Female prostate: a review about the biological repercussions of this gland in humans and rodents

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Abstract

The prostate is not a gland exclusive to the male reproductive system since it is also found in females of several mammals, including humans and rodents. In males, prostatic morphogenesis is an event controlled by androgens, which act indirectly via paracrine factors secreted by the mesenchyme. In females, prostatic embryological development occurs in an environment without steroid hormones, but the presence of these hormones in an adult organism induces the differentiation and secretory activity of prostatic cells. The increasing interest in female prostate studies comes from its biological role in the production of prostatic fluid, which participates in the nutrition and maintenance processes of spermatozoa that are introduced into the female reproductive system and has the potential to cause benign and malignant lesions. In recent decades, the occurrences of prostatitis (Skeneitis), benign prostatic hyperplasia, and urethral adenocarcinoma in post-menopausal women have been common. The installation of these disorders in aged women seems to be associated with the hormonal imbalance caused by the failure of the ovaries to produce steroids. Experiments involving testosterone and anti-estrogen administration in female rodents have shown that the morphology and physiology of the female prostate are regulated by androgens and estrogens. While androgens induce the differentiation, development, and secretory activity of the gland, the estrogens appear to modulate the androgenic effects, maintaining the normal physiology and growth of the prostate. Long-term exposure to synthetic hormones (contraceptives and hormonal replacement drugs), which interferes with women's hormonal balance, can cause important changes in the female prostate morphophysiology. Thus, it is necessary to frequently monitor the female prostate in order to prevent prostatic disorders that can endanger the quality of life of women.

Keywords: female prostate, prostate morphogenesis, rodents, androgens, estrogens.