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### Use of hCG, eCG or p-FSH on estrus induction of goats and their effects on luteal dynamics and conception rate

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The present study tested the hypothesis that hCG and pFSH stimulate the follicular development and consequently corpora lutea, in a manner equivalent to those induced by eCG in goat. Eighty-five Toggenburg goats, during the seasonal transition period (December, 21°S), underwent a short-duration estrus induction/synchronization protocol with a sponge impregnated with medroxyprogesterone acetate (60 mg MAP, 6 days). Twenty-four hours before sponge removal, females were divided into groups according to gonadotrophin used (eCG, 200 IU, n = 32; hCG, 300 UI, n = 25; or pFSH, 30 IU, n = 28). At the same time, all goats received 22.5 µg d - cloprostenol. Luteal dynamics were monitored using B-Mode and Color Doppler ultrasonography on specific days (Days 5, 8, 13, 18, 23 and 28) after estrus onset (Day 0). Biometric parameters (diameter, area and volume of corpora lutea), echogenicity and heterogeneity of luteal tissue (*numerical pixel values* and standard deviation of pixels, respectively), and vascularization (number of colored pixels) were determined. The pregnancy diagnosis was performed on Day 28. The parametric variables were submitted to analysis of variance using the R program, and the means were compared by the Kruskal Wallis test. The binomial variables were compared by chi-square teste ( $P < 0.05$ ). The response to estrus was similar between treatments (93.90%,  $P = 0.87$ ). The hCG group was characterized by a greater number of luteal structures ( $P < 0.001$ ), but the corpora lutea presented smaller mean diameter and volume when compared to the eCG and pFSH groups ( $P = 0.024$ , for both). There were no differences on luteal area, heterogeneity and vascularization ( $P > 0.05$ ). When the biometric parameters of the corpora lutea were summed, goats treated with eCG and hCG presented higher values of total diameter and volume, compared to the animals that were treated with pFSH ( $P = 0.006$  and  $0.011$ , respectively). The area of luteal tissue (sum) did not differ between groups ( $P = 0.123$ ). The echogenicity of the corpora lutea was influenced by the interaction of treatments and evaluation days. It was recorded different variations over the evaluation days between groups. For the hCG group, there was a reduction in echogenicity on days 23 and 28 compared to previous days; however, the difference between groups was verified only on day 28 ( $P = 0.023$ ). The conception rate was similar between the groups (65.73%,  $P = 0.25$ ). In conclusion, the use of hCG and pFSH in protocol of estrus induction/synchronization in goats induces equivalent luteal dynamics and conception rate, being substitutes for eCG.