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The Role of Cardiologist in the Diagnosis and Treatment of Erectile Dysfunction: A Clinical Study

Erektil Disfonksiyon Tanı ve Tedavisinde Kardiyoloğun Rolü: Klinik Çalışma

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ABSTRACT Objective: To evaluate the occurrence of erectile dysfunction (ED) in patients who admit to the cardiology clinic and patients' approach to questioning of erectile status by cardiologists. **Material and Methods:** The present study was conducted from January 2021 to June 2021 in a prospective manner, and male patients who were admitted to the cardiology outpatient clinic were enrolled in the study. To evaluate erectile status of patients, the International Index of Erectile Function (IIEF-5) form was completed by all patients. In addition, patient opinions about discussing their sexual functions with the cardiologist were evaluated with 4 different options and expectations of patients with ED from the cardiologist were analyzed with five questions. **Results:** Eventually, 210 patients with mean age 58.3 years were enrolled in the study. In total, 128 (60.9%) patients had IIEF score <21, and 82 (39.1%) patients had IEFF score ≥22. As a result of questioning sexual functions by cardiologists, 12 (5.7%) of the patients felt uncomfortable and 17 (8.1%) patients thought that the cardiologist could not help in this regard. However, 98 (46.7%) patients were satisfied with cardiologist's questioning of sexual functions. However, most patients (94 of 128 patients, 73.4%) reported a negative opinion about the participation of a nurse who specialized in sexual problems during cardiology examination. **Conclusion:** Our study demonstrated that three out of 5 patients admitted to the cardiology clinic had various levels of undiagnosed ED. In addition, the present study found that patients were satisfied with questioning about ED by a cardiologist.

Keywords: Cardiology; erectile dysfunction; International Index of Erectile Function score

ÖZET Amaç: Bu çalışmanın amacı, kardiyoloji kliniğine başvuran hastalarda erektil disfonksiyon (ED) oluşumunu ve kardiyologların hastaların erektil durum sorgulamasına yaklaşımını değerlendirmektir. **Gereç ve Yöntemler:** Bu çalışma, Ocak 2021-Haziran 2021 tarihleri arasında prospektif olarak yürütüldü ve kardiyoloji polikliniğine başvuran erkek hastalar çalışmaya dâhil edildi. Hastaların erektil durumunu değerlendirmek için tüm hastalara Uluslararası Erektil Fonksiyon İndeksi [International Index of Erectile Function (IIEF-5)] formu dolduruldu. Ayrıca hastaların kardiyolog ile cinsel fonksiyonlarını tartışmaya yönelik görüşleri 4 farklı seçenek ile değerlendirilmiş ve ED'li hastaların kardiyologdan beklentileri 5 soru ile analiz edilmiştir. **Bulgular:** Sonuç olarak ortalama yaşı 58,3 olan 210 hasta çalışmaya alındı. Toplamda 128 (%60,9) hastanın IIEF skoru <21 ve 82 hastanın (%39,1) IIEF skoru ≥22 idi. Kardiyologlar tarafından cinsel fonksiyonların sorgulanması sonucunda, hastaların 12'si (%5,7) rahatsızlık hissetti ve 17'si (%8,1) kardiyoloğun bu konuda yardımcı olamayacağını düşündü. Ancak 98 (%46,7) hasta kardiyologların cinsel fonksiyonları sorgulamasından memnundu. Ayrıca hastaların çoğu (128 hastanın 94'ü, %73,4) cinsel sorunlar konusunda uzmanlaşmış bir hemşirenin, kardiyoloji muayenesine katılması konusunda olumsuz görüş bildirmiştir. **Sonuç:** Çalışmamız, kardiyoloji polikliniğine başvuran 5 hastadan 3'ünün çeşitli düzeylerde tanı konmamış ED'ye sahip olduğunu göstermiştir. Ek olarak bu çalışma, hastaların bir kardiyolog tarafından ED hakkında soru sormaktan memnun olduklarını göstermiştir.

Anahtar Kelimeler: Kardiyoloji; erektil disfonksiyon; Uluslararası Erektil Fonksiyon İndeksi skoru

Erectile dysfunction (ED) is defined as insufficiency in obtaining and maintaining penile erection to provide satisfactory sexual intercourse. Although ED is not a life-threatening problem, the negative impact of ED on mental health, loss of self-confidence and deterioration of relationships is well-known.[1] The prevalence of ED is reported to have a wide range due to several reasons including patient embarrassment about consulting a doctor for ED, accepting ED as a normal consequence of old age and doctors' lack

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of interest in ED.[2] However, ED may occur as a symptom of many diseases including hormonal disorders, neurological and/or psychiatric disease, peripheral vascular insufficiency, diabetes mellitus, coronary artery diseases, heart failure and hypertension.[3] Thus, many patients with ED are examined by other medical disciplines before attending the urology clinic.

The relationship between cardiac diseases and ED is one of the most interesting issues in cardiology and urology disciplines. Kloner et al. analyzed the erectile status of 76 patients with stable cardiac disease and stated that 75% of patients had difficulties achieving penile erection.[4] In another study, Burchardt et al. investigated the rate of ED in patients with hypertension, and the authors determined that 68% of patients with hypertension had various levels of undiagnosed ED.[5] In the light of this knowledge, questioning of ED by cardiologists has beneficial effects for early diagnosis and appropriate treatment of ED.

Although previous studies examined the presence of ED in patients who were admitted to the cardiology clinic, the number of studies examining the attitudes and expectations of patients from cardiologists are limited. In the present study, we evaluated the occurrence of ED in patients admitted to the cardiology clinic and patients' approach to questioning of erectile status by cardiologists.

MATERIAL AND METHODS

This study was conducted after the approval of Bezmiâlem Vakıf University Local Ethics Committee (date: 16.09.2020, no: 2020/110). The present study was conducted from January 2021 to June 2021 in a prospective manner, and male patients who were admitted to the cardiology outpatient clinic were enrolled in the study. Informed consent to participate in the study was obtained from all patients and the study was performed in accordance with the ethical principles of the Helsinki Declaration. To evaluate erectile status of patients, the International Index of Erectile Function (IIEF-5) form was completed by all patients. Exclusion criteria were inability to complete IIEF-5 questionnaire, presence of any ED caused by other than cardiologic disease (neurological and/or psychiatric disease), pelvic disease, and being <18 years old. Additionally, patients who were admitted to the urology outpatient clinic due to ED and received any type of treatment (phosphodiesterase inhibitors, vacuum device, and/or penile prosthesis) were excluded from the study.

Patient demographic characteristics including age, body mass index (BMI), IIEF-5 score, smoking status, alcohol use, presence and type of cardiac disease, and type of medications used for cardiac disease(s) were recorded. In addition, patient opinions about discussing their sexual functions with the cardiologist were evaluated with four different options (Uncomfortable, I would not mind, I do not think the cardiologist can help me with sexual problems, I would be happy if the cardiologist asked about it). Also, expectations of patients with ED from the cardiologist were analyzed with 5 questions (Would you like to be treated for your sexual problem?, Does it bother you to talk about your sexual problems with a cardiologist?, Is the effect of treatment for heart disease on sexual function important to you?, If your cardiology doctor gives advice about sexual problems, who do you follow?, Would you like to be accompanied by a nurse who specializes in sexual problems during the cardiology examination?).

INTERNATIONAL INDEX OF ERECTILE FUNCTION QUESTIONNAIRE

The IIEF questionnaire was developed to evaluate male sexual status and previous studies externally validated the form.[6] The IIEF-5 form contains five questions [scores from one (worst) and to (best)] to analyze sexual satisfaction, orgasmic function, sexual desire and erectile status. Erectile status of each patient is classified into five subcategories based on the sum of the scores: severe (5-7), moderate (8-11), mild to moderate (12-16), and mild (17-21). Scores between 22 and 25 indicate normal erectile function.

STATISTICAL ANALYSIS

Statistical analysis was done with the Statistical Package for the Social Sciences Version 25 (SPSS IBM Corp., Armonk, NY, USA). The data are presented in a descriptive fashion including frequency, mean, and

standard deviation. Relationships between cardiovascular diseases and ED are shown by a stacked bar chart.

RESULTS

During the study period, 256 patients were evaluated for inclusion in the study and 46 patients were excluded from the study (17 patients did not want to participate, 11 patients did not have sexual intercourse in the last 4 weeks, 9 patients had neurological and/or psychiatric disease, 2 patients had prostate cancer treated with radiotherapy and radical prostatectomy, and 7 patients were treated for ED with various treatment modalities). Eventually, 210 patients with mean age of 58.3 years were enrolled in the study. The mean BMI was 26.7 kg/m^2 for the study population. In total, 128 (60.9%) patients had IIEF score <21, and 82 (39.1%) patients had IEFF score ≥22. Coronary artery disease and hypertension were the most common diseases in the study population with 30.9% and 30.5% rates, respectively. Also, angiotensin converting enzyme inhibitors and β-receptor blockers were the most commonly used drugs (33.8% and 29.5%). Patients' demographic characteristics are summarized in Table 1. In addition, prevalence of ED was highest in patients with myocardial infarction and heart failure (80.0% and 82.0%). Relationship between cardiac diseases and ED is presented in Figure 1.

TABLE 1: Characteristics of study sample.

	n=210
Age (years)*	58.3±19.0
BMI (kg/m^2)*	26.7±5.0
Smoking status	73 (34.7%)
Alcohol use	62 (29.5%)
IIEF score	
<21	128 (60.9%)
≥22	82 (39.1%)
Cardiological disease	
Hypertension	64 (30.5%)
Arrhythmias	62 (29.5%)
Coronary artery disease	65 (30.9%)
Myocardial infarction	23 (10.9%)
Valvular heart disease	15 (7.1%)
Heart failure	12 (5.7%)
Congenital heart disease	5 (2.4%)
No cardiological disease	26 (12.3%)
Cardiovascular agents	
α-Receptor blocker	10 (4.8%)
ACE inhibitor	71 (33.8%)
ARB	42 (20.0%)
β-Receptor blocker	62 (29.5%)
Calcium antagonists	27 (12.9%)
Digoxin	5 (2.4%)
Loop diuretic	7 (3.3%)
Thiazide diuretic	22 (10.5%)
Nitrate	18 (8.6%)
Statin	55 (26.2%)

BMI: Body mass index; IIEF: International index of erectile function; ACE: Angiotensin converting enzyme; ARB: Angiotensin receptor blockers.
*: mean±standard deviation.

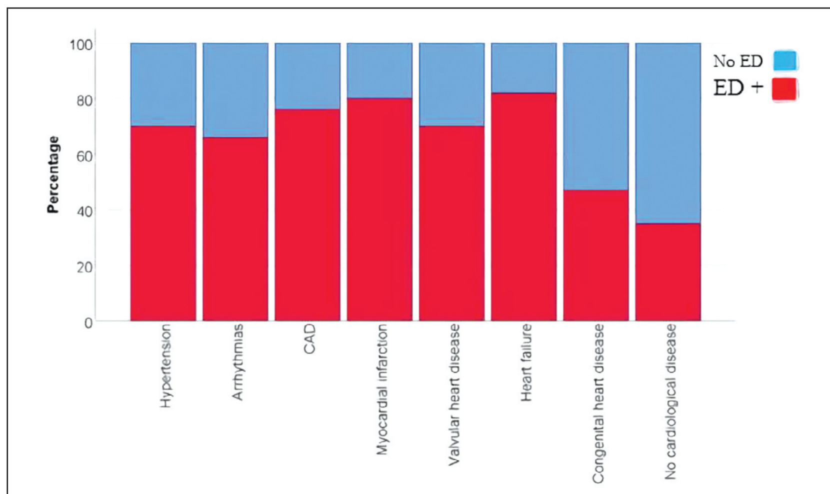

FIGURE 1: Relationship between cardiologic diseases and erectile dysfunction.

As a result of questioning sexual functions by cardiologists, 12 (5.7%) of the patients felt uncomfortable and 17 (8.1%) patients thought that the cardiologist could not help in this regard. However, 98 (46.7%) patients were satisfied with cardiologist's questioning of sexual functions (Table 2).

The questions about the expectations of the patients revealed that most of the patients (89 of 128 patients, 69.5%) wanted to be treated for their sexual problems and discussing sexual problems with cardiologist did not bother most patients (86 of 128 patients, 67.2%). Also, 83 (64.8%) patients believed the importance of cardiac disease treatment for ED, and cardiologist advice about ED was sufficient for 79 (61.7%) patients. However, most patients (94 of 128 patients, 73.4%) reported a negative opinion about the participation of a nurse who was specialized in sexual problems during cardiology examination (Tablo 3).

TABLE 2: Opinions of patients about discussing their sexual functions with cardiologist.

How would you feel if your cardiologist asked you questions about your sexual function during the examination?	n=210
Uncomfortable	12 (5.7%)
I would not mind	83 (39.5%)
I do not think the cardiologist can help me with sexual problems	17 (8.1%)
I would be happy if the cardiologist started about it	98 (46.7%)

DISCUSSION

ED is one of the most important diseases that impairs the quality of life of patients; however, this situation is often not questioned and ignored by both patients and cardiologists. This prolongs the time for patients to receive diagnosis and treatment for ED. In the present study, we found that 60.9% of patients admitted to the cardiology clinic had various levels of ED. In addition, most patients were satisfied with questioning about ED by cardiologists and expected to be questioned by the cardiologist in terms of ED.

The effect of cardiac diseases on penile erection is one of the most current issues in urology practice. Desai et al. stated that the prevalence of ED was as up to 46.2% in patients with coronary artery disease.[7] Nicolai et al. investigated the IIEF score of 296 patients who were admitted to a cardiology clinic, and the authors stated more than 80% of patients with heart failure had ED.[8] In another study, Shamloul et al. investigated the correlation between ED and ischemic heart disease, and found significant correlation between decreased penile systolic velocities and ischemic heart disease.[9] In accordance with the literature, the ED rate was found to be highest in patients with heart failure, myocardial infarction, and coronary artery disease in the present study.

TABLE 3: Expectations of patients from the cardiology department about erectile dysfunction.

	n=128
Would you like to be treated for your sexual problem?	
Yes	89 (69.5%)
No	39 (30.5%)
Does it bother you to talk about your sexual problems with a cardiologist?	
Yes	42 (32.8%)
No	86 (67.2%)
Is the effect of treatment for heart disease on sexual function important to you?	
Yes	83 (64.8%)
No	45 (35.2%)
If your cardiology doctor gives advice about sexual problems,	
I follow the advice	79 (61.7%)
I consult a urologist or sexologist	49 (38.3%)
Would you like to be accompanied by a nurse who specializes in sexual problems during the cardiology examination?	
Yes	34 (26.6%)
No	94 (73.4%)

Penile erection problems have often been an issue that patients have difficulty about getting professional help with. Perelman et al. conducted a study to understand patients' opinions and behavior about getting help from professional healthcare providers, and they found that one-third of men did not want speak about ED to someone in face-to-face conversation.[10] Similarly, Giuliano and colleagues investigated the attitude of men with ED aged >40 years, and the authors stated that almost half of patients did not want to attend a doctor for treatment of their erection problem.[11] In another study, Rodler et al. investigated patients with ED, and claimed that most men did not seek medical treatment for ED.[12] In the present study, almost two-thirds of patients admitted to the cardiology outpatient clinic wanted to solve their erection problems. In addition, only 5.7% of our patients felt uncomfortable after questioning of their erectile status by a cardiologist, and almost half of the patients were happy about cardiologists questioning their erectile status. However, three-quarters of patients stated that they were uncomfortable with questioning about their erection problems in an examination involving a nurse who specialized in sexual problems.

The present study has some limitations. First of all, our study included a relatively small patient number and included the experience of a single center. Secondly, the study was a survey study, which by its nature could be influenced by patients' behavior, lack of patient attention, and inaccurate answers of patients. To prevent this situation, the survey forms were completed in a silent room with the assistance of a cardiologist. In addition, this study did not focus on the interval between ED and onset of cardiac disease, which may be the subject of further studies.

CONCLUSION

Our study demonstrated that 3 out of 5 patients admitted to the cardiology clinic had various levels of undiagnosed ED. In addition, the present study found that patients were satisfied with questioning about ED by a cardiologist and expected to be questioned by the cardiologist in terms of ED. Our findings should be supported by further prospective studies with higher patient numbers and long-term follow-up results.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

***Idea/Concept:** Corç Baytaroğlu; **Design:** Corç Baytaroğlu; **Control/Supervision:** Emrah Sevgili; **Data Collection and/or Processing:** Emrah Sevgili; **Analysis and/or Interpretation:** Corç Baytaroğlu; **Literature Review:** Emrah Sevgili; **Writing the Article:** Corç Baytaroğlu; **Critical Review:** Emrah Sevgili; **References and Fundings:** Corç Baytaroğlu; **Materials:** Emrah Sevgili.*

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