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# Stereological Quantification of Nerve Fibers Immunoreactive to PGP 9.5, NPY, and VIP in Rat Prostate During Postnatal Development

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This work was undertaken to study prostate innervation during the postnatal development of rats. It deals with the quantification of nervous fibers throughout all the regions of the rat prostate during the postnatal development using a general marker for nervous tissue, protein gene product 9.5, and 2 neuropeptides (NPY and VIP). Forty male Wistar rats (prepubertals, pubertals, young, and aged adults) were studied for immunohistochemistry of protein gene product (PGP 9.5), neuropeptide Y (NPY), and vasoactive intestinal polypeptide (VIP). They were also evaluated for length density of nerve fibers ( $L_V$  PGP 9.5,  $L_V$  NPY,  $L_V$  VIP). Nerve fibers immunoreactive to the 3 antigens studied were detected in all the groups and in all the prostate zones. Periductal  $L_V$  NPY evidenced a significant increase in the pubertal group, maintained throughout adult life. Periductal  $L_V$  VIP showed a significant increase in young adults. The length densities of VIP and NPY fibers were significantly higher in periductal and ampular locations in comparison with dorsal and ventral sites. It can be concluded that the relative amount of nerve fibers in rat prostate, detected by PGP 9.5, does not change during postnatal development. There were significant changes in NPY and VIP fibers, showing an increase in periurethral ducts at puberty. The abundance of peptidergic innervation around the excretory ducts is related to their contractility. The development of innervation of periurethral ducts is regulated by androgens.

Key words: Innervation, neuropeptides

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