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JOURNAL ARTICLE

Postvasectomy alterations in protein synthesis and secretion in the rat caput epididymidis are not repaired after vasovasostomy

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Many men who have undergone vasectomy later request vasovasostomy. Unfortunately, significant numbers of these men remain infertile despite the reestablishment of patent ducts. This report examines the possibility that epididymal function remains compromised after vasovasostomy in the rat by examination of quantifiable, in vivo protein synthesis and secretion in the caput epididymidis. Rats were studied 30 days after vasectomy, 30 days after a vasovasostomy (which was performed 30 days after vasectomy), or after sham operations. Epididymal lumen fluids (LF) were collected by micropuncture after 3 hours' in vivo microperfusion of tubules with ³⁵S-amino acids. Proteins were separated by 2-dimensional electrophoresis and were detected by Coomassie blue staining. Synthesized proteins in tubule extract and synthesized and secreted proteins in LF were detected by autoradiography and image analysis. Specific proteins that appeared to be affected by vasectomy-vasovasostomy were identified by internal sequence analysis. LF contained an average of 87 detectable proteins synthesized and secreted in the control caput. Nineteen of the most prominent LF proteins were selected for more focused study. The most prominent proteins were clusterin, cysteine-rich secretory protein (CRISP)-1, and epididymal retinoic acid-binding protein. Among these, CRISP-1 remained reduced in LF after vasovasostomy. Two more minor proteins that remained reduced after vasovasostomy were identified as prostaglandin D2 synthase and phosphatidylethanolamine-binding protein. All 3 of these proteins occur in the epididymides of multiple species and have been associated with sperm fertilizing capacity.

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