

## Failure of ovulation induction in mares with buserelin acetate

Tamara Anabel Rosales Correa, Roberto Claudio Bustillos Huilca, Elena Carolina Serrano Recalde\*

Universidad Nacional de Loja (UNL), Loja, Ecuador

\*Correspondência: caritos1000@gmail.com

The mare is considered a seasonally polyestrous breeder, which means they need longer daylight length for reproductive activity. Photoperiod effect on reproductive seasonality is more evident the farther from the Equator the animals are. However, even in latitudes relatively close to the Equator, the weather may interfere on the ovulation process in some specific regions. Therefore, hormonal therapy with hCG, GnRH, PGF2 $\alpha$  and others are often necessary to reduce the weather effect. There are controversial findings about the use of buserelin acetate, a GnRH analogue, in hastening ovulation in estrus mares. Hence, the aim of this study was to evaluate the effectiveness of buserelin acetate on ovulation and the time when it occurs in mares of regions where the weather is mostly cloudy. The investigation was performed in Loja, Ecuador, from August 2020 to April 2021. The mean local temperature was 16.1 °C, relative humidity 76.7%, precipitation 0.07 mm and cloud cover 70%. Eight mixed race mares of 4 - 15 years old, with body condition between 2 - 4 were used. All the animals went through the four treatments randomly. Ultrasonography was used to monitor follicular development. In the presence of a follicle  $\geq 35$  mm and endometrial edema of 2 to 3, one of the following treatments was applied: control - without hormonal application; hCG - 2,500 IU of hCG intravenously (IV); AB - 42  $\mu$ g of buserelin acetate intramuscularly (IM); or a combination of hCG + AB. Subsequently, ovulation was verified at 36, 42, 48 hours after induction or later every 12 hours until ovulation. Five days after ovulation or upon confirmation of the presence of a corpus luteum, 0.263 mg of cloprostenol sodium was administered, with the aim of shortening the estrous cycle for a subsequent follicular evaluation. Using Fischer's exact test, statistical difference was observed ( $p = 0.00026$ ) on ovulation percentage between the different experimental groups, where hCG and the combination of hCG + AB presented 100% of ovulations, while the control group and AB obtained 37.5% and 25%, respectively. Through the Kruskal-Wallis test, the treatment effect on ovulation time was compared. According to the analysis, both hCG and hCG + AB presented an average of 39 hours from induction to ovulation, a shorter time ( $p = 0.029$ ) than the control group, which presented an average of 99.43 hours, and than the AB group, with 115.71 hours to ovulation. Both groups, control and AB, had a mare that presented hemorrhagic anovulatory follicle (HAF). We can conclude that buserelin acetate in a single dose of 42  $\mu$ g IM is not efficient to induce ovulation in mares of regions with mostly cloudy weather. Buserelin acetate does not promote the ovulation process, taking more than 96h to occur, turning it difficult to predict ovulation moment, different than the use of hCG and the combination of hCG + AB, which showed 100% ovulations within 48h after induction.

**Keywords:** Follicle. GnRH. HAF. Cloudy.