Objective: To evaluate the metoclopramide-induced hyperprolactinemia impact on the expression of genes prolactin and prolactin receptor in mouse uterus during the estrous cycle. Design: 80 adult (100 days old) female virgin mice were randomly divided into two groups of 40 animals each: control group (Ctr, 0.2 mL of saline solution) and experimental group (HPrl, 200 µg/day of metoclopramide). Drugs were subcutaneously administered during 50 consecutive days. After 50 days the animals were properly randomly divided into 8 groups of 10 animals, according to the phase of the cycle: proestrus (Ctr and HPrl), estrus (Ctr and HPrl), metaestrus (Ctr and HPrl) and diestrus (Ctr and HPrl). Following euthanasia, the uterine horns were removed and fixed in 10% formol. After subjected to histological processing for inclusion in paraffin. The sections were stained by haematoxylin-eosin (H.E.) evaluated by morphologic methods. The expression genes prolactin and prolactin receptor was quantitative Reverse Transcriptase Polymerase Chain Reaction PCR Analysis Real Time. The results were expressed as mean ± SD and were analyzed by the ANOVA. Results: We found that the hyperprolactinemic state induced decrease at proestrus and increase estrus the expression of genes prolactin and prolactin receptor, while increase the expression of genes prolactin and decrease the expression of genes prolactin receptor in other phases.

Conclusion: The present results show that hyperprolactinemia induces estral cycle-dependent alterations on the expression of genes prolactin and prolactin receptor in mouse uterus. These changes could conceivably help to explain some of the infertility problems related to high prolactin circulating levels and/or the observed failures of embryo implantation in hyperprolactinemic states.