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Ovarian response of rats and gilts submitted to different commercial equine chorionic gonadotropins (eCG)

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Different commercial preparations of equine chorionic gonadotropin (eCG) have been extensively used to induce superovulation or to stimulate follicular growth in cattle submitted to embryo transfer and artificial insemination programs. However, sometimes eCG treatments result in low ovarian response, suggesting differences in the potency of commercial eCG preparations. This study evaluated the biological activity of different commercial eCG products available in Brazil. In the first experiment, four products (A, B, C, and D) from different laboratories were tested in rats using the classical method of Cole and Erway based on gain of ovarian weight. Immature 21–25 day old Wistar female rats received a single sc injection of 10 IU eCG. Saline and eCG from Sigma were used as negative and positive control, respectively. Autopsy was performed 48 h after eCG or saline injection and the ovaries were collected and weighed. Data were analyzed by the Student t test. Ovarian weight (g) from Sigma eCG treated females (0.076 ± 0.013) was similar to females treated with product A (0.071 ± 0.004), C (0.076 ± 0.005) and D (0.095 ± 0.010), however, there was higher ($P < 0.01$) than saline (0.033 ± 0.002) and product B (0.038 ± 0.002). The second experiment was designed to compare the ovarian response and ovulation rate of gilts treated with two commercial eCG (A and B). Eighteen immature gilts (6 per group) received im injections of 0 (Control) or 750 IU eCG (products A and B). Seventy-two hours later, all females received im 500 IU of hCG to induce the ovulations. Animals were slaughtered on day 5 after hCG and evaluated the number of corpora lutea. Data were analyzed by Chi square test. Female treated with the product A had higher (5/6, 83.3 %) ovulation rate than that those treated with the product B (1/6, 16.7%) or Control (0/6, 0.0%) ($P < 0.01$). In conclusion, there are differences in the bioactivity of commercial eCG products and these differences may contribute to the variability of ovarian response. Experiments using animals is a way of assessing the quality of these products. However, considering the ethical and political pressures on the use of laboratory animals, there is a need to develop alternative methods of analysis, such as in vitro and physical chemical assays.

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