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GnRH use in different times on estrus synchronization and ovulation in Santa Inês ewes

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The aim of study was to evaluate the use of GnRH at different times during a short protocol of synchronization and induction of estrus in Santa Inês ewes on different reproductive parameters. Ewes (n = 29) were divided according to weight and body condition score (49.5 ± 5.9 and 3.0 ± 0.4, respectively) and divided into in three experimental groups according to the time of GnRH application. The estrus was induced and synchronized (D0) using intravaginal sponges impregnated with 60mg of MAP for 6 days. All ewes received 30 µg of d-cloprostenol IM and 300 IU of eCG IM 24 hours before sponge removal. At 12 hours after sponge removal, Gc (n = 10) 1.0 mL NaCL 0,9% solution IM. G24h (n = 10) received after 24 hours of sponge withdraw, 0.025 mg of GnRH and G36h (n = 9) received the same dosage after 36 hours of the withdraw of the sponge. Transrectal ovarian ultrasonography was performed always by the same operator twice a day since the insertion of the sponge for monitoring follicular dynamics and to determine ovulation time. Blood samples were taken daily to determine progesterone plasma concentration. Regarding to estrous behavior, 53% (16/30) of the ewes showed signs of estrus, although no ewe from G24h showed estrus, 90% (9/10) of ewes in control group and 70% (7/10) of ewes in G36h showed signs of estrus. The duration of estrus, interval from sponge removal to onset of estrus and interval from onset of estrus to ovulation was not different. The interval (h) from sponge removal to ovulation was 64.1 ± 9.7; 48.0 ± 10.2; and 56.7 ± 5.7, respectively to Gc, G24h and G36h. The ovulation rate (100% vs 90% vs 90%) did not differ among treatments, although the average number of ovulations per ewe (1.9 ± 0.6 vs 1.2 ± 0.4 vs 2.0 ± 1.0) was smaller ($P < 0.05$) in G24h. Regarding maximum follicle size, there was a detectable difference ($P < 0.05$) between Gc and G24h (6.5 ± 0.4 vs 5.8 ± 0.7). In terms of circulating progesterone concentration, we could observe that only one ewe was in anestrus at the beginning of hormonal treatment (3.29% - 1/29). It was observed that circulating progesterone concentration decreased during the hormonal treatment and period and that the use of GnRH did not cause an increase in circulating progesterone after the ovulation. The use of a protocol of induction and synchronization used in the present study, apart from the GnRH application, synchronizes the estrus effectively. The use of GnRH 24 hours after the sponge removal is not indicated, since the estrus signs could not be observed, the use of GnRH 36 hours after the sponge removal showed to be effective, achieving results that were similar to the control group.