The Possible Effects of Methadone Maintenance Therapy on Erectile Dysfunction in Male Addicts Visiting MMT Centers of Rasht

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ABSTRACT

Background: Methadone is considered a long-acting opioid agonist which is widely used in the treatment of drug addiction. It is believed that opioids can cause erectile dysfunction (ED) by inhibiting gonadotropin and testosterone release. This study is aimed at defining the possible effects of conservative treatment with methadone on erectile dysfunction in the addicts.

Methods: A total of 382 male addicts visiting methadone maintenance therapy (MMT) centers in Rasht, Iran, during 2010 were enrolled in this study. International Index of Erectile Function (IIEF) questionnaire and patients' profiles were the main means of collecting data on demographic information, methadone dose intake, and erectile function status before and after the two months of therapy with methadone. Erectile function status was defined by the total score from questions 1, 2, 3, 4, 5, and 15 of the questionnaire. The data was analyzed by X2, McNemer's test, and paired t-test using SPSS software 18.

Results: The mean age of patients was 37.6 ± 8.9 years (range: 18-72 years). Most of the patients were married (79.3%) and they were citizens of Rasht (72.3%). The most frequent substances were opium (188 patients, 49.2%) and crack (129 patients, 33.8%), respectively. Most of the patients received low dose methadone (286 patients, 74.9%). No significant relationship was indicated comparing the average scores of erectile function before and after taking methadone (18.53±6.978 vs. 19.03±5.819) (P=0.138). However, the severity of erectile dysfunction was significantly related to the methadone intake dose (P<0.001).

Conclusion: Although MMT increases the frequency of erectile dysfunction, appropriate doses of methadone minimize this effect.

Keywords: Addiction, Erectile Dysfunction, Methadone Maintenance Therapy, Rasht.

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INTRODUCTION

Substance abuse is considered as one of the most crucial medical and socioeconomic problems in the 21st century. According to the annual report of the United Nations (UN) office, over 200 million people aged 15-44 years are addicted to different types of drugs which amounts to about 5% of the world population [1, 2]. Recent reports have also revealed that more than two million drug-dependent addicts and over six million recreational drug users are living in Iran. There has been promising advances in the drug cessation therapies [3] among which Methadone Maintenance Therapy (MMT) is known as the first and the most important method in treating these patients (4). Methadone is a long-acting μ opioid receptor agonist in the brain. This product is orally absorbable and has a long serum half-time. Like other opioid agonists, methadone relieves pain and induces euphoria [4, 5].

Despite all advantages of methadone, complications, like constipation; sleep disorders; dysmenorrhea in women; volume overload; weight gain; testosterone decrease; sexual disorders, such as decrease in libido and erectile dysfunction might, lead the patients to leave the treatment [4, 5]. Several studies have shown that MMT is associated with erectile dysfunction [6, 7].

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Erectile dysfunction (ED) is defined as men's inability to terminate or hold penile erection to complete the intercourse. The disease affects all men groups after puberty; however, it happens more frequently as they age [8]. About 30 million Americans have erectile dysfunction and over 617715 patients are adding each year. Studies have revealed an organic source for 20-50% of men along with psychological factors in some of them [9]. To date, there have been few studies on the relationship between methadone use and erectile dysfunctions in Iran. Hence, the present study was done to examine the incidence of erectile dysfunction in patients who underwent MMT in Iran.

MATERIALS AND METHODS

In this descriptive analytic study, 384 male substance abusers who visited MMT centers of Rasht, Iran, in 2010 who met the inclusion criteria were randomly enrolled. Patient selection was according to the classified sampling method. The total number of 384 was calculated as the sample size of the present study based on the pilot study of 25 sample questionnaire, 20% incidence rate and N=z2pq/d2 formula (z=1.96, p=0.20, q=0.80, d=0.2P). The distribution pattern of patients in the six centers was defined by calculating the sample selection percent of each center (monthly admission rate of each center divided by the total monthly rate of the sample society and then multiplying these figures).

The inclusion criteria were: 1) age between 18 to 75 years old, 2) having one permanent sexual partner in the last one year, and 3) drug addiction for at least one year before starting MMT. The exclusion criteria were: 1) irregular methadone taking by the patient, 2) irregular visits to the MMT centers, 3) using two or more type of drugs at the same time, and 4) taking medications that could cause erectile dysfunction during MMT.

Two different questionnaires were utilized to collect the required data. Information on age, type of drug, marital status, number of sexual partners, methadone dosage, and possible history of psychological disorders was included in one questionnaire while the other set was based on the International Index of Erectile Dysfunction Questionnaire with 15 questions on function and quality of erection in the patients under study. The scoring of this system of evaluation was based on the total scores of the questions number 1, 2, 3, 4, 5, and 15. Then the obtained scores were added totally and formed the final score for each patient. Scores 26-30, 21-25, 17-20, 11-16, and 0-10 were attributed to no ED, mild ED, mild to moderate ED, moderate ED, and severe ED, respectively.

Explanations about filling the forms were done for physicians and psychiatrists working in the clinics by the research team. A written consent form was completed by MMT patients after being explained the purposes of the research. Then the patients were interviewed and the forms were filled for each of them. The second interview was done two months after the first one.

Statistical analysis of the data was carried out with SPSS software 18. Descriptive statistics were mean and standard deviation (SD) for the quantitative variables, and frequencies for the qualitative variables. Normally distributed continuous data were analyzed by paired t-test and $\chi 2$ test. Non-normally distributed data were compared through the McNemer's test. Statistical significance was defined as $P<0.05$.

RESULTS

A total of 382 male opium addicts who visited the MMT centers in Rasht met the inclusion criteria and were enrolled in the study. The mean age of the patients was 37.6± 8.9 years (range: 18-72 years). Most of the patients (39.5%, 151 patients) were 25 to 34 and 35 to 44 years old. Patients in most of the studied centers were married (302 patients). Moreover, 24.6% of the patients were uneducated (94 patients) and the majority of them lived in Rasht (276 patients, 72.3%). The main substances used were opium (188 patients, 49.2%) and crack (129 patients, 33.8%), respectively.

The majority of the patients (213) had no history of previous methadone maintenance therapy (MMT). Based on the findings of this study, 273 patients (71.5%)

had erectile dysfunction before MMT with 95 patients having mild problems.

All divorced or divorcing patients were suffering from erectile dysfunction (ED). There was a significant relationship between marital status and ED (P=0.002). All heroin and other drug abusers had ED with sedative medication (37 patients 92.5%) and crack (102 patients, 79.1%) users following. Hence, the relation between the type of substance and erectile dysfunction was significant (P<001) (Table 1).

The mean erectile function score of patients was 18.35±6.978 before MMT which increased up to 19.03±5.819 after MMT (P=0.138). There was a significant relationship for presence of erectile dysfunction (P=0.001) and its severity (P<001) before and after MMT in the present study (Table2). Frequencies of patients with no erectile dysfunction were 72 (25.2%) and 10 patients (10.4%) for low dose and high dose methadone intakes, respectively which indicate a significant relationship (P<001).

Table 1. Frequency of Erectile dysfunction before MMT, according to the demographic characteristics of male addicts visiting MMT centers in Rasht.

Demographic information	Status	Number (precent)	Erectile Dysfunction before MMT		Significance level
			Yes	No	
Age Group	18-24	11(2/9%)	9	2	0/081 *
	25-34	151(39.5%)	98	53	
	35-44	151(39.5%)	108	43	
	45-54	52(13.6%)	45	7	
	55-64	12(3.1%)	9	3	
	65-74	5(1.3%)	4	1	
Marital Status	Married	302	202	100	0.002*
	Single	74	65	9	
	Divorced	2	4	0	
	Divorcing	4	2	0	
Type of Substances	Opium	188	114	74	0.000*
	Heroin	11	11	0	
	Crack	129	102	27	
	Methamphetamine	3	2	1	
	Cocaine	5	1	4	
	Sedative medications	4	37	3	
	Other	6	6	0	

Table 2. Frequency of erectile dysfunction after MMT, according to the demographic characteristics of male addicts visiting MMT centers in Rasht.

	Before MMT	After MMT	Significance Level
scoresED			
mean	18.35	19.03	*
Standard deviation	6.97	5.81	0.138
ED			
Yes	273 (71.5%)	300 (78.5%)	**
No	109 (28.5%)	82 (21.55)	0.001
ED severity			
mild	95 (24.9%)	143 (37.4%)	**
mild to moderate	87 (22.8%)	106 (27.2%)	0.000
moderate	57 (14.9%)	39 (10.2%)	
severe	34 (8.9%)	12 (3.1%)	
dysfunction no	109 (28.5%)	82 (21.5%)	

DISCUSSION

In this study erectile dysfunction (ED) average score increased in patients who underwent MMT (19.3±5.819) which confirms the findings of Halinan et al., although the average score was 50.5±18.2 in their study [7]. This could be because of the fact that we only calculated the scores of the questions related to erectile dysfunction. Also, 53% of patients who underwent MMT had ED in the study done by Halinan et al. while this rate was 78.5% in the present study. These rates were about 14% and 42% in the studies done by Brown et al. and Quaglio et al., respectively. [10] The differences revealed in these studies could be due to different types of substances used by patients in the research centers. In the present study, patients using cocaine and methamphetamines showed lower rates of ED during MMT. These substances are mostly common in western societies; therefore, this can probably match with our results because most of our patients used opium and crack and their rates of ED were higher.

Based on the findings of Brown et al., the rate of sexual disorders in males who underwent MMT is the same as general population. Thus, it must be considered likewise [10] but there was a significant increase in ED rates after MMT in the present study. According to the findings for the severity of erectile dysfunction, rates of severe or moderate cases were significantly modified and developed to milder cases, which is totally different from the already known effects of methadone. Thus severe cases with ED are somehow considered cured. Moreover, results revealed that opium was the main substance abused. As addiction with this substance is much less harmful than other drugs, we suggest applying lighter detoxification regimens like buprenorphine to prevent complications like ED in these patients. The lower ED rates in patients using opium could be because of taking lower doses of methadone which showed significant decreases in ED. Promising results were also found in patients using crack. Although the total frequency of ED showed a mild increase (101 to 104 patients), there was a significant change in rates of patients with severe cases of ED to milder types in this group of patients.

There was no significant relationship between taking higher doses of methadone and ED which could be due to induced hypogonadism of opioids [7, 10, 11].

Unlike former studies, there was not a significant relationship between age and ED. This can be due to more abuse rates of crack or heroin in younger patients and opium in the elderly. In the present study, married patients had the least ED rates while divorcing or divorced patients had the highest rates which confirms the findings of Quaglio et al. Relaxation and support from the family can be the possible powerful reason [11].

LIMITATIONS

Patients' denial from talking about their sexual problems made some of them refuse to participate in the study. Some MMT clinics refused to take part in the study due to lack of male physicians or psychiatrists which resulted in non-random selection of clinics; however, maximum considerations were taken to select the patients randomly and from all geographic parts of Rasht. Future case-control studies are recommended to define the actual effect of methadone on the erectile function in patients undergoing MMT.

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