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JOURNAL ARTICLE

Gonadotroph and Leydig cell responsiveness in the male rat. Effects of experimental left varicocele

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Previous experiments have found that experimental left-sided varicocele (ELV) in rats is associated with significant bilateral reductions in intratesticular testosterone concentrations. The current experiments were performed to determine the source of this endocrinopathy. Sensitivity and responsivity of Leydig cells and gonadotrophs were determined in control male rats and in those with ELV. Initially, dose-response relationships were determined for luteinizing hormone (LH) stimulation of testosterone secretion by Leydig cells and for luteinizing hormone releasing hormone (LHRH) stimulation of LH secretion by gonadotrophs. Maximally (ED100) and half-maximally (ED50) stimulating doses of LH and LHRH were selected from these studies and administered to sham-operated and ELV rats 30 days after the operation to induce ELV. Leydig cell and gonadotroph sensitivity (response to ED50) and responsivity (response to ED100) to LH and LHRH, respectively, were determined. Responsivity of Leydig cells in control and ELV rats was similar. Responsivity of gonadotrophs to LHRH was significantly suppressed in ELV animals, but the physiologic relevance of this singular finding is unclear. It is possible that the previously determined ELV-associated decrease in intratesticular testosterone concentrations is subsequent to a wash-out phenomenon that follows the increased testicular blood flow that also is known to be associated with ELV.

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