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Original Article

Comparison of Sexual Dysfunction Before and After Coronary Artery Bypass Grafting Using the International Index of Erectile Dysfunction Questionnaire

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ABSTRACT

Background: Sexual dysfunction is one of the most common problems in men after coronary artery bypass graft surgery (CABG). The aim of this study was to compare male sexual function before and 6 months after CABG.

Methods: This cross-sectional study recruited 70 CABG candidates who completely fulfilled the inclusion criteria without any exclusion criteria. The patients were asked to complete the International Index of Erectile Function (IIEF) questionnaire before and also 6 months after the operation. Demographic data and also the type of surgery were recorded. At the end of the study period, different dimensions of sexual function were compared before and after CABG.

Results: The mean age of the patients was 57.7 ± 7.86 years, and 15 (21.4%) cases were diabetic. Six months after CABG, a significant decrease was observed in all the aspects of sexual function ($P < 0.001$). The mean erectile function score decreased from 19.91 ± 6.4 to 17.46 ± 6.82, the mean orgasmic function score from 7.19 ± 2.62 to 6.17 ± 2.99, the mean sexual desire score from 6.44 ± 2.47 to 4.91 ± 2.76, the mean intercourse satisfaction score from 8.59 ± 3.57 to 7.4 ± 3.77, the mean overall satisfaction score from 6.71 ± 2.29 to 5.34 ± 2.77 and the total score of the IIEF from 48.84 ± 13.26 to 41.29 ± 14.75. Comparisons of sexual function quality before and after CABG divided by diabetic and nondiabetic patients also demonstrated the same results in all the domains. Except for the intercourse satisfaction in the nondiabetic patients, sexual function decreased significantly.

Conclusions: The results of this study indicated the negative effect of CABG on all the different aspects of sexual function. Given the direct impact of sexual function on patients' quality of life, it is essential to take this aspect of patients' function into account more than before by applying empowerment therapies after CABG, if necessary. ***(Iranian Heart Journal 2019; 20(3): 47-51)***

KEYWORDS: Diabetic men, CABG, Sexual function, International Index of Erectile Function Questionnaire

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Sexual dysfunction is common in patients with heart disease; it exerts adverse effects on quality of life and also causes psychotic disorders that decrease the sense of life expectancy. [1-4] This problem can also affect the family and social aspects of human life. Intact sexual activity has an important role in the quality of life, and sexual dysfunction may have a negative effect on all aspects of human life, social and psychological behaviors, and also life expectancy. [5, 6] Erectile dysfunction is the most common type of sexual dysfunction and is defined as the permanent inability to get and maintain an erection for sex. The most common reasons for erectile dysfunction can be related to advanced age, the risk factors for atherosclerosis, and coronary artery disease (CAD). The prevalence of erectile dysfunction in men with CAD has been reported to vary between 46% and 75%. Some drugs such as beta-blockers and lipid-lowering drugs can reduce sexual activity in men and women. [7, 8] One of the most common cardiac diseases is CAD, which is considered to be the leading cause of morbidity and mortality in the entire world. Although there are different types of sexual dysfunction in patients with CAD, the most common type is erectile dysfunction. [9-12] In previous studies, authors have proven that a significant percentage of male patients with erectile dysfunction present sign and symptoms of CAD at 2- to 3-year intervals. For men with sexual and erectile dysfunction, a complete medical evaluation should be considered before relating this sexual problem to CAD. Complete laboratory tests—including testosterone, dihydrotestosterone, estrogen, the lipid profile, and the liver function—are required. [14, 15]

METHODS

The present study evaluated 70 patients with documented CAD in the Cardiac Surgery Ward of Imam Reza Hospital of Mashhad University of Medical Sciences. All the patients had successful CABG with the off-pump technique. On the day before surgery, the patients received comprehensive explanations about the purpose of this study. A standard questionnaire, the International Index of Erectile Function (IIEF), was filled by the study participants before surgery and then 6 months after discharge from the hospital so as to compare the results before and after CABG. Following hospital discharge, the entire study population was placed under routine clinical follow-ups and evaluated for sexual dysfunction in accordance with the standard IIEF protocol. Data were collected, recorded, and statistically analyzed. The inclusion criteria consisted of all of male patients with CAD who were fertile and sexually able before CABG, and the exclusion criteria were comprised of sexual disability before surgery due to any reasons and also some types of drugs with potentially adverse effects on sexual performance, including beta-blockers and cimetidine.

For the statistical analyses, the *t*-test, the χ^2 test, and the Man–Whitney test were used. A *P* value < 0.05 was considered statistically significant.

RESULTS

The mean age of the patients was 57.7 ± 7.86 years, with the youngest patient being 45 years old and the oldest 76 years old. Fifteen (21.4%) cases were diabetic, and 55 (78.6%) patients had no documented history of diabetes mellitus. Cigarette and drug addictions were noted in 11 (15.7%) and 10 (14.3%) of the patients, respectively. Known cases of chronic obstructive pulmonary disease and chronic renal failure were recorded in 4 (5.7%) and 2 (2.9%) of our cases, correspondingly. Six months after CABG, a significant decrease was observed in all the aspects of sexual function (*P* < 0.001). The mean score for erectile function decreased from 19.91 ± 6.4 to 17.46 ± 6.82, the mean score for orgasmic function from 7.19 ± 2.62 to 6.17 ± 2.99, the mean score for sexual desire from 6.44 ± 2.47 to 4.91 ± 2.76, the

mean score for intercourse satisfaction from 8.59 ± 3.57 to 7.4 ± 3.77, the mean score for overall satisfaction from 6.71 ± 2.29 to 5.34 ± 2.77, and the total score of the IIEF from 48.84 ± 13.26 to 41.29 ± 14.75 (Table 1). Comparisons of sexual function quality before and after CABG divided by diabetic and nondiabetic patients also demonstrated the same results in all the domains. Except for intercourse satisfaction in the nondiabetic patients, sexual function exhibited a significant decline.

Table1. Results of the IIEF questionnaire

Variable	Range	Mean ± SD	Time	*P* value
Erectile function	1-30	19.91±6.4	Before surgery	<0.001
	1-29	17.46±6.82	6 months later	
Orgasmic function	0-10	7.19±2.62	Before surgery	<0.001
	0-10	6.17±2.99	6 months later	
Sexual desire	1-10	6.44±2.47	Before surgery	<0.001
	0-10	4.91±2.76	6 months later	
Intercourse satisfaction	0-15	8.59±3.57	Before surgery	<0.001
	0-14	7.4±3.77	6 months later	
Overall satisfaction	2-10	6.71±2.29	Before surgery	<0.001
	0-10	5.34±2.77	6 months later	
IIEF	5-73	48.84±13.26	Before surgery	<0.001
	5-71	41.29±14.75	6 months later	

IIEF, International Index of Erectile Function
Wilcoxon signed-rank test

DISCUSSION

Intact sexual function plays an important role in psychological health; therefore, not only can sexual dysfunction have an adverse effect on the quality of life, family issues, and depression but also it can lead to job loss, diminished self-esteem, and decreased life expectancy. [16-19] Any type of sexual dysfunction (eg, erectile dysfunction and angina pectoris during sexual intercourse) can be the first presenting sign and symptom of early stage or advanced CAD. [20] The most common and important type of sexual dysfunction is erectile dysfunction, defined as the inability to get and maintain good and enough erection to start and continue sexual intercourse. The most important reasons for erectile dysfunction are aging, atherosclerosis risk factors, CAD, diabetes mellitus, and liver and renal failure. [21-24] In many reports, the prevalence of erectile dysfunction in men with CAD amounts to between 46% and 75%. Although the presence of erectile dysfunction in men with CAD is associated with a vascular origin, physicians should take into account some types of drugs associated with adverse effects on sexual function. For instance, metoprolol (a beta-blocker) and also some types of statins (anti-lipid drugs) exert negative effects on erectile function. [25]

Most patients with CAD need to undergo surgical interventions with CABG. The concern, however, is that evidence indicates diminished sexual and erectile function after CABG. [26] The mechanism of sexual dysfunction in men with impotence may be psychological or organic due to decreased sex hormones. The possible mechanism of this phenomenon may be a side effect of cardiopulmonary bypass during open cardiac surgery. We evaluated our male patients who underwent CABG with the off-pump technique. Our results are in line with many studies in which sexual function was declined in patients with CAD following CABG. In a study by Foruzan-Nia et al [21] in 2011, sexual dysfunction increased from 20.1% before surgery to 76.4% 3 months postoperatively. In another study by Mourad et al [29] in 2017 in Egypt, sexual function was decreased 3 months after CABG

in terms of all sexual parameters like erectile function, orgasm function, and sexual satisfaction. In 2015, Yuksel et al[32] reported completely different findings insofar as their results revealed improved sexual function following coronary revascularization; what, however, undermines the significance of their results is their small sample volume.

CONCLUSIONS

The results of the current study showed the negative effect of CABG on all the different aspects of sexual function. Given the direct impact of sexual function on patients' quality of life and satisfaction, it is essential that this aspect of patients' function be taken into account more than ever before by applying empowerment therapies after CABG, if necessary.

Conflict of Interest: None

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