

tal groups was associated with an increase in the plasma FSH and LH levels. These observations prompted the authors to consider the pituitary-testicular axis. The plasma total testosterone levels had decreased and plasma FSH and LH levels increased, as expected. Therefore, the mechanism of spermatogenic abnormalities was more likely a result of the direct effect on germinal epithelium, and the hormonal deficit appeared to be a result of Leydig cell dysfunction. The pituitary gland or hypothalamus may also be affected, and the maturation arrest could have been the result of hypothalamic-pituitary-testicular axis deficiency. However, this hypothesis should be elucidated by additional studies focused on the hypophysial or hypothalamic tissues.

Consumption of *M. piperita* and *M. spicata* teas affected spermatogenic activity at the 20 g/L and 40 g/L dose, respectively, in rats. The authors remember us that despite *M. piperita* and *M. spicata* beneficial effects in digestion, people should be aware of their toxic adverse effects when not used in the recommended fashion or at the recommended dose.

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RECONSTRUCTIVE UROLOGY

Current and future strategies for preventing and managing erectile dysfunction following radical prostatectomy

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Introduction and Objectives: As radical prostatectomy remains a commonly used procedure in the treatment of clinically localized prostate cancer, we critically analyzed current and future strategies for preventing and managing postoperative erectile dysfunction.

Methods: Systematic literature review using Medline and CancerLit from January 1997 to June 2003. Abstracts published in the journals *European Urology*, *The Journal of Urology* and the *International Journal of Impotence Research* as official proceedings of internationally known scientific societies held in the same time period were also assessed.

Results: Patient selection and surgical technique are the major determinants of postoperative erectile function. Apoptosis of corporeal smooth muscle cells plays a role in the development of cavernous veno-occlusive dysfunction following radical prostatectomy. Pharmacological prophylaxis and treatment of postoperative erectile dysfunction is effective and safe. The concepts of cavernous nerve reconstruction and neuroprotection have been associated to promising results.

Conclusions: In the hands of experienced surgeons, properly selected patients undergoing a nerve sparing radical prostatectomy should achieve unassisted or medically assisted erections postoperatively.

Editorial Comment

This paper written by a team of young experts on the treatment of sexual dysfunction nicely describes how erectile function can currently be treated after oncological pelvic surgery. It is a valuable reference for both the pelvic surgeons performing potency preserving techniques and those who deal with these patients postop-

eratively. Nerve preservation is currently the only clinically truly proven method of preserving potency after radical prostatectomy or cystoprostatectomy. Although there are data that have shown the results of autologous nerve interposition if autonomic periprostatic nerves cannot be preserved, the true value and applicability needs to be reproduced in larger patient cohorts. Another interesting future aspect may be the use of neurogenesis inducing drugs or pharmatherapeutically protective substances such as immunophilin ligands, which are currently under clinical investigation.

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Neuroanatomy of the human female lower urogenital tract

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Purpose: The neuroanatomy of the female lower urogenital tract remains controversial. We defined the topographical anatomy and differential immunohistochemical characteristics of the dorsal nerve of the clitoris, the cavernous nerve and the nerves innervating the female urethral sphincter complex.

Materials and Methods: A total of 16 normal female human pelvic specimens at 14 to 34 weeks of gestation were studied by immunohistochemical techniques. Serial sections were stained with antibodies raised against the neuronal markers S-100 and neuronal nitric oxide synthase (nNOS), vesicular acetylcholine transporter, calcitonin gene-related peptide and substance P. The serial sections were computer reconstructed into 3-dimensional images.

Results: Under the pubic arch at the hilum of the clitoral bodies, the branches of the cavernous nerves joined the clitoral dorsal nerve to transform its immunoreactivity to nNOS positive. The cavernous nerves originated from the vaginal nervous plexus occupying the 2 and 10 o'clock positions on the anterolateral vagina and they traveled at the 5 and 7 o'clock positions along the urethra. The urethral sphincter complex was innervated by nNOS immunoreactive and nonimmunoreactive nerve fibers arising from the vaginal nervous plexus and pudendal nerve, respectively.

Conclusions: The dorsal nerve of the clitoris receives nNOS positive branches from the cavernous nerve as a possible redundant mechanism for clitoral erectile function. The urethral sphincter complex has dual innervation, which pierces into the urethral sphincter complex at different locations. The study of the neuroanatomy of the female lower urogenital tract is germane to the strategic design of female reconstructive surgery.

Editorial Comment

This is the second paper on the neuroanatomy of the human clitoris of this group. They examined female human fetal pelvic specimens with regards to neural immunoreactivity. In an elegant study, they were able to demonstrate findings, which are important for some of the more recently available reconstructive techniques in women undergoing pelvic floor or pelvic surgery.

nNOS immunoreactive nerve fibers were demonstrated in the distal clitoris but not in the proximal clitoris. It might be speculated that NO not only plays an important role in female sexual physiology but also

that these specific nerves derive from the cavernous within the clitoral bodies and therefore are supplied by the pelvic autonomic nerves.

The location of these autonomic pelvic nerves were seen at the level of the urethra at the 5 and 7 o'clock joining more cranially the more nervous complex located at the anterior lateral sides of the vagina at the 2 and 10 o'clock positions. There was also a nNOS non-immunoreactive but otherwise autonomic nerve entering the muscular layer of the urethral sphincter complex at the mid urethra. There were no other autonomic nerves seen in the mid urethra.

The location of a dense network of autonomic nerves at the level of the vagina supplied by the inferior hypogastric plexus occupying the 2 and 10 o'clock positions at the rectum mainly at the lateral and anterior vaginal wall which were thinning out on the anterior wall towards the urethra. From there, fibers traveled either along the pathways described above towards the clitoris or towards the proximal a mid urethral sphincter.

We learn from these studies for complex surgical procedures at the level of the pelvic floor and urethra to maintain micturition, continence and sexuality in female patients the preservation of autonomic nerves is mandatory and must put there pathways within the whole pelvis into consideration. Further studies will have to follow to demonstrate the functional value and possible changes in adulthood but definitely these data warned consideration during surgery.

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UROLOGICAL ONCOLOGY

A single immediate postoperative instillation of chemotherapy decreases the risk of recurrence in patients with stage Ta T1 bladder cancer: a meta-analysis of published results of randomized clinical trials

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Purpose: We determined if 1 immediate instillation of chemotherapy after transurethral resection (TUR) decreases the risk of recurrence in patients with stage Ta T1 single and multiple bladder cancer overall and separately.

Materials and Methods: A meta-analysis was performed of the published results of randomized clinical trials comparing TUR alone to TUR plus 1 immediate instillation of chemotherapy.

Results: Our study included 7 randomized trials with recurrence information on 1476 patients. Based on a median followup of 3.4 years and a maximum of 14.5 years, 267 of 728 patients (36.7%) receiving 1 postoperative instillation of epirubicin, mitomycin C, thiotepa or (2'R)-4'-O-tetrahydropyranyl-doxorubicin (pirarubicin) had recurrence compared to 362 of 748 patients (48.4%) with TUR alone, a decrease of 39% in the odds of recurrence with chemotherapy (OR 0.61, $p < 0.0001$). Patients with a single tumor (OR 0.61) and those with multiple tumors (OR 0.44) benefited. However, after 1 instillation 65.2% of patients with multiple tumors had recurrence compared to 35.8% of patients with single tumors, showing that 1 instillation alone is insufficient treatment for patients with multiple tumors.