



Effect of Kidney Transplant on Erectile Dysfunction and Orgasmic Function

Böbrek Naklinin Erektıl Disfonksiyon ve Orgazm Fonksiyonu Üzerine Etkisi

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Abstract

Introduction: The prevalence of erectile dysfunction increases with advancing age. Patients with end-stage renal disease (ESRD) are candidates for erectile dysfunction due to hypertension, uremia, depression and endocrine reasons. Erectile dysfunction is also very common in kidney transplant recipients. In our study, we aimed to evaluate the effect of renal transplantation (RT) on erectile function.

Materials and Methods: Etiological factors of chronic renal failure, comorbidities, time elapsed after RT, duration of ESRD, and IIEF-15 scores of patients who underwent RT were discussed. International erectile function index (IIEF-15) scores of patients who underwent RT were evaluated before and after transplantation. Patients who had a kidney transplant and were sexually active with a stable partner were included in the study. IIEF-15 scores of the patients before and after RT were scored. It was evaluated in 5 different parameters (erectile function, orgasmic function, sexual desire, sexual satisfaction, general satisfaction).

Results: The mean age of the study participants was 48.6. The mean duration of the participants after RT was 5.9 years. The duration of ESRD was determined as 6.48 years. Erectile function, sexual desire, sexual satisfaction and general satisfaction scores increased compared to pre-RT and the p value was found to be insignificant 0.12-0.16-0.58-0.60, respectively, and the orgasmic function significantly improved.

Conclusion: Although RT did not significantly contribute to erectile function, it contributed positively to orgasmic function.

Keywords: Kidney transplantation; erectile dysfunction; kidney failure.

Özet

Giriş: İlerleyen yaş ile beraber erektil disfonksiyon prevalansı artmaktadır. Son dönem böbrek yetmezliği olan hastalar (SDBY) hipertansiyon, üremi, depresyon ve endokrin nedenlerden dolayı erektil disfonksiyon için aday hastalardır. Böbrek nakli alıcılarında da erektil disfonksiyon çok sık görülmektedir. Biz de çalışmamızda renal transplantasyonun (RT) erektil fonksiyon üzerindeki etkisini değerlendirmeyi amaçladık.

Gereç ve Yöntem: RT yapılmış hastaların kronik böbrek yetmezliği etyolojik faktörleri, ek hastalıkları, RT sonrası geçen süre, SDBY süresi, IIEF-15 skorları ele alındı. RT yapılmış hastaların Uluslararası erektil fonksiyon indeksi (IIEF-15) skorları nakil öncesi ve sonrası için değerlendirildi. Çalışmaya böbrek nakli olan ve stabil bir partnerle cinsel olarak aktif olan hastalar çalışmaya dahil edildi. Hastaların RT öncesinde ve sonrasındaki IIEF-15 skorları puanlandı. 5 ayrı parametrede (erektil fonksiyon, orgazmik fonksiyon, cinsel istek, cinsel memnuniyet, genel memnuniyet) değerlendirildi.

Bulgular: Çalışmaya katılanların ortalama yaşı 48,6. Katılımcıların RT sonrasında geçen süresi ortalama 5,9 yıldır. SDBY süresi 6,48 yıl olarak saptandı. RT öncesine göre IIEF-15 in 4 parametresinde erektil fonksiyon, cinsel istek, cinsel memnuniyet, genel memnuniyet skorları RT öncesine göre artmış olup p değeri sırasıyla 0,12-0,16-0,58-0,60 anlamsız olarak saptanmış olup orgazmik fonksiyonu anlamlı derecede iyileştirmiştir.

Sonuçlar: RT erektil fonksiyon üzerine anlamlı katkısı olmasa da orgazmik işleve olumlu yönde katkısı olmuştur.

Anahtar Kelimeler: Böbrek transplantasyonu; erektil disfonksiyon; böbrek yetmezliği.

Introduction

The kidney's inability to cleanse the body of toxins and to maintain fluid electrolyte balance is called end-stage renal disease (ESRD) (1). Worldwide, 2.6 million people are being treated for ESRD (2). The method used in the treatment

of ESRD is kidney transplantation, which significantly improves survival and quality of life, excluding temporary replacements (2). Comorbid conditions, physiological and psychological causes are among the causes of erectile dysfunction (3). There are findings showing that erectile dysfunction (ED) developed in ESRD patients

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may have a positive effect after endocrine and metabolic recovery after RT (4,5). In this study, it was aimed to evaluate the effect of live-to-live RT on sexual function.

Material and Method

In the study, clinical, laboratory data, and IIEF-15 scores of patients who underwent live-to-live RT, who applied to the kidney transplant polyclinic were questioned retrospectively. Male patients who had a kidney transplant and were sexually active with a stable partner were included in the study. Psychiatric disorders, penile abnormalities, and diseases that prevent sexual intercourse were among the exclusion criteria. Anamnesis, sexual history, clinical examination and laboratory data of the patients were analyzed. Patients were asked to fill in IIEF-15 forms simultaneously before and after transplantation. The IIEF-15 form is a male sexual function evaluation form that includes 6 questions for erectile function, 2 questions for orgasmic function, 2 questions for sexual desire, 3 questions for sexual satisfaction, and 2 questions for general satisfaction. Scoring for erectile function is no ED (EF score, 26 -30), mild ED (EF score, 17-25), moderate ED (EF score, 11-16), and severe ED (EF score, ≤ 10) (21), 0-10 points for orgasmic function, should be corrected as sexual desire scoring was done as 2-10 points, sexual satisfaction between 0-15 points, and general satisfaction between 2-10 points.

Ethical approval: The ethics committee approval of our study was obtained from our institution on 1/2022 with the number E2-22-1193.

Statistical analysis: Normality assumption of the variables was tested with Shapiro-Wilk tests. Descriptive statistics for the continuous variables were presented as Mean \pm Standard deviation while count and percentages for categorical variables. Paired t test was used to compare periods (Before and after) for IIEF-15 parameter with the mean IIEF-15 scores. Statistical significance level was considered as 5% and SPSS (ver: 21) statistical program was used for all statistical computations.

Results

A total of 58 male patients aged between 22 and 68 years (mean 48.6 years) were included in the study. The average body mass index was measured as 26,58 kg/m². The mean duration of chronic renal failure (CKF) in the study participants was 6.48 years. The mean time after RT was measured as 5.9 years. Additional diseases and demographic data in terms of ED are given in Table 1. In the

use of immunosuppressive agents that cause CKF, all patients used methylprednisolone, and additionally 51 patients (43.6%) were using tacrolimus, 5 patients (4.3%) everolimus, and 2 patients (1.7%) cyclosporine. The IIEF-15 was

Table 1: Etiologies of chronic renal failure

| Disease | n (%) |
|---|-----------|
| Diabetes mellitus | 5 (8.6) |
| Hypertension | 11 (18.9) |
| Diabetes mellitus and Hypertension | 4 (6.8) |
| Polycystic kidney disease | 6 (10.3) |
| Unknown disease | 19 (32.7) |
| Cystic-hereditary-congenital disease | 1 (1.7) |
| Primer glomerulonephritis | 5 (8.6) |
| İnterstitial nephritis and pyelonephritis | 7 (12) |

Table 2: Prevalence of erectile dysfunction risk factors and demographic data

| | |
|---|------------------|
| Age, mean \pm SD | 48.6 \pm 12.39 |
| Body mass index, mean \pm SD, kg/m ² | 26.58 \pm 3.58 |
| Chronic renal failure duration, mean \pm SD, year | 6.48 \pm 9.33 |
| Time after renal transplant, mean \pm SD, year | 5.9 \pm 4.65 |
| Hypertension, n (%) | 33 (56.8) |
| Atherosclerotic heart disease, n (%) | 10 (17) |
| Diabetes mellitus, n (%) | 14 (24) |
| Dyslipidemia, n (%) | 25 (43.1) |
| Neuropathy, n (%) | 0 (0) |
| Hypothyroidism, n (%) | 4 (6.9) |
| S.D:Standard deviation | |

completed for pre-RT and post-RT, and there was no significant improvement in erectile function, sexual desire, sexual satisfaction, and overall satisfaction when the IIEF-15 scores were compared, but orgasmic function improved significantly. (p values are 0.12-0.16-0.58-0.60-0.03, respectively) (Table 1). CKF etiologies of the patients are listed in Table 2, risk factors for ED in Table 3, and IIEF-15 scores before and after RT are listed in Table 4. Although there was no

statistical difference between the numbers of patients with erectile function before and after RT in Table 4, there was a decrease in the number of

patients without ED and with moderate and severe erectile dysfunction.

Table 3: Mean values of International Index of Erectile Function (IIEF) domain scores in the two groups at baseline and at after renal transplant (RT)

| | Groups | n | Mean | Standard deviation | Standard error | t test | |
|--------------------------|--------|----|-------|--------------------|----------------|--------|---------|
| | | | | | | t | p Value |
| Erectile function | Before | 58 | 17,97 | 7,24 | 0,95 | | |
| | After | 58 | 19,57 | 7,11 | 0,93 | -1,57 | 0,12 |
| Orgasmic function | Before | 58 | 6,50 | 3,04 | 0,39 | | |
| | After | 58 | 7,44 | 2,66 | 0,34 | -2,12 | 0,03 |
| Sexual desire | Before | 58 | 6,48 | 2,27 | 0,30 | | |
| | After | 58 | 6,88 | 1,97 | 0,26 | -1,42 | 0,16 |
| Intercourse satisfaction | Before | 58 | 7,66 | 3,67 | 0,48 | | |
| | After | 58 | 7,98 | 3,98 | 0,52 | -0,55 | 0,58 |
| Overall satisfaction | Before | 58 | 6,50 | 2,34 | 0,31 | | |
| | After | 58 | 6,69 | 2,55 | 0,33 | -0,52 | 0,60 |

Table 4: Severity of erectile dysfunction (ED) at baseline and after renal transplant (RT) in two groups

| | Before RT | After RT | p Value |
|---------------------------------------|-----------|----------|---------|
| Absent ED (EF score, 26–30) | 9 | 14 | |
| Mild ED (EF score, 22–25) | 12 | 15 | |
| Mild to moderate ED (EF score, 17–21) | 10 | 11 | |
| Moderate ED (EF score, 11–16) | 16 | 13 | |
| Severe ED (EF score, ≤10) | 11 | 5 | 0,07 |

Discussion

ED is defined as the inability to achieve or maintain an erection sufficient for sexual satisfaction for vaginal penetration (6). The prevalence of ED over the age of 40 is 36% (7) and increases with age. Vascular risk factors for the development of ED include age (8),

dyslipidemia (9), smoking, hypertension, and type 2 diabetes mellitus (10). The rate of ED was found to be 50-80% in patients with ESRD (11), and its prevalence is increasing gradually due to aging and diabetes (12). The etiology of ED in patients with ESRD and HD includes endothelial dysfunction, anemia, abnormalities in the hypothalamohypophysigonadal pathway,

peripheral neuropathy, and abnormalities in the autonomic nervous system (13). On the other hand, damage to the vascular structures of CKF and HD has been documented in the penile distal artery and cavernous tissues (1). Another reason for ED developing in ESRD patients may be psychogenic because these patients can become depressed at any time due to reasons such as multiple drug use and the effects of HD on their social life (8,12,14). The effect of kidney transplantation on ED is a controversial issue. There are studies reporting the effects of kidney transplantation on sexual dysfunction with rates ranging from 36-60% (5). Since the mean age of the study participants was over 45 years, aging may explain the development of sexual dysfunction, although it is expected to affect the general quality of life and sexuality positively after kidney transplantation. The use of drugs that can prevent it and high anxiety and depression rates are among the reasons (15,16). It should also be kept in mind that metabolic risk factors and cardiovascular risks for ED are also common. In our study, 56.8% of the patients had hypertension, 17% had atherosclerotic heart disease, 43% had dyslipidemia, and 24% had diabetes mellitus. Although some studies (17) reported improvement in erectile function due to the improvement of psychological, endocrine and metabolic problems of ESRD patients receiving HD, other studies could not detect the positive effect of kidney transplantation on erectile function, as in our study (18) and there are also studies reporting that it has negative effects (19). In our study, RT was found to significantly improve orgasmic function, although it did not significantly affect erectile function, and although there was no statistical difference between the numbers of patients with erectile function before and after RT, there was a decrease in the number of patients without ED, moderate and severe erectile dysfunction.

Study limitations: It was evaluated retrospectively, the patients were not evaluated psychiatrically and the hormone profile of the patients such as FSH, LH, total Testosterone, and Prolactin could not be evaluated.

Conclusion

Although RT did not significantly contribute to erectile function, it contributed positively to orgasmic function.

Conflict of interest: The authors declare that they have no conflict of interest.

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Ethical approval: The ethics committee approval of our study was obtained from our institution on 1/2022 with the number E2-22-1193.

Author contribution: 1. Concept: KC, YK; 2. Design: SŞ, KC, EU; 3. Control: SŞ, ÖÖ, BAD; 4. Finance: None; 5. Materials: KC, ST; 6. Data Collection and Processing: KC, EU; 7. Analysis and Interpretation: SŞ, EÖ; 8. Literature Review: EÖ, YK; 9. Writing-Original Draft: YK, KC, SŞ; 10. Writing Review and Revision: EÖ, ST, ÖÖ; 11. Critical Review: ÖÖ, ST; 12. Software and Visualization: YK, EU.

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