References
1. Bostwick DG, Srigley JR: Premalignant Lesions. In: Bostwick DG (ed.), Pathology of the Prostate. New York, Churchill Livingstone,1990; pp.37-59.
2. Drago JR, Mostofi FK, Lee F: Introductory remarks and workshop summary. Urology. (suppl) 1989; 34: 2-3.
3. Epstein JI, Herawi M: Prostate needle biopsies containing prostatic intraepithelial neoplasia or atypical foci suspicious for carcinoma: Implications for patient care. J Urol 2006; 175: 820-34.

Dr. Athanase Billis
Full-Professor of Pathology
State University of Campinas, Unicamp
Campinas, Sao Paulo, Brazil

INVESTIGATIVE UROLOGY

Concentration of Elastic System Fibers in the Corpus Cavernosum, Corpus Spongiosum, and Tunica Albuginea in the Rabbit Penis

Maia RS, Babinski MA, Figueiredo MA, Chagas MA, Costa WS, Sampaio FJ
Urogenital Research Unit, State University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil
Int J Impot Res. 2006; 18: 121-5

The corpus cavernosum (CC) extracellular matrix is essential for normal penile erection and is implicated in erectile dysfunction. Although investigations of these issues have used the rabbit CC, organization of its components is not well known to date. We characterized and quantified the volumetric density (Vv) of the elastic system fibers in the corpus spongiosum (CS), CC and tunica albuginea (TA) of the rabbit penis. Adult New Zealand rabbits (n = 10) were used. The penile mid-shaft fragments were fixed with 4% phosphate-buffered formalin solution and/or Bouin's liquid for 24-48 h, and processed using standard histological techniques. The sections were stained with Weigert's Fucsin-Resorcin with previous oxidation. The elastic system fibers Vv (%) was determined in 25 random fields of each fragment, using the M-42 test grid. The histochemical methods detected elastic system fibers in CS, CC and TA of all animals. The Vv of elastic fibers average was 25.03+/-2.0% for CC, 32.23+/-1.41% for CS and 22.38+/-3.61% for TA. Results for CC and CS were not significantly different. The great amount of elastic fibers distribution beneath the endothelium suggests that these fibers may have an important role in the erection process in rabbits. The present data should therefore provide important information for devising experiments and interpreting results when using the rabbit penis as a model for penile dysfunctions, especially when making comparisons with humans.

Editorial Comment

The general understanding of the morphological changes and physiology of penile erection has been obtained considering different animal models such as rats, domestic animals, primates and rabbits. Therefore, normative data on the erectile tissue of these animals are important when studying diverse physiological situations and experimental pathological conditions, and comparing the findings obtained with findings in humans.

The purpose of this study was to better understanding the rabbit penis using morphometrical analysis of the elastic fibers in the corpus spongiosum (CS), corpus cavernosum (CC) and tunica albuginea (TA).

A previous study demonstrated that the volumetric density (Vv) of elastic system fibers in the rat CC was 9%, and therefore, it was concluded that the cellular and matricial components of the rat CC differ markedly from those of humans in content and organization (1). Consequently, inferences and correlations based on physiological

and pathological findings derived from experiments that use the rat as an erection model may be misleading if these differences are not considered.

In mammals, the classification of different penis types is based on erectile or connective tissue. In animals with vascular penis (rabbit or man), erection is a consequence of increase in size and hardening of the organ. In animals with a fibroelastic penis, the erection is essentially a result of length increasing, with the penis emerging from the prepuce due to sigmoid flexure straightening (2).

Interesting, the present study showed that the elastic system fibers were abundant in the CS of the rabbit, demonstrating a greater Vv in contrast to the CC and TA. It was demonstrated that the New Zealand rabbit penis is a vascular organ with prominent elastic fibers in the CS (Vv = 32.3%) and CC (Vv = 25.1%), as well as in the TA (Vv = 22.4%). It was observed a larger amount of elastic fibers in the rabbit penis than in human penis components. As the rabbit has been used as the better animal model for studying erectile function, this information is of utmost importance and should be taken into account when comparing the experimental findings with those of humans.

References

1. Pinheiro AC, Costa WS, Cardoso LE, Sampaio FJ: Organization and relative content of smooth muscle cells, collagen and elastic fibers in the corpus cavernosum of rat penis. J Urol. 2000; 164: 1802-6
2. Babinski MA, deBrito-Gitirana L, Chagas MA, Abidu-Figueiredo M, Costa WS, Sampaio FJ: Immunohistochemical analysis of smooth muscle cells and volumetric density of the elastic system fibers of wild boar (Sus scrofa) penis. Anim Reprod Sci. 2005; 86: 317-28.

Dr. Francisco Sampaio
Full-Professor and Chair, Urogenital Research Unit
State University of Rio de Janeiro
Rio de Janeiro, Brazil

Expression of COX-2 in Normal and Pyelonephritic Kidney, Renal Intraepithelial Neoplasia, and Renal Cell Carcinoma

Mungan MU, Gurel D, Canda AE, Tuna B, Yorukoglu K, Kirkali Z
Dokuz Eylul University School of Medicine, Department of Urology, Izmir, Turkey
Eur Urol. 2006; 50: 92-7; discussion 97

Objectives: The role of inflammation in carcinogenesis is unknown. To determine the relationship between cyclooxygenase 2 (COX-2) expression, inflammation, and carcinogenesis in human renal cell carcinoma (RCC), we looked for COX-2 expression in normal and pyelonephritic kidney, renal intratubular neoplasia (RIN), and RCC tissues.
Methods: COX-2 expression was assessed immunohistochemically in tissues obtained from 20 pyelonephritic kidneys, 16 normal kidneys, 19 RIN, and 75 RCC cases.
Results: COX-2 expression was found to be positive in 64% of RCCs. It was positive in 13 chronic pyelonephritic (65%), 9 normal (56%), and 15 RIN (79%) cases. COX-2 expression was significantly higher in RCC and RIN than the normal and pyelonephritic cases ($p < 0.001$ and $p < 0.001$, respectively). No statistically significant difference was noted between RCC and RIN cases.
Conclusions: Although the function of COX-2 in tumor development has not been exactly elucidated, the increased expression of COX-2 in RIN and RCC might be a factor that may play a role in the development of RIN or progression to RCC, which warrants further research.

Editorial Comment

Results of previous studies support the importance of neovascularity in tumor growth and that cyclooxygenase 2 expression may be an important regulator of neovascularity in renal cell carcinoma. The authors of this study found that there is no significant difference between cyclooxygenase 2 expression in normal and pyelonephritic kidney tissues. It is indicative of differences in the mechanism of inflammation in pyelonephritis (infectious agents) and peritumoral inflammation occurring around the tumor due to anti-tumor immune response, which could induce cyclooxygenase 2 expression. The authors pointed out that the peritumoral kidney tissue inflammation seems to have different molecular characteristics than inflammated kidney tissue in pyelonephritis, such as increased cyclooxygenase 2 expression. Although preclinical and in the experimental setting, this paper opens new avenue in the treatment of renal cell carcinoma, that is the use of cyclooxygenase 2 inhibitors.

Dr. Francisco Sampaio
Full-Professor and Chair, Urogenital Research Unit
State University of Rio de Janeiro
Rio de Janeiro, Brazil

RECONSTRUCTIVE UROLOGY

Botulinum Toxin Injections for Neurogenic and Idiopathic Detrusor Overactivity: A Critical Analysis of Results

Patel AK, Patterson JM, Chapple CR
Sheffield Teaching Hospitals NHS Trust, Urology Research Department, Royal Hallamshire Hospital, Sheffield, United Kingdom
Eur Urol. 2006; 50: 684-709; discussion 709-10

Objective: In recent years there has been an increasing use of the botulinum neurotoxins for the management of conditions characterised by detrusor overactivity. Early studies showed promising results in an area where few options previously existed between pharmacotherapy and surgery. This has led to an urgent need to assess the wide range of techniques and therapies available, as well as the efficacy and tolerability of the treatment. We performed a critical analysis of the numerous clinical studies for this novel treatment option in the management of neurogenic and idiopathic detrusor overactivity, with a view to directing further research and assisting urologists in the management of these conditions.
Methods: A systematic review of the literature, as well as a search for abstracts presented to relevant peer-reviewed meetings, was performed. All articles from 1988 onwards were included, prior to which no articles describing urologic use of botulinum neurotoxins had been published, although the majority of the articles have been published since 2000.
Results and Conclusions: Although many of the studies were small, overwhelming evidence supports the efficacy, safety, and tolerability of the botulinum toxins, specifically serotype A, for the management of these conditions. Before this is accepted as a widespread treatment modality, good-quality evidence from large-scale randomised controlled trials is needed. These studies should identify not only the most appropriate patients to treat but also the best dose, administration technique, and frequency for treatment.