The aim of the present study was the immunohistochemical detection of progesterone (A and B isoforms), estrogen α and β, and luteinizing hormone receptors and of aromatase cytochrome P450 enzyme in Nelore (Bos taurus indicus) cows corpus luteum throughout the estrous cycle. Thus, 16 Nelore cows were submitted to estrous cycle synchronization for the collection of luteal samples by an incision in the vaginal vault at predetermined days of the estrous cycle (days 6, 10, 15 and 18 and 24 hours after the drop in circulating progesterone, which means after luteolysis). After each biopsy, all females were resynchronized by the way each collection was performed in one estrous cycle. Blood samples were collected for progesterone assay at the same time as the biopsies were performed and daily for characterization of progesterone level bellow 1ng/mL. The results of the present study showed the regulation of studied receptors and enzyme throughout the bovine estrous cycle. The highest positive nucleus counting for estrogen receptors α and β and the highest plasma progesterone concentrations were observed on days 10 and 15 of the estrous cycle; the highest positive nucleus counting for progesterone receptors was observed on days 6 and 10 of the estrous cycle; the highest immunostaining intensity for aromatase enzyme were observed on day 10 of the estrous cycle and the highest representative score of cells with the plasmatic membrane immunostaining for LH receptor was observed on day 15 of the estrous cycle. When progesterone levels were lower than 1ng/mL all variables were still expressed, being the immunostaining for progesterone receptor the one that presented the biggest decrease. Notwithstanding, estrogen receptors α expression disappeared. Thus, the present study demonstrated the regulation of the studied variables on Nelore cows corpus luteum throughout the estrous cycle, showing the importance of these receptors and enzymes and their interaction on luteal viability regulation.

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