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JOURNAL ARTICLE

GnRH-A induced arrest of spermiogenesis in rats is associated with altered androgen binding protein distribution in the testis and epididymis

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This study examines the effects of a potent gonadotropin releasing hormone (GnRH)-antagonist (GnRH-A, Ac-D[2] Nal1, 4-CL-D Phe2, D-Trp3, D-Arg6, D-Ala10) upon the distribution of androgen binding protein (ABP) in serum, testis, and epididymis, and its relationship with the completion of spermatogenesis in Sprague-Dawley rats. After 2 weeks of daily injections of 10 micrograms/kg, 50 micrograms/kg, 100 micrograms/kg, or 500 micrograms/kg of GnRH-A, testicular ABP content was either unchanged or elevated (P less than 0.05), and serum ABP levels were elevated (P less than 0.01). Spermatogenesis was maintained in animals administered 10 micrograms/kg or 50 micrograms/kg GnRH-A, and epididymal ABP content remained unchanged. On the other hand, daily injections of 100 micrograms/kg or 500 micrograms/kg GnRH-A resulted in a significant decrease in epididymal ABP content (P less than 0.05), and spermatogenesis was arrested at early spermiogenesis. After 4 weeks of GnRH-A administration, both testicular and epididymal ABP were decreased in a dose-dependent manner in animals receiving doses of 50 micrograms/kg or higher of GnRH-A. In order to evaluate the normalcy of the bidirectional release of ABP in GnRH-A treated rats, additional rats were given daily injections of 25 micrograms/kg or 250 micrograms/kg of GnRH-A for 2 weeks. Concentrations of ABP in interstitial fluid (ITF) and seminiferous tubular fluid (STF) remained unchanged, but serum ABP levels were significantly increased (P less than 0.05) in rats administered 25 micrograms/kg GnRH-A. Qualitatively normal spermatogenesis was maintained and epididymal ABP content did not differ from that of control animals.(ABSTRACT TRUNCATED AT 250 WORDS)

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