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JOURNAL ARTICLE

Effect of adrenal steroids on testosterone and luteinizing hormone secretion in the ram

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The effects of adrenal steroids on testosterone and LH secretion and changes in serum cortisol levels in response to treatments were studied in the ram. Acute administration of synthetic ACTH (10 micrograms/kg BW) elevated (P less than 0.01) serum cortisol and transiently suppressed (P less than 0.05) serum testosterone and LH. Acute dexamethasone treatment suppressed (P less than 0.01) serum cortisol, testosterone and LH. Administration of vehicle had no effect (P greater than 0.10) on serum hormone levels. These data support the contention that adrenal steroids inhibit testicular endocrine function indirectly by acting at the hypothalamic or pituitary level because both ACTH and dexamethasone treatments suppressed serum LH. To differentiate between hypothalamic and pituitary sites of action, the pituitary and testicular responses to an LHRH challenge (100 micrograms) were examined in rams chronically treated with dexamethasone (5 mg i.m., twice daily for 5 days). This treatment regimen suppressed (P less than 0.01) serum cortisol levels. Compared with controls, basal testosterone levels were suppressed (P less than 0.05) in dexamethasone-treated rams; however, no effect (P greater than 0.10) on the magnitude of the testosterone response to LHRH or on either basal or LHRH-stimulated LH secretion was observed. Thus, although a direct testicular effect cannot be eliminated, these data suggest that, in the ram, adrenal steroids inhibit testicular endocrine function by action at the level of the hypothalamus.

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