Kisspeptin is involved in ovarian follicular development during aging in rats

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Resumen

We have previously reported that kisspeptin (KP) may be under the control of the sympathetic innervation of the ovary. Considering that the sympathetic activity of the ovary increases with aging, it is possible that ovarian KP also increases during this period and participates in follicular development. To evaluate this possibility, we determined ovarian KP expression and its action on follicular development during reproductive aging in rats. We measured ovarian KP mRNA and protein levels in 6-, 8-, 10- and 12-month-old rats. To evaluate follicular developmental changes, intraovarian administration of KP or its antagonist, peptide 234 (P234), was performed using a mini-osmotic pump, and to evaluate FSH receptor (FSHR) changes in the senescent ovary, we stimulated cultured ovaries with KP, P234 and isoproterenol (ISO). Our results shows that KP expression in the ovary was increased in 10- and 12-month-old rats compared with 6-month-old rats, and this increase in KP was strongly correlated with the increase in ovarian norepinephrine observed with aging. The administration of KP produced an increase in corpora lutea and type III follicles in 6- and 10-month-old rats, which was reversed by P234 administration at 10 months. In addition, KP decreased the number and size of antral follicles in 6- and 10-month-old rats, while P234 administration produced an increase in these structures at the same ages. In ovarian cultures KP prevented the induction of FSHR by ISO. These results suggest that intraovarian KP negatively participates in the acquisition of FSHR, indicating a local role in the regulation of follicular development and ovulation during reproductive aging.

Palabras clave

Palabras clave de autor:kisspeptin; follicular development; ovarian aging
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