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**QUALITY OF LIFE AND SEXUAL FUNCTION IN HEART PATIENTS WITH
HYPERTENSION AND DIABETES**

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ABSTRACT

Quality of life is important issue in heart patients and sexual dysfunction is major problem in heart patients. Since hypertension and diabetes have impact on heart patients' quality of life and their sexual function. This study aimed to investigate quality of life and sexual function in patients that have or not have hypertension and diabetes. Second aim was study of age differences between patients.

The 144 heart patients were participated in this study. They completed The Short-Form Health Survey (SF-36) for assessing of their quality of life and also they completed International Index of Erectile Function (IIEF-5) questionnaire (for men) and Female Sexual Function Index (FSFI). Variance analysis for comparing of means between groups was used and also t-test was used.

Groups showed significantly different means in quality of life but they didn't show significant different mean in sexual function. Heart Patients without hypertension and diabetes have better quality of life. About sexual function, despite that those patients didn't show significantly

different mean but patients that didn't have hypertension and diabetes showed better sexual function.

Hypertension and diabetes have impact on quality of life in heart patients. Patients with hypertension and diabetes were at higher risk for poor quality of life and sexual function.

Keywords: Heart Disease, Hypertension, Diabetes, Quality of life, Sexual Function

INTRODUCTION

Coronary artery disease is a main cause of mortality and morbidity in modern countries [1]. The CAD epidemic started in the 1950s affecting firstly Western countries. Prior to the 1920s CAD was not common and caused only <10% of all deaths in the United States. However, after 1950s this had escalated to >30% and it is now the leading cause of death [2]. Mortality because of cardiovascular disease is very high but it decline each year in both gender [3]. Both of incidences and prevalence of coronary artery disease rise with increasing age [2]. Numerous studies have shown that age is the important risk factor for heart disease [4]. Cardiovascular disease doesn't have any known etiology, but it has a cluster of risk factors including diabetes, high blood pressure, smoking [5]. Both diabetes and hypertension are strongly age-related risk factors. In parallel with these risk factors levels of total cholesterol rise with age especially after middle age or the menopause [4].

Totally, diabetes mellitus is a main problem for public health in around the world [6].

Heart disease is a main risk factor of death in patients with diabetes mellitus. Incidence and prevalence of heart disease between diabetic patients is unknown because it is silent in more patients and most of the time begins in the early stages of type I and type II diabetes [7]. For instance, result of a study showed that 37.6% of heart patients had diabetic mellitus; 27.3% type 2 DM and 10% type 1 [8]. Some studies reported that cardiovascular disease is associated with type 2 diabetic mellitus, especially related to CAD, heart failure (HF) and stroke [9]. Mortality of diabetic patient with CVD is double higher than nondiabetic patients [6]. DM is likely to leads to a significant reduction in life expectancy, decrease quality of life and increased charge of care in these patients [10].

Hypertension is a common disease affecting about 1 billion people worldwide and it is the most common risk factor for conditions such as atherosclerosis, stroke, heart failure, atrial fibrillation, diabetes mellitus, sudden cardiac death, acute aortic syndromes and may cause death and disability in patients of all [11].

Hypertension is major source of disability among up to 65% of population [12]. Blood pressure plays important role in heart disease and also, Hypertension twofolds the risk of heart disease [13]. About 5% to 10% of adults with heart disease extend arterial hypertension [14]. Patients with hypertension physically limited and need to follow complex pharmacotherapy that leads to decreases in their quality of life [15]. Quality of life is important in heart patients because several studies showed that quality of life in heart patient before surgery is a significant predictor for quality of life after it [16,17, 18]. Diabetes and hypertension have been associated with sexual dysfunction in both men and women [19]. Sexual dysfunction is a prevalent problem in diabetic patients; diabetes doesn't cause the sexual dysfunction. Diabetic men with hypertension have a problem with the side effect of sexual dysfunction, which occurs from the use of centrally acting antihypertensive agents. For example, prazosin, and α_1 -adrenergic blocking agent, this cause of sexual dysfunction was eliminated [20]. Vascular insufficiency has been implicated in impotence, impaired ejaculation and decreased libido in men and in decreased vaginal lubrication, orgasmic dysfunction and decreased libido in women. Various studies of women with diabetic

mellitus indicate they have been report fewer sexual dysfunction than diabetic men [19]. In a study that conducted by Aranda and *et al* (2004) showed a high incidence of ED in hypertensive patients from Spanish [21].

However, hypertension and diabetes are risk factors for heart disease and affect quality of life and sexual function in patients, and whereas quality of life is important in heart disease care, and sexual function also is crucial in quality of life this study aimed to examines effect of hypertension and diabetes on quality of life and sexual function in heart patients.

METHODOLOGY

The sample comprised a mixed group of one hundred and forty four heart patients that was collected from Baqiatallah hospital in Tehran and Shahid Beheshti hospital in Qom between October 2013 and February 2014, and who consented to participate in the study, were conveniently collected. In brief, the mean age of the total sample was 57.66 ± 7.26 years that 80 patients were men and 64 patients were women. 31 patients were between 40 and 50 years of age, 54 patients were between 51 and 60 years of age and 59 of them were between 61 and 70 years of age. 38 patients had diabetes comorbidity with their heart disease, 44 of them had hypertension, 30 patients had diabetes and hypertension comorbidity with

heart disease and 32 of them had none of comorbidity with their heart disease.

Demographics included gender, age and marital status and were assessed by the questions in the questionnaire. Clinical variables were obtained from the patients' medical records that comprised comorbidities (Diabetes, Hypertension). There were inclusion and exclusion criteria. Inclusion criteria: 1- Being in the age group between 41 to 70 years; 2- patients informed consent to participate in the study. Exclusion criteria: 1- history of any cardiac surgery; 2- having an important psychological disorder; 3- being under the psychological treatment; 4- having addiction to any drug.

For data collection, the following instruments were used: 1- The Short-Form Health Survey (SF-36) was used to assess quality of life in patients [22]. This questionnaire consists 36 items that divided into eight subscale (physical functioning, role limitations due to emotional functioning, role limitations due to physical functioning, vitality, social functioning, bodily pain, mental health, and general health). The score range in each subscale is changed into a score from 0 to 100; it is a reliable measure, Cronbach's alphas indicated up to 0.7 for all subscales [23]. 2- International Index of Erectile Function (IIEF-5) questionnaire [24]. This

questionnaire was used for the assessment of male sexual function. According to IIEF scores was categorized to: severe dysfunction (score 5-10); mild to moderate dysfunction (score 11-15); mild dysfunction (score 16-20); and no dysfunction (score 21-25). In a study that conducted by Pournaghash-Tehrani and Etemadi [25] the Cronbach's alphas was 0.83 that indicate IIEF is a reliable questionnaire. 3- Female Sexual Function Index (FSFI): The questionnaire have 19 items [26] that were used to assess female sexual function. It has 6 subscales that include (desire, arousal, lubrication, orgasm, satisfaction and pain). There are 2 questions for desire, 4 to arousal, 4 to lubrication, 3 to orgasm, 3 to satisfaction and 3 for pain. Minimum score is 0 and maximum score is 6 for each of subscales. Reliability was reported for desire was 0.7, for arousal and lubrication was 0.9, for orgasm was 0.91, for satisfaction was 0.76 and for pain was 0.88 [27] that indicate FSFI is a reliable questionnaire.

RESULTS

The sample participants had an average age of 57.66 years. Most of them were male (80 patients) and 64 patients were female. Also, all of the patients were married. **Table 1** shows the patients baseline characteristics.

Table 2 shows the mean and standard deviation of quality of life and sexual function

in patients based on diabetes and hypertension with their ages. The number of patients who were between 61 and 70 years of age is higher than other group.

Table 2 shows that patients with diabetes and heart disease who were in 40 to 50 ages had better sexual function than other patients but patients with diabetes and hypertension between 61 to 70 ages had poor sexual function than other groups. Within groups all of the patients in each of the ages didn't show significant differences. About QoL, results showed that patients who didn't have any of comorbidities (diabetes and hypertension) have significantly better quality of life but the group with diabetes and

hypertension had significantly poor quality of life than other groups.

Table 3 showed that quality of life was significantly different between groups. But sexual function didn't significantly different between groups.

Table 4 shows the significant differences between four groups. Group that didn't have any comorbidities with their heart disease showed better condition in physical functioning, role limitations due to physical and emotional functioning, bodily pain, mental health, social functioning, vitality and general health. Mental health is better in hypertension with diabetes than hypertension and diabetes groups.

Table 1: Baseline characteristic for the total sample

Disease	Age		
	40-50	51-60	61-70
Diabetes	7	14	17
Hypertension	9	16	19
Diabetes, hypertension	7	13	10
None of them	8	11	13

Table 2: Mean and standard deviation of quality of life and sexual function

variables	Diabetes			Hypertension			Diabetes, hypertension			None of them		
	40-50	51-60	61-70	40-50	51-60	61-70	40-50	51-60	61-70	40-50	51-60	61-70
Sexual function(MEN)	20.50 (0/707)	18.20 (5.97)	13.72 (4.98)	18.00 (4.32)	15.66 (5.12)	14.75 (5.43)	16.75 (6.23)	15.75 (4.06)	13.57 (7.50)	22.25 (5.61)	21.00 (2.89)	15.62 (4.68)
Sexual function(FEMALE)	19.50 (5.49)	18.87 (5.48)	17.38 (4.50)	23.58 (10.75)	19.17 (6.88)	16.96 (5.56)	18.70 (4.25)	20.22 (7.12)	13.10 (5.23)	23.60 (3.63)	21.40 (7.25)	19.82 (7.01)
Quality of life	66/83 (17/56)	59/22 (16/55)	62/22 (14/86)	68/01 (16/43)	60/88 (16/62)	53/44 (19/25)	41/56 (14/44)	40/17 (19/64)	34/15 (15/33)	75/54 (16/46)	74/91 (14/48)	68/16 (12/74)

Table 3: Variance analysis of quality of life and sexual function in groups

Variable		Sum of squares	df	Mean squares	f	sig
Sexual function(men)	Between groups	21.833	3	7.278	0.345	0.793
	Within groups	1561.346	76	21.099		
	Total	1583.179	79			
Sexual function(women)	Between groups	14.634	3	4.878	0.162	0.921
	Within groups	1711.618	60	30.028		
	Total	1726.252	63			
Quality of life	Between groups	19046.825	3	6348.942	22.856	0.000
	Within groups	3700.101	140	277.779		
	total	56546.926	143			

Table 4: Mean and standard deviation of SF-36 subscales

variables	diabetes	hypertension	Diabetes, hypertension	None of them
Physical functioning	53.78(26.54)	51.47(18.25)	49.07(20.89)	55.96(24.09)
Role limitations due to physical functioning	35.13(34.08)	31.81(39.38)	30.55(34.89)	61.12(37.38)
Role limitations due to emotional functioning	48.64(41.27)	46.21(41.43)	44.44(46.22)	53.76(45.27)
Bodily pain	50.67(24.78)	48.69(22.32)	47.66(24.36)	70.91(22.74)
Social functioning	59.25(25.99)	51.81(26.13)	44.25(21.65)	56.85(23.54)
Mental health	46.70(21.35)	49.81(16.78)	53.33(15.41)	57.29(14.80)
Vitality	49.45(23.29)	54.43(20.88)	56.48(19.55)	62.67(16.63)
General health	52.62(17.06)	54.31(18.12)	50.74(17.46)	56.45(17.47)

CONCLUSION

Although, CVD have no known etiology, but it has a bundle of risk factors including diabetes, high blood pressure, smoking, etc. Hypertension and diabetes are risk factors for heart disease and affect quality of life and sexual function. The aim of this study was to illustrate the effect of diabetes and hypertension in patients with heart diseases on quality of life and sexual behaviors within a selected population. In the selected population, a descriptive study approach was used in order to diagnose diabetes and hypertension comorbidity with heart disease. A combination of these disorders was created to explore the sexual dysfunction in heart patients. Hypertension and diabetes affect quality of life in heart patients. It was

substantiated that patients with hypertension and diabetes are at higher risk for poor quality of life and sexual function. Based on gained results, heart patients without hypertension and diabetes showed significant higher quality of life than patients with hypertension or diabetes. Previous studies show that age is an important risk factor in heart disease and age differences were significant among heart patients in our study too. These results are parallel to more of other works. Quality of life was remarkably different amongst groups. But sexual function didn't significantly different between groups. In sf-36 subscales, groups showed significant differences. Quality of life is important in heart disease care, and sexual function is essential for improvement the quality of life. It must be

mentioned that DM may be results in a significant reduction in life expectancy, decreases quality of life and increases charge of care in these patients. Having diabetes makes high blood pressure and other heart and circulation problems more likely because diabetes damages arteries and makes them targets for hardening (atherosclerosis). Atherosclerosis can cause high blood pressure, which if not treated, can lead to blood vessel damage, stroke, heart failure, heart attack, or kidney failure. Sexual activity is a major quality of life issue for men and women with cardiovascular disease and their partners. CVD events such as heart attacks or chest pain caused by heart disease rarely occur during sexual activity, because sexual activity is usually for a short time. Some patients will postpone sexual activity when it is actually relatively safe for them to engage in it. On the other hand, there are some patients for whom it may be reasonable to defer sexual activity until they're assessed and stabilized.

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