigned to 1 of 4 groups. Group 1 mares were untreated controls. Once a 35-mm follicle was detected, Ovuplant was administered and mares were inseminated with 800 million frozen-thawed sperm from 1 of 4 stallions. Pregnancy status was determined at 14 to 16 days. Group 2 mares received 25 mg of eFSH injected intramuscularly twice a day beginning on day 5 or 6 after ovulation. On the second day of treatment, mares received an intramuscular injection of 250 µg of Cloprostenol. Injections of eFSH continued until most of the cohort of follicles reached a diameter >35 mm, at which time Ovuplant was injected and mares inseminated with frozen semen. Mares in groups 3 and 4 were handled identically to those in group 2 but received 12 mg of eFSH injected intramuscularly twice daily. Those in group 3 received a GnRH implant and those in group 4 received an hCG injection to induce ovulation. One-way analysis of variance with F-protected LSD was used to analyze quantitative data. Mares given 25 mg of eFSH twice a day had greater follicular development than all other groups. Those mares given 12 mg of eFSH twice a day had more follicles >35 mm than the control mares. Number of ovulations per mare was higher ($P<0.05$) for mares given 25 mg of eFSH twice a day (3.3) and those given 12 mg of eFSH twice a day followed by hCG (3.4) than controls (1.1). Administration of 12 mg of eFSH twice a day followed by hCG resulted in a greater number of ovulations than mares given the same dose of eFSH followed by deslorelin acetate (1.8). The number of pregnancies at 14 to 16 days was increased for mares given 12 mg of eFSH twice a day, followed by hCG (1.8) compared to control mares (0.6) and those given 25 mg twice a day (0.6).

In summary, treatment with 25 mg of eFSH twice daily produced a greater ovarian response but did not result in an increased rate of pregnancies per mare. When the dose was reduced to 12 mg twice daily, the ovarian response was decreased, but ovulation and pregnancy rates were increased when used in combination with hCG. This commercial preparation of eFSH appeared to be an effective superovulatory agent for the mare; hCG was more effective in inducing ovulation than deslorelin acetate.

Key words: eFSH, Multiple ovulation, Pregnancy rate