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JOURNAL ARTICLE

Testicular LH receptors during aging in Fisher 344 rats

A. Amador, R. W. Steger, A. Bartke, A. Johns, T. M. Siler-Khodr, C. R. Parker Jr and A. M. Shepherd

Levels of serum LH, prolactin, testosterone, progesterone and 17-OH progesterone and the testicular concentration and total content of LH receptors were measured in 4-, 11-, 18-, and 27-month-old Fisher 344 rats. All 27-month-old rats had Leydig cell tumors. At first, testicular LH receptor levels decreased with age, but with the appearance of the testicular tumors, these levels increased dramatically. Serum prolactin levels fluctuated with age, but were significantly decreased in 27-month-old rats, as were serum LH levels. Serum testosterone levels decreased steadily with age, while the testosterone-LH receptor ratio remained constant until the appearance of the testicular tumors, after which the ratio decreased precipitously. Serum progesterone levels remained constant throughout the life of Fisher 344 rats until the appearance of testicular tumors, when they increased dramatically. Serum 17-OH progesterone levels were increased significantly at 11 and 27 months as compared to four months of age, but levels at 18 months were similar to those seen in the 4-month-old animals. Therefore, in aged Fisher 344 rats with spontaneous Leydig cell tumors, there is an alteration in the testicular testosterone synthesizing pathway at a step after progesterone.