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JOURNAL ARTICLE

Testicular microvascular blood flow: alteration after Leydig cell eradication and ischemia but not experimental varicocele

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Testicular microvascular blood flow is known to exhibit vasomotion, or pulsatile flow. In the present study we have used laser-Doppler flowmetry to study microvascular blood flow in the rat testis and to examine the response of the microvasculature to pharmacological stimulation and pathophysiological conditions. With a mean microvascular flow rate of 13.3 +/- 1.7 perfusion units (PU), the mean cycle amplitude was 3.4 +/- 0.6 PU, and the cycle frequency was 10.3 +/- 0.8 cycles per minute. Blood flow parameters did not differ between left and right testes, between scrotal testes and testes in a 35 degree C glass testicle receptacle, or among testicular regions. Perifusion of seminiferous tubules and their vasculature with 0.1 microgram/microliter epinephrine significantly reduced microvascular blood flow and eliminated vasomotion. Elimination of Leydig cells and intratesticular testosterone also eliminated vasomotion but did not significantly alter mean blood flow rates. Thirty days after imposition of experimental left varicocele (ELV) there were no significant changes in microvascular blood flow parameters. Testicular torsion of sufficient degree and duration to destroy spermatogenesis did not induce a change in mean microvascular blood flow rate 24 hours after repair of torsion, but testicular vasomotion was eliminated in the majority of animals. We conclude that microvascular flow is altered in some testicular pathologies and not in others. The mechanisms underlying changes in microvascular blood flow are at present unknown.

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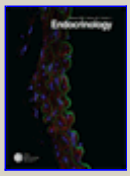

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