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JOURNAL ARTICLE

Journal of

Effects of endothelin-1 on the rat testicular vasculature

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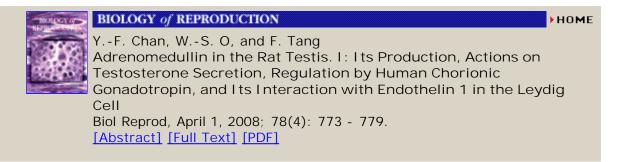
Endothelin-1 (ET-1), a well-known vasoconstrictor substance, is present in the testis but its functional role is unknown. The present study was undertaken to elucidate whether ET-1 may influence testicular blood flow. ET-1 (0.1, 1, 10, 100 ng), an ETA antagonist (BQ123; 0.01, 1, 100 micrograms), or saline were administered by intratesticular injections (0.1 ml) in adult rats. The effect on testicular blood flow was monitored using a laser Doppler flowmeter. The localization of immunoreactive ET-1 (irET-1) was studied by

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immunohistochemistry and the testicular irET-1 concentration was measured in normal and human chorionic gonadotrophin (hCG)-treated rats using a radioimmunoassay. ET-1 injection, in a doserelated way acutely decreased testicular blood flow and this effect was blocked by an ETA antagonist. The antagonist itself did not, however, influence testicular blood flow. Accumulation of polymorphonuclear leukocytes was observed in testicular venules 2 hours after ET-1 injection. Immunoreactive ET-1 was observed in Leydig, Sertoli, and endothelial cells. The testicular irET-1 content was increased 2-fold by hCG stimulation but local injection of the ET-1 antagonist did not influence testicular blood flow in hCG-treated rats. The present study suggests that ET-1 could be a hormonally regulated and locally produced modulator of testicular blood flow and microcirculation.

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