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JOURNAL ARTICLE

Leydig cell function after experimental testicular torsion despite loss of spermatogenesis

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Little is known about specific testicular cell responses to periods of testicular torsion. In particular, the steroidogenic capacity of Leydig cells in the post-torsion testis is unknown. Male Sprague-Dawley rats (450-550 g) underwent no torsion (control) or a 720 degrees unilateral testicular torsion for either 0 (sham), or 1 or 2 Such torsions have previously been shown to cause progressive damage to the rat testis. One, 15, or 30 days after torsion repair all animals (n = 5-10/group) were prepared for testicular venipuncture and intravenous infusion of ovine luteinizing hormone (LH) via the femoral vein. Testicular venous blood was collected directly from the surface of the testis both 5 minutes prior to and 90 minutes after infusion of predetermined ED50 (0.1 microgram) or ED100 (0.5 microgram) doses of LH. Testicular venous serum (TVS) was assayed for testosterone (T) by radioimmunoassay. Control animal TVS T concentrations before LH infusion and 90 minutes after ED50 and ED100 LH stimulation were 103 +/- 25, 621 +/- 103, and 1,055 +/- 140 ng/ml, respectively. Testes having experienced a 1-hour torsion did not have a significantly ($P < 0.05$) reduced capacity to respond to ED50 and ED100 stimulation at either 15 and 30 days after the torsion. Testes having experienced a 2-hour torsion did have significantly reduced ($P < 0.05$) ED50 responses at both 1 hour and 30 days after torsion repair. More remarkably, significant steroidogenic reserve was still present in testes after torsion, which in previous studies had been shown to have permanent loss of spermatogenesis.(ABSTRACT TRUNCATED AT 250 WORDS)

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