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JOURNAL ARTICLE

Animal model of isolated gonadotropin deficiency. II. Morphologic responses to LHRH immunoneutralization

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Morphologic changes in the male reproductive system of mongrel dogs immunized against LHRH were quantitated using linear measurements and morphometric techniques at the light-microscopic level. Two experimental groups (5 nonimmunized control animals and 5 actively immunized animals) were killed 12 weeks after the primary immunization. No significant differences were observed between three immunized dogs having low LHRH antibody titers (immunized-unaffected) and the five nonimmunized control dogs. The two immunized dogs (affected) with the highest antibody titers against LHRH were characterized by atrophy and dedifferentiation of the testes, prostate, and excurrent ducts. The morphologic changes in the testes of these two dogs were striking and included an apparent arrest or significant reduction in the spermatogenic process, concurrent epithelial degeneration, and apparent diminution of Leydig cell mass. Drastic reductions in the size of the prostatic acini and epithelial cells, as well as loss of secretory granules, reflected depression of function and androgen production. Similarly, in the excurrent ducts decreases in the measured parameters and loss of regional cytoplasmic specialization denoted functional decrescence. This study demonstrates the regressive effects of LHRH immunoneutralization on the morphology of the reproductive system in the male dog and further supports the feasibility of this system as an animal model for the study of isolated gonadotropin deficiency.

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