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## RESEARCH

### RELATIONSHIP BETWEEN INTERNATIONAL INDEX OF ERECTILE FUNCTION AND INTERNATIONAL PROSTATE SYMPTOM SCORES' DEGREES IN PATIENTS WITH BENIGN PROSTATE HYPERPLASIA AFTER 50 YEARS OLD

#### ABSTRACT

**Objective:** The aim of the present study is to evaluate the relationship between International Index of Erectile Function Score and International Prostate Symptom Score values in patients with lower urinary tract symptoms.

**Materials:** A total of 263 patients between 25 and 81 years old were evaluated by digital rectal examination, transrectal ultrasonography, serum biochemical analysis and Prostate Specific Antigen. Prostate and erectile function questionnaire forms were filled by all patients. After these investigations, 82 patients between 50 and 78 years olds were enrolled into the study. The patients were divided based on the severity of lower urinary tract symptoms as mild, moderate and severe, and based on erectile function questionnaire form score as normal or mild, moderate and severe erectile dysfunction.

**Results:** Average age was  $61.3 \pm 6.9$  years old. Average International Prostate Symptom Score and International Index of Erectile Function scores were  $14.8 \pm 6.6$  and  $13.4 \pm 8.7$ , respectively. There was not found any differences between degree of the lower urinary tract symptoms and erectile dysfunction according to questionnaire forms of patients (Pearson  $\chi^2 = 2.886$ ,  $p = 0.581$ ). There was negative, but statistically insignificant correlation between two questionnaire forms' values ( $r = -0.227$ ,  $p = 0.102$ ).

**Conclusion:** Although benign prostate hyperplasia and erectile dysfunction are the most common pathologies in elderly patients, the relationship between benign prostate hyperplasia and erectile dysfunction is due to only being in the same gender and ages.

**Key words:** Lower urinary tract symptoms, Erectile dysfunction, Benign prostate hyperplasia, Quality of life

## ARAŞTIRMA

### ELLİ YAŞINDAN SONRAKİ BENİGN PROSTAT HİPERTROFİLİ HASTALARDA ULUSLAR ARASI EREKTİL FONKSİYON İNDEKSİ VE ULUSLAR ARASI PROSTAT SEMPTOM SKORU ARASINDAKİ İLİŞKİ

#### Öz

**Amaç:** Bu çalışmanın amacı alt üriner sistem semptomu olan hastalarda uluslar arası erektil fonksiyon skoru ile uluslar arası prostat semptom skoru değerleri arasındaki ilişkiyi değerlendirmektir.

**Yöntem ve Gereç:** Yirmi beş ile 81 yaşları arasında toplam 263 hasta dijital rektal muayene, transrektal ultrasonografi, serum biyokimya analizi, prostat spesifik antijen ile değerlendirildi. Prostat ve erektil fonksiyon sorgulama formları tüm hastalar tarafından dolduruldu. Bu değerlendirmelerden sonra, 50 ile 78 yaşları arasında 82 hasta çalışmaya dahil edildi. Hastalar alt üriner sistem semptomlarının ciddiyetine göre hafif, orta ve ciddi olarak; erektil fonksiyon sorgulama form skorlarına göre normal veya hafif, orta ve ciddi erektil disfonksiyon olarak ayrıldı.

**Bulgular:** Ortalama yaş  $61.3 \pm 6.9$  yıl idi. Ortalama uluslar arası prostat semptom ve uluslar arası erektil fonksiyon skorları sırasıyla  $14.8 \pm 6.6$  ve  $13.4 \pm 8.7$  idi. Sorgulama formlarına göre hastaların alt üriner sistem semptomları ile erektil disfonksiyon dereceleri arasında ilişki bulunmadı (Pearson  $\chi^2 = 2.886$ ,  $p = 0.581$ ). İki sorgulama formu değerleri arasında negatif, fakat istatistiksel olarak anlamsız korelasyon izlendi ( $r = -0.227$ ,  $p = 0.102$ ).

**Sonuç:** Benign prostat hiperplazisi ve erektil disfonksiyon yaşlı hastalarda en yaygın patoloji olmasında rağmen, bu iki patoloji arasındaki ilişki sadece aynı cins ve aynı yaşama başlamasına bağlıdır.

**Anahtar sözcükler:** Alt üriner sistem semptomları, Eretil disfonksiyon, Benign prostat hiperplazisi, Yaşam kalitesi

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## INTRODUCTION

Lower urinary tract symptoms (LUTS) increase with age and the main causes are benign prostate hyperplasia (BPH) and prostate cancer (PCa). The severity of symptoms and the degree to which they negatively impact on quality of life (QoL) are the major factors inciting with BPH. Moreover, it is thought that sexual function is also an important aspect of QoL (1-3).

Erectile dysfunction is also extremely common disorder in older men, and its incidence increases with age. In Massachusetts Male Aging Study (MMAS), it was reported that erectile dysfunction was observed around 52.4% of men between 40 and 70 years old (4).

It has been speculated that there is an association between these two pathologies for a long time. However, it has not been clear whether there is a real correlation or not. There have been several hypotheses about BPH and ED correlation such as negative effects of LUTS on QoL, hyper-adrenergic state of LUTS, BPH treatment and invasive treatment modalities for BPH (5-7).

In the evaluation of LUTS, there are some questionnaires form such as The Danish Prostatic Symptom Score (DAN-PSS), American Urologic Association (AUA) Symptom Index and The International Continence Society (ICS) questionnaire [2]. However, International Prostate Symptom Score (IPSS) are the most commonly used questionnaire scale with QoL scale. Recently, some questionnaire forms such as International Index of Erectile Function (IIEF) described by Rosen have been used in the initial evaluation of patients with ED (8-10).

The aim of the present study is to evaluate the relationship between IIEF, IPSS and QoL scores in patients with LUTS, and to evaluate the causes of sexual dysfunction in these patients.

## MATERIAL AND METHODS

A total of 263 patients between 25 and 81 years old with LUTS were evaluated by detailed history and physical examination including digital rectal examination (DRE). Serum biochemical and hormonal analysis including total and free testosterone, dehydroepiandrosterone-sulphate (DHEA-S) and Prostate Specific Antigen (PSA) levels were measured. IPSS and IIEF were filled by all participants for the evaluation of LUTS and sexual function, respectively. After these investigations, the patients with diabetes mellitus, hyperlipidemia, atherosclerotic disease, hypertension, using medication for any health problem, having PSA values greater than 4.0 ng/ml, having urinary tract infections, being

single/widow men or having irregular sexual activity, the suspect of prostatitis and being younger than 50 years old were excluded from the study. Finally, 82 patients between 50 and 78 years olds were enrolled into the study.

These patients were divided into three as mild (0-7), moderate (8-19) and severe (20-35) based on the severity of LUTS after answering IPSS questionnaire forms. Later, they were classified as having erectile dysfunction or not when taking IIEF cut of value as 26. Moreover, if IIEF scores were less than 26, they were separated as mild (21-25), moderate (11-20) or severe (1-10) erectile dysfunction.

Statistical analysis was performed by using Pearson  $\chi^2$  between degree of IPSS and IIEF values, and correlation tests between IIEF, IPSS and QoL scores.

## RESULTS

Average age was  $61.3 \pm 6.9$  years old of all participants. Mean IIEF, IPSS and QoL values were  $13.4 \pm 8.7$  (1-30),  $14.8 \pm 6.6$  (0-30),  $3.0 \pm 1.6$  (0-6), respectively.

Based on the IIEF scores, 73 (89%) patients had erectile dysfunction and 9 patients (11%) had normal sexual function. IPSS and QoL scores were  $14.7 \pm 6.9$  and  $3.0 \pm 1.7$  in patients with ED. However, these parameters were  $15.1 \pm 6.3$  and  $3.0 \pm 1.2$  in patients without ED, respectively. There were not statistical significant difference between two scores ( $p_{IPSS}=0.874$  and  $p_{QoL}=0.966$ ).

In the correlation analysis, there was observed negative and statistically significant correlation between IIEF and IPSS ( $r=-0.227$ ,  $p=0.102$ ), and IIEF and QoL ( $r=-0.088$ ,  $p=0.530$ ) values.

Distribution of patients according to symptoms' degree of IPSS and IIEF is shown on Table 1. We did not find any relationship between LUTS and ED severity (Pearson  $\chi^2=2.886$ ,  $p=0.581$ ).

## DISCUSSION

Lower Urinary Tract Symptoms and erectile dysfunction are two important pathologies observed in aging male. LUTS was reported around 20-60% in men over 65 years old (11, 12). Moreover, severity of LUTS increases with age. Moderate-to-severe LUTS was reported as 8-58% in the 6<sup>th</sup> decade, 15-64% in 7<sup>th</sup> decade and 26-90% in 8<sup>th</sup> decade (13, 14). On the other hand, erectile dysfunction has been observed around 35-59% in the same age period. MMAS showed that 52% of men aged between 40-70 years had some degree of erectile dysfunction (4). In another recent investigation, complete erectile dysfunction was found 13.2% of men aged 55-70 years (15). They also observed that erectile



**Table 1**— The distributions of patients based on IIEF and IPSS scores.

	IIEF				TOTAL	
	Normal	Mild	Moderate	Severe		
IPSS	Mild	1	4	3	3	11
	Moderate	7	17	24	10	58
	Severe	1	4	4	5	13
	TOTAL	9	25	31	18	82

dysfunction increased over time from 2.3% among men younger than 40 years to 53.4% among men older than 70 years old (16). Although age is one of the most important risk factors in men with erectile dysfunction, it may not be an independent factor.

In the literature, there were some studies about the relationship between BPH and erectile dysfunction (17). Recent knowledge emerged to indicate several potential links in epidemiological, physiologic, pathologic and treatment aspects of these two pathologies (5, 6, 17). However, the exact mechanism between these two pathologies has not been identified yet. While anatomical factors were reported, they seem unlikely (5, 17). Treatment modalities of BPH might be effective in the development of erectile dysfunction (17, 18). However, a lot of patients with erectile dysfunction and LUTS did not take any medication when admitted to the out-patients. Nocturia and sleep disturbance may seem related to the development of erectile dysfunction due to decreased REM period of sleep and decreased nocturnal erection (5, 17). Therefore, erectile physiology can be failed. Another possible mechanism of erectile dysfunction is reduced quality of life (2, 5).

Burger et al found a correlation between prostatodynia and erectile dysfunction and the treatment of BPH and sexual function therapy, especially with ejaculation (19). However, they did not observe any correlation directly between BPH and erectile dysfunction. Namasivayan compared the Brief Male Sexual Function Inventory (BMSI) and IPSS score in 168 men (20). It was reported that age and lower sexual function such as decreased libido, erection and ejaculation showed a strong correlation. On the contrary, they found a weak correlation between IPSS and BMSI scores. Their study suggested that men with BPH were more likely to suffer with sexual dysfunction than men who were not bothered by LUTS. Moreover, they concluded that sexual dysfunction related more to reduced QoL than specific LUTS.

In another study, Rosen reported that the patients with BPH had greater sexual dysfunction than the control subjects

(6). However, this finding has been less prominent in patients diagnosed with erectile dysfunction. Gacci et al found a statistically insignificant relationship between prostatic symptoms and sexual dysfunction (21). In their study, sexual desire and overall satisfaction were found to be significantly lower in patients with more severe LUTS symptoms. However, erectile and orgasmic function and sexual intercourse scores were reported similar. Finally, they concluded that both sexual desire and overall satisfaction were relevant only in patients without LUTS, when QoL was preserved. Also, O'Leary reported that patients with BPH generally had coexisting erectile dysfunction due to significantly affected QoL (1).

In the present study, our results were similar as the other literature findings. Erectile dysfunction was observed in 89% of patients with LUTS. However, no significant difference was found between IPSS and QoL scores of the patients with/without erectile dysfunction. On the contrary, IIEF scores showed slightly correlation with QoL score in the patients.

In conclusion, although LUTS and erectile dysfunction are the most common pathologies in elderly patients, the relationship between BPH and erectile dysfunction is due to only being in the same gender and similar age groups. However, it has been slightly evident that QoL affects sexual function than the severity of LUTS does.

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