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JOURNAL ARTICLE

Spontaneous hyperplasia of the ventral lobe of the prostate in aging genetically hypertensive rats

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Recent studies have shown that the prostatic autonomic innervation takes part in its homeostasis and growth. Other works showed that spontaneously hypertensive rats (SHR) show excessive sympathetic activity, accompanied by lower urinary tract symptoms, increased growth capacity of prostatic stromal cells, and increased levels of androgens and their receptors. Furthermore, young SHR were reported to present incipient stages of benign prostatic hyperplasia (BPH). The aim of the present study was to examine whether this strain indeed develops spontaneous BPH with age, and can thus serve as a genuine natural model for this disorder. For this purpose, ventral lobes of prostates of one-year-old, male SHR and their normotensive counterparts, Wistar Kyoto (WKY) rats, were examined histopathologically, and the degree of hyperplasia was evaluated according to a score-chart protocol (histoscore). SHR exhibited severe adenomatous spontaneous BPH, characterized by piling-up of epithelial cells, with papillary formations, accompanied by a mild increase in the amount of fibrocytes and smooth muscle cells in the stroma. This was reflected by histoscore values of 38 ± 2 . Thickening of prostatic arterioles also was noted, as well as mild chronic inflammatory exudate. WKY rats did not show any of these features of BPH despite their age (histoscore 17 ± 3 , significantly different from that of SHR). We conclude that SHR can serve as a rodent model for the spontaneous development of BPH with age, most probably due to the excessive neuroendocrine activity characteristic of this rat strain.

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