RESTORATION OF OVARIAN FUNCTION AFTER NEONATAL ANDROGEN EXCESS. AN ALLOGRAFT STUDY.

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Abstract Body

Fetal hyperandrogenism has been postulated as a programmer of modifications of ovary development, capable of inducing reproductive and/or metabolic alterations during adult life. We have previously demonstrated that rat neonatal ovary is sensitive to androgenic action. The follicular growth did not show alterations until preovulatory stage, but follicles were unable to ovulate, maintaining a sustained growth leading to cyst formation. These changes were more remarkable in animals treated with testosterone than in those exposed to dihydrotestosterone.
In this work, we attempt to characterize if the programming effects of neonatal exposure to androgens on the ovary take place primarily on the ovary, the hypothalamic-pituitary system, or both.
Ovaries of prepubertal control or androgenized rats were grafted subcutaneously in female castrated adult control rats. After 10 days of grafting, the estrous activity was controlled. The animals were killed 25 days after grafting, retrieving the ovaries, which were fixed for histological and immunohistochemical processing.
All animals grafted with ovaries from the control group restored cyclicity, while in the androgenized groups cyclic activity was achieved in approximately 75% with the presence of corpora lutea. Grafts exposed to testosterone showed greater leukocyte infiltration and a less conserved histologic structure. In no case, cystic structures were detected. The anti-3β-HSD immunohistochemistry confirmed the steroid synthesizing ability of the corpora lutea.
In conclusion, ovaries of androgenized animals during the neonatal period are able to ovulate when they are grafted on a castrated control animal suggesting an alteration in the functioning of the hypothalamic-pituitary axis, although a direct effect on the ovary can not be ruled out.