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Effect of aromatase inhibitor (fadrozole) on proliferation, estradiol production and telomerase activity in pig granulosa cells *in vitro*

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[fulltext]

The objective of the present work was to study the effect of a nonsteroidal aromatase inhibitor (fadrozole) on proliferation, estradiol production, aromatase expression and telomerase

from small (1–2 mm) and large (5–7 mm) follicles. The cells were treated with fadrozole for 48 h and 72 h in basal and FSH-stimulated conditions. Fadrozole caused a decrease ($P < 0.05$) of 3H-thymidine incorporation in granulosa cells derived from small (1–2 mm) and large follicles (5–7 mm). The proliferative potential of small-follicle GC was significantly higher ($P < 0.01$) under all culture conditions. Estradiol production was suppressed ($P < 0.01$) in both granulosa cell populations cultured in the presence of fadrozole for 48 and 72 h. Fadrozole caused a decrease ($P < 0.05$) of aromatase gene expression in small-follicle granulosa cell incubated for 72 h and in large-follicle GC after 48 h of culture. Large-follicle GC were characterized by a higher ($P < 0.01$) level of estradiol production and aromatase gene expression. Telomerase activity decreased ($P < 0.05$) in large-follicle granulosa cells incubated in the presence of an aromatase inhibitor for 72 h. The TA level in large-follicle granulosa cells was higher ($P < 0.01$) in comparison to small-follicle GC in all culture conditions after 72 h of incubation. The results of the

present study suggest the important role of telomerase in the process of follicular growth and development.

Keywords:
granulosa cells; aromatase inhibitor; proliferation; telomerase; estradiol

[fulltext]