Neonatal exposure to single doses of estradiol or testosterone programs ovarian follicular development-modified hypothalamic neurotransmitters and causes polycystic ovary during adulthood in the rat

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Objective: To investigate the hormones participating in early follicular development and hypothalamic neurotransmitters in rats during adulthood. Design: Experimental basic study. Setting: University animal laboratory. Animal(s): Twenty-three neonatal rats injected with single subcutaneous injection of estradiol valerate (EV), testosterone propionate (TP), or dihydrotestosterone (DHT) and killed by decapitation at 60 days of age. Intervention(s): Measurements of neurotransmitter in ventromedial hypothalamus-arcuate nucleus (VMH-AN) and ovarian morphometry in the adult rat. Main Outcome Measure(s): Noradrenaline (NA), dopamine (DA), serotonin (5-HT), glutamic acid (Glu), and gamma-aminobutyric acid (GABA) content by high performance liquid chromatography medial basal hypothalamus and ovarian morphology. Result(s): EV exposure increased 5-HT, DA, NA, and Glu and decreased GABA levels in the VMH-AN. Exposure to TP increased Glu and decreased 5-HT in the VMH-AN. Neonatal EV and TP decrease