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Impact of Pulsatile Administration of Gonadotropin-Releasing Hormone on the Pituitary-Testicular Axis of the Immature Rat

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Effects of administering low doses of GnRH (30 ng/100 g body weight) at various frequencies on the pituitary-testicular axis were investigated. During a 6-hour treatment period, GnRH was administered to immature male rats at frequencies varying from once per 6 h to twice per hour. The frequency of GnRH administration was inversely related to increased serum LH and androgen concentrations, as well as to testicular testosterone and estradiol concentrations in response to the last GnRH injection. The capacity of the testes from GnRH-treated animals to respond to LH *in vitro* was not impaired, suggesting that the reduced increase in serum androgen concentrations reflected reduced serum LH increase. Reduced serum LH increase in animals treated with GnRH twice per hour appears to be the result of a rapidly acting negative feedback effect of increased testicular androgen secretion early in the treatment period, since there was no decline in the serum LH response to GnRH in castrate, testosteroneimplanted animals treated with GnRH at this rate.

Key words: pulsatile gonadotropin-releasing hormone administration, luteinizing hormone, androgens

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