INVESTIGATIVE UROLOGY

Prevalence of Peyronie's Disease among Patients with Erectile Dysfunction

El-Sakka AI
Department of Urology, Suez Canal University, School of Medicine Ismailia, Egypt and Al-Noor Specialist Hospital, Makkah, Saudi Arabia
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Purpose: To assess the prevalence of Peyronie's disease (PD) among patients with erectile dysfunction (ED).
Materials and Methods: A total of 1,440 male patients with ED were enrolled in this study. Patients were interviewed for ED using the International Index of Erectile Function (IIEF). All patients were also screened for socio-demographic data and risk factors for ED that included age, smoking, diabetes, hypertension, dyslipidemia, Ischemic Heart Disease (IHD), and psychological disorders. The diagnosis of PD was based on a palpable penile plaque or acquired penile curvature. Patients underwent routine laboratory investigation in addition to testosterone and prolactin assessment.
Results: Mean ages +/-SD were 54.1 +/- 6.9 (range 42-71) and 52.5 +/- 11.9 (range 20-84) years for patients with and without PD respectively. Of the patients, 11.8% had mild, 38.3% had moderate and 49.9% had severe ED. 7.9% of the patients had PD. Significant associations between PD and both the longer duration and the increased severity of ED were detected. There were also significant associations between PD and the following socio-demographic risk factors of ED: age, obesity, smoking, duration and number of cigarettes smoked per day. Concomitant diseases and medical comorbidities such as diabetes, dyslipidemia, psychological disorders and the presence of at least one risk factor were significantly associated with PD in patients with ED.
Conclusions: Peyronie's disease was not rare among the study population. There were significant associations between ED risk factors and PD. Further studies are needed to investigate how much ED and PD influence each other.

Editorial Comment

This is an interesting paper studying the incidence of Peyronie's disease (PD) and erectile dysfunction (ED). Peyronie's disease affects up to 9% of male adult population (1) and the present findings are not so much different form the general data.

Other recent study (2) investigated the erectile function status of men presenting with Peyronie's disease. Demographics of patients regarding age, duration of PD, nature of deformity and comorbidities were compared between the patients with PD, with and without erectile dysfunction. 35% of the patients had had ED. The mean age of patients with PD and ED was 52 +/- 22 years old. Hypertension (71.5%), hyperlipidemia (60.4%) and smoking (49.2%) were the leading comorbidities, which are also similar to those found by El-Sakka.

An interesting recent study using penile ultrasound color Doppler (USCD) for assessing ED, detected in 8.7% of the patients, with no clinical symptoms or any clinical findings, minimal lesions suggestive of Peyronie's disease (3).

In spite of further studies to investigate how much ED and PD influence each other, the association is clear, and, therefore, treatment algorithms for men with combined Peyronie's disease and erectile dysfunction must be defined based on functional and satisfaction outcomes (4).

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

Long-Term Effect of Experimental Hypercholesterolemia on Cavernosal Tissues

Karaboga R, Kilic O, Yaman O, Percinel S, Anafarta K
Department of Urology, Ankara University Medical Faculty, Ankara, Turkey
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Objectives: To determine the effect of long-term experimental hypercholesterolemia on cavernosal tissues and to evaluate whether these alterations are reversible after improvement of hypercholesterolemia.
Methods: Thirty-seven New Zealand male rabbits with a mean age of 5 to 6 months and a weight of 2 to 2.5 kg were included in this study. The control group (group 1, n = 7) was fed with normal standard rabbit chow for 24 weeks, the hypercholesterolemia group (group 2, n = 17) was fed with a 1% pure cholesterol diet for 24 weeks, and the reversibility group (group 3, n = 13) was fed first with the 1% pure cholesterol diet for 24 weeks and then with normal standard rabbit chow for 12 weeks. The basal and 24-week serum lipid profiles of all groups and the 36-week serum lipid profiles of group 3 were measured. Core tissue samples 4 mm in diameter taken from formalin-fixed, paraffin-embedded tissue blocks of rabbit corpus cavernosum were examined for Masson trichrome histochemically and desmin and smooth muscle actin by the tissue array method using immunohistochemistry.
Results: Hypercholesterolemia was observed in groups 2 and 3 at 24 weeks compared with group 1. In group 3, at 36 weeks, the cholesterol levels were decreased. A statistically significant ($P < 0.05$) irreversible decrease was observed in smooth muscle actin level in group 3 (reversibility group) by immunohistochemical analysis. The decrease in desmin was reversible, and no significant difference was observed in collagen among the three groups.
Conclusions: Long-term chronic effects of experimental hypercholesterolemia on cavernosal smooth muscles might be irreversible and this might alter erectile function.

Editorial Comment

Conditions associated with altered function of nerves and endothelium, such as hypertension, smoking, hypercholesterolemia, diabetes, etc. may cause circulatory and structural changes in the penile erectile tissue and can result in arterial insufficiency and impaired smooth muscle relaxation (1). Hypercholesterolemia is considered one of the main risk factors of cardiovascular diseases and also for vasculogenic erectile dysfunction. It was demonstrated more than 5 years ago that hypercholesterolemia may cause impairment of endothelium-dependent relaxation and that oxidized LDL is the major causative cholesterol of the impaired

relaxation response (2). The vascular endothelial growth factor (VEGF), which is an angiogenic growth factor and an endothelial cell-specific mitogen, and whose actions are coupled to nitric oxide, is probably involved in this kind of injury, because it was found that intracavernosal injections of VEGF appear to protect corporal endothelium from hypercholesterolemia induced injury, preserving endothelial dependent corporal smooth muscle relaxation in hypercholesterolaemic rabbit (3). Recently, it was found a significantly lower in vivo and in vitro erectile response to phosphodiesterase-5 inhibition in hypercholesterolaemic rabbits than in controls (4).

The effect of experimental hypercholesterolemia on the ultrastructure of cavernosal smooth muscle cells, endothelial cells, elastic fibers, and collagen, which are the key structures for erection, were morphologically analyzed in hypercholesterolaemic rabbits, 5 years ago, by the same research group of the present paper (5). The findings shown that hypercholesterolemia in this animal model affect the percentage of staining for smooth muscle actin, endothelial cells, elastin, and collagen III and IV. However, the authors stated that this effect is temporary depending on the blood cholesterol levels, and, therefore, might not alter the erectile function.

The present study, by Karaboga et al., is very much important because demonstrates by the first time, in our knowledge, that the long-term chronic effects of experimental hypercholesterolemia on cavernosal smooth muscles might be irreversible and therefore might alter erectile function.

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

RECONSTRUCTIVE UROLOGY

The Anatomy and Embryology of Posterior Urethral Valves

Krishnan A, de Souza A, Konijeti R, Baskin LS
Department of Urology, University of California-San Francisco Children's Medical Center, University of California, San Francisco, California, USA
J Urol. 2006; 175: 1214-20