Journal of Andrology, Vol 15, Issue 5 410-414, Copyright © 1994 by The American Society of Andrology

JOURNAL ARTICLE

Immunoreactive parathyroid hormone-related protein is present in human seminal plasma and is of prostate origin

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Parathyroid hormone-related protein (PTHrP) is a regulatory peptide that has been associated with normal fetal growth and differentiation as well as the regulation of fetal calcium. We recently demonstrated the expression of PTHrP in neuroendocrine cells of human prostatic glands. The present study was undertaken to determine if semen contained PTHrP and to determine if there were any differences in seminal PTHrP between normal and vasectomized men. Radioimmunoassay was used to examine whether immunoreactive PTHrP in seminal fluid is secreted by the prostate. Significant quantities of immunoreactive PTHrP were detected in all seminal samples from normal men of ages 24-34 years (mean +/- SD, 12.94 +/- 8.2 ng/ml). Vasectomy did not decrease the semen levels of PTHrP (25.53 +/- 12.14 ng/ml). In addition, immunohistochemical evaluation with a monoclonal antibody used in our previous study did not show PTHrP immunostaining in the seminal vesicles. These findings indicate that seminal PTHrP is predominantly of prostatic origin. Moreover, the significant correlations between PTHrP and calcium levels in human seminal plasma from both normal ($P < 0.001$) and vasectomized ($P < 0.02$) patients suggest that PTHrP may serve as a regulatory factor of calcium secretion in the prostate.

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