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GnRH potential to synchronize follicular emergence and ovulation prior to superovulatory day 0 protocol in sheep

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The role of GnRH to synchronize ovulation and follicular emergence previous to superovulatory protocol, started on the first day of the estrous cycle (Day 0), was assessed in Santa Inês ewes. For estrus synchronization, 60 mg medroxyprogesterone acetate sponges were used for 6 d plus 37.5 µg d-cloprostenol and 300 IU eCG at fifth day. After sponge removal, ewes were assigned to three treatments: GControl – saline at 12 h (n = 10); G24h – GnRH at 24 h (n = 10); or G36h – GnRH at 36 h (n = 9). Ovarian ultrasonography was conducted every 12 hours, after sponge removal, to assess the occurrence of ovulation and emergence of follicular waves until the fifth day of the estrous cycle. Ewes from G24h and G36h had earlier ovulation (48.0 ± 3.2 and 56.7± 1.9 h) compared to GControl (64.1 ± 3.0 h – $P < 0.05$). It is reasonable to affirm that G36h was more effective in synchronizing ovulation compared to G24h probably due to the lower SEM obtained. The follicular growth in the post-ovulatory day was affected by day of the estrous cycle ($P < 0.05$) as well as by interaction treatment x day of the estrous cycle ($P < 0.05$). There was a greater population of medium follicles during the first 24 h post-ovulatory period in G24h compared to GControl and absence of large follicles in G36h between 36 and 72 h after ovulation. The greatest population of medium follicles in G24h compared to GControl may arise from the previous ovulatory follicular wave, but due to anticipation of the LH surge, it was not able to promote the growth and maturation of these follicles. After 60 h, the medium follicles from wave emergence of GControl and G36h stabilized compared to the follicles from G24h. The greater number of dominant follicles 12 h after ovulation in G36h compared to G24h has correlation with the largest number of ovulated follicles in this group. It is important to highlight that during the first 96 h of the estrous cycle, G36h presented no dominant follicle between 36 and 72 h after the ovulatory period. In conclusion, considering the beneficial effects of G36h in synchronizing ovulation and to promote the absence of dominant follicles in the first days of estrous cycle. According to data obtained, the best time to start the superovulatory treatment, known as "Day 0", could be 80 h after sponge removal (56 h for the occurrence of ovulation plus 24 h to reset dominant follicles), in the induction of synchronized estrus, for Santa Inês ewes.