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Orijinal Makale **Akdeniz ve ark.**

Kadın Cinsel Fonksiyonları ve Koroner Arter Hastalığı
Female Sexual Functions and Coronary Artery Disease

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Özet

Amaç: Koroner arter hastalığı ve kadın cinsel fonksiyonları arasında negatif bir ilişki vardır. Bu çalışmada kritik koroner oklüzyon nedeniyle koroner stent takılan kadın hastaların seksüel fonksiyonlarının değişiminin değerlendirilmesi amaçlanmıştır.

Gereç ve yöntem: Bu tanımlayıcı araştırmada, kurumumuzda stabil anjina nedeniyle koroner stent takılan kadın hastaların seksüel fonksiyonları incelenmiştir. Seksüel fonksiyonları değerlendirmek için Kadın Seksüel Fonksiyon İndeksi (KSFİ) kullanılmıştır.

Bulgular: Çalışmaya yaş ortalaması 47.5±1.5 yıl (44-49) olan toplam 19 orta yaş kadın hasta alınmıştır. İşlem öncesi dönemde 10 (%52.6) hastada, işlemden 1 ay sonra 18 (%94.7) hastada ve işlemden 6 ay sonra 14 (%73.7) hastada kadın seksüel disfonksiyon (KSD) görülmüştür. İşlem öncesi, işlemden 1 ay sonrası ve işlemden 6 ay sonrası toplam KSFİ skorları sırasıyla 19.7±8.9, 5.9±7.6 ve 17.1±7.8 olarak bulunmuştur. İşlemden 1 ay sonraki toplam skor ve KSFİ'nin alt grupları (seksüel istek, seksüel uyarılma, lubrikasyon, orgazm, seksüel doyum, ağrı) diğer iki gruba göre anlamlı olarak düşük bulunmuştur ($p<0.05$).

Sonuç: Çalışmamız dakoroner stent uygulanan kadın hastalarda oldukça sık KSD görüldüğü bulunmuştur. Cinsel fonksiyonların koroner müdahaleden sonra ilk zamanlar ciddi şekilde etkilendiği ve zaman ilerledikçe düzeldiği görülmüştür.

Anahtar kelimeler: Koroner anjiyografi, Stabil anjina, Seksüel fonksiyon

Abstract:

Introduction: There is a negative relationship between coronary artery disease and female sexual functions. In this study, it was aimed to evaluate the sexual functions in female patients who underwent coronary stenting due to critical coronary stenosis.

Material and Methods: A total of 19 female patients were included and female sexual dysfunction (FSD) was investigated in this study using Female Sexual Function Index (FSFI).

Results: The mean age of 47.5±1.5 years (44-49), and FSD was seen in 10 (52.6%), 18 (94.7%) and 14 (73.7%)of the patients in the pre-procedure, post-procedure first month, and sixth month periods. Total FSFI scores were 19.7±8.9, 5.9±7.6 and 17.1±7.8, respectively. Post-procedure first month both FSFI domains (sexual desire, sexual arousal, lubrication, orgasm, satisfaction, and pain) were significantly lower than pre-procedure, and after sixth month periods ($p < 0.05$). There was no difference between total FSFI scores at pre-procedure, and post-procedure sixth month controls ($p=0.17$).

Discussion: In our study,FSD is quite common in female patients with coronary stenting. Sexual functions are severely affected during the first month after coronary intervention in women with coronary artery disease.

Key Words: Coronary angiography, Stabileangina pectoris, Female sexual function.

Introduction

All people have sexual relationship, and sexuality is an inseparable part of life. Sexual relation plays an important role in keeping both the individual and partner well-being (1). Sexual function depends on psychological, physiological and sociological factors, and the cause of sexual dysfunction is multifactorial (2).

Coronary artery disease (CAD) is a significant risk factor for sexual dysfunction, (3). Because patients with CAD fear that sexual relations will trigger myocardial infarction (MI), they prone to postpone sexual activities, and the sexual functions of these patients decline significantly (4,5). However, previous studies have generally involved male patients, and there are only insufficient studies evaluating sexual functions in female patients with CAD.

The purpose of this study was to evaluate the pre- and post-procedural sexual functions of the female patients receiving coronary stent placement due to stable angina pectoris. Body mass index, monthly income and education level, and the effect of these on sexual functions, were also investigated.

Materials and Methods

Nineteen patients undergoing coronary stent placement due to stable angina pectoris in a single center were included in this prospective study.

Patient section and assessment

Nineteen patients undergoing coronary stent placement due to stable angina pectoris between April, 2015 and, April 2017, and with a mean age of 47.9 ±1.9 years (44-49) were included in the study. Following receipt of approval from the Ondokuz Mayis University ethical committee, all patients were informed about the study and written consents were obtained from the participants. Patients were informed about the methodology before the procedures took place. Patients completed the validated Turkish version of the international Female Sexual Function Index (FSFI), consisting of 19 questions and six subgroups, and evaluates sexual functions in women. These questions concern the subgroups sexual desire (questions 1-2), sexual arousal (questions 3-6), lubrication (questions 7-10), orgasm (questions 11-13), sexual satisfaction (questions 14-16) and pain (questions 17-19). The higher the FSFH score, indicates better sexual relationship. Fixed coefficients were determined for all subgroups: 0.6 for sexual desire, 0.3 for sexual arousal and lubrication and 0.4 for orgasm, sexual satisfaction and pain. Possible total scores range between 1.2 and 36 (Table 1). A total score of 25 or more indicates normal female sexual life. Any score below 25 indicates sexual dysfunction (6).

Inclusion criteria

-Sexually active women aged over 18 and under 50 undergoing coronary angiography and coronary stent placement due to coronary artery stenosis.

Exclusion criteria

- Patients aged 50 or over (since sexual functions decrease with age),

-Patients with previously known kidney failure or diabetes mellitus (since systemic diseases affect sexual functions),

- Patients having hormonal or psychiatric medications (since hormonal and psychiatric diseases are closely associated with sexual function),

-Patients with alcohol or substance dependence, and sexually inactive patients were excluded.

Fifty-seven women met the study criteria during the research, and these were given detailed information concerning it. Twenty-seven patients refused to take part. Eleven patients who agreed to take part subsequently dropped out, and the study was eventually completed with 19 women.

Coronary angiography and stent placement

Coronary angiography and stent placement were performed using standard percutaneous techniques via the femoral artery. The left coronary system was evaluated in at least four and the right coronary system in at least two different positions using the Judkins technique. Percutaneous coronary intervention was performed with drug eluting stents (Promus Element, Boston Scientific, USA) in all cases in which severe stenosis of 70% or more was determined in at least one coronary artery. Stent implantation was carried out at a 12-16 atmosphere inflation pressure. When suboptimal stent dilation was observed, angiographic optimization was performed in order to obtain visual <20% residual narrowing using dilation with a high-pressure non-compliant balloon.

Post-procedural vital signs were monitored in terms of bleeding and hematoma. The sheaths were withdrawn in cases with no bleeding or hematoma after 4-6 h, and hemostasis was established. The medical treatment of the patients with no bleeding or complication was adjusted, and these were discharged within 1 day.

Statistical Analysis

Statistical analysis was performed on Statistical Package for Social Sciences (SPSS) 16.0 (SPSS, Chicago, IL, USA) software. Descriptive data were expressed as mean, standard deviation, median, minimum and maximum values. The Shapiro-Wilk test was used to analyze normal distribution. The Mann-Whitney U test and Kruskal Wallis test were used to evaluate differences between groups. Changes between pre-procedural, 1st month and 6th month sexual functions were analyzed using the Wilcoxon rank test. Percentages were compared using the Pearson's square and Fisher's exact tests. P values lower than 0.05 were regarded as statistical significant.

Results

Nineteen women undergoing coronary angiography due to acute chest plain and receiving stent placement were included in this study. The mean age of the patients was 47.5±1.5 (44-49) years, and their mean BMI was 30.7±6.1 kg/m^2. Mean length of marriage was 27.3±3.4 years. One artery was diseased in 11 patients, two arteries in six patients and three arteries in two patients (Table 2). Narrowing was in the anterior descending artery (LAD) alone in eight patients, in the circumflex artery Cx) alone in two, in the right coronary artery (RCA) alone in one patient, in the LAD and Cx in four patients, in the Cx and RCA in one patient and in the LAD, Cx and RCA in two patients.

All patients were sexually active before onset of acute chest pain, and none

had entered the menopause. Eight patients resumed sexual relations one month after stent placement and 17 patients after six months. The FSFI score 25 or below was adopted as a sexual dysfunction threshold score. Female sexual dysfunction (FSD) was observed in 10 (52.6%) patients before the procedure, in 18 (94.7%) one month after the procedure and in 14 (73.7%) six months after the procedure.

Total FSFI scores pre-procedurally and at one and six months post-procedurally were 19.7±8.9, 5.9±7.6 and 17.1±7.8, respectively. Post-procedural first month total FSFI score was significantly lower compared to those in the other two periods ($p<0.05$). No significant difference was observed between the groups in terms of pre- and post-procedural total FSFI scores ($p=0.17$). FSFI subgroup (sexual desire, sexual arousal, lubrication, orgasm, sexual satisfaction and pain) were significantly lower after one month than in the other two periods (Table 3).

When sexual function was evaluated depending on patients' monthly incomes, FSD was observed in the pre-procedural period in five of the seven patients with no monthly income. FSD was also observed in two of the four patients with a monthly income of 2000 Turkish lira or above. FSFI scores increased with patients' monthly incomes, but that increase was not statistically significant. In addition, although an inverse correlation was observed between BMI and total FSFI score, this was also not statistically significant.

No minor or major procedure-related complication was observed in any patient.

Discussion

There is a close association between CAD and sexual dysfunction. Studies on the subject have generally examined the relation between heart attack and sexual dysfunction. While several studies have investigated the association between heart attack and sexual dysfunction, there are no sufficient and satisfactory studies of the relation between critical coronary artery disease~~,~~ ~~—~~one step below heart attack, and sexual dysfunction. Our study revealed a relation between critical coronary occlusion and coronary stent implanttion in female patients and sexual functions. The level of FSD in middle-aged patients with CAD in our study was 52.6%. The level of FSD in the first month after coronary stent was 94.7%, and 73.7% in the sixth month. This study showed a close correlation between critical coronary occlusion and FSD (Table 3). In addition, the level of FSD increased in the early period after coronary stent implantation decreased over time.

Sexual dysfunction in women is an important public health problem (7). FSD is

widespread. It is difficult to determine the exact prevalence of the FSD, but it is more common than in males (8). Prevalence of FSD was reported reported up to 75.9% in different studies (7, 9-11). One study from Turkey reported an FSD level of 47% in a 179-case series of women aged 18-66. That study also reported an FSD level of 53.5% between the ages of 38 and 47(12). The FSD level between the ages of 44 and 49 in our study was 52.6%, comparable to that previous study from Turkey.

Sexual dysfunction in women is closely related to age, education, income level, medications, systemic diseases and psychiatric conditions (8). An effective vascular blood supply is required for sexual relations. Systemic blood supply is impaired in subjects with CAD, and FSD may therefore develop in these patients (13). The level of FSD in the middle-aged patients in our study was 52.6%. Examination of the FSFI sub-groups revealed that these patients complained most about arousal and least about pain. The level of FSD in patients one month after coronary stent placement was 94.7%. Both total FSFI scores and all sub-group scores (sexual desire, sexual arousal, lubrication, orgasm, sexual satisfaction and pain) were significantly lower one month after stent placement compared to pre-procedural values ($p < .05$). Eleven (57.9%) of our patients had no sexual relations in the first month. This may be attributed to the fear of the patients of sexual relations following stent implantation will increase the risk of heart attack and therefore avoiding intercourse. Yıldız and Pınar reported that many couples regarded sexual relations after heart attack as dangerous and risky (14).

Eight patients had sexual relations within the first month, but FSD was present in seven of these. Only one patient was satisfied with her sexual function. Pre-procedural FSD was identified in that case. This patient received two coronary stents due to critical coronary occlusion, and FSD resolved completely following the procedure. FSD can also appear as a symptom of CAD. The patient's sexual symptoms will also resolve if the CAD is treated. This may account for the positive change observed in our patient.

At evaluation six months following coronary stent implantation, two patients had not maintained their sexual relationship, while the other 17 were still sexually active. FSD was present in 12 of the 17 patients with continuing sexual relationship, but not in the other five. Both total FSFI score and all sub-group scores (sexual desire, sexual arousal, lubrication, orgasm, sexual satisfaction and pain) were lower compared to pre-stent implantation levels, but there was no statistically significant difference

between them. Eyada assessed sexual functions three months after discharge of 35 women with MI without unstable angina and ST depression and reported that 51.43% continued to have sexual relations (15).

Approximately one heart attack in five is seen between the ages of 18 and 55, with women representing 39% of these (16). These patients are young, with long life expectancy. The quality of life, familial and social relations of patients who sexual functions are compromised will also be impaired, and this may lead to depression. Both the present and other studies have shown that patients with CAD avoid sexual relations. Sexual activity will obviously trigger cardiac crisis, but considering that the risk of such activity leading to heart attack is less than 1%, the sexual relationship of such patients can be improved with appropriate treatment (17). Clinical guidelines in the USA advise physicians to instruct patients without physical activity limitation after heart attack to continue their sexual activities and to assist them in this area at face-to-face interviews (16). The sexual rehabilitation process after heart attack involves such concepts as exercise, diet, sexual education, quitting smoking and alcohol use, losing weight and social support. Patients must be advised to enter into sexual relations in a comfortable place where they will not be interrupted and in a rested and calm state of mind, avoiding stress, irritation and sleeplessness (18, 19). This process is the work of a multidisciplinary team, not a single department. A broad and detailed treatment program involving physical, social and psychological components must be established in this process.

There are several limitations to this study. The first is the low number of the patients, representing a major disadvantage. Sexuality is still a taboo subject for Turkish society. Although validated questionnaires were administered by a professional female health worker under conditions of total privacy, some patients still refused to take part. Despite our strict inclusion criteria, 57 patients met our study conditions, two-thirds of whom agreed to take part, although the study was eventually completed with only one in three. In addition, patients may also not have been objective in responding to questions, independently of us, due to feelings of shame or embarrassment. The scale used is a subjective one, and it should be kept in mind that the results may affected by patients' state of mind.

Anxiety and depressive symptoms are frequently seen together with CAD (20-21). Özer et al. evaluated 506 patients with CAD and reported severe anxiety levels in all (22). Gu cited a level of 71.8% (21). CAD and anxiolytic disorders are inter-

related. It is very difficult, and in our opinion impossible, to determine whether the cause of sexual function disorder in patients with CAD is cardiac or psychological. No detailed mental, psychological or neurological assessment was therefore made of our patients. This is another major limitation of the study. In addition, due to the low number of patients enrolled, it will clearly not reflect all cardiac patients. The fact that our research was not a randomized, prospective double-blinded study also lowers the proof level. However, despite these weaknesses, our essential aim was to evaluate patients' sexual functions, and our study achieved this. Our study being prospective, and to the best of our knowledge the first on the subject, makes this research valuable in the framework of evidence-based medicine.

Sexual function is significantly affected in women with CAD, and severe FSD may develop in this ongoing process. Sexual function is initially seriously affected following coronary intervention, but tend to improve over time. However, permanent FSD may develop in some patients. It is therefore important to provide the requisite professional sexual support for these women.

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