Erectile Dysfunction in Hemodialysis Patients in Fayoum (Egypt)

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Abstract

Erectile dysfunction (ED) is a considerable problem in hemodialysis (HD) patients.   Many organic and psychological factors has been reported to take part in the pathophysiology of this condition. The aim of this study is to determine the prevalence of sexual dysfunction among (HD) patients. This study included 147 male patients on (HD) therapy We explained to them each of the questions and asked them to complete an Arabic version of the IIEF questionnaire used   to determine the sexual problems and the prevalence of erectile dysfunction in male (HD) patients. The result shows that the mean age of (HD) patients was 54.73 ± 14.08 years (23–78), and the duration of (HD) was 16.03 ± 15.66 months. By means of the IIEF, the prevalence of erectile dysfunction (ED)   was 86.6%. The prevalence and the severity of ED showed significant increase as the age increased ($p <0.05$). also diabetes , ischemic heart disease artery disease and obesity were associated with increased prevalence and severity of ED. In conclusion we can say that Erectile dysfunction is highly prevalent in (HD) patients. The prevalence and the severity of ED increase with age. DIABETES, OBESITY AND ischemic heart   disease Evaluations and efficient therapy for ED should be included   in routine assessment of (HD) patients.

Keywords: Erectile dysfunction; Hemodialysis; IIEF**;** CRF**;** Questionnaire.

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1. Introduction

Erectile dysfunction (ED) is the persistent inability to achieve and/ormaintains an erection for satisfactory sexual activity [1] Erectile dysfunction is a distressing problem in hemodialysis (HD) patients [2,3]. It's an important cause of quality of life (QOL) limitation [4]. Combinations of organic and psychological factors have been reported to take part in the pathophysiology of this condition [2] Since the 1970s, when the first works on sexual function in uremic patients were published, several studies have highlighted the high prevalence of sexual dysfunction among patients with chronic renal failure (CRF) [2]. The international index of erectile dysfunction [IIEF] was introduced in1997 [5]. The IIEF is a brief, reliable and valid self-administered questionnaire of 15 items. The IIEF has high sensitivity and specificity for evaluating the effects of treatment in patients with ED of different etiologies [6].

2. Aim of the Work

The aim of this work was to study the prevalence of ED in CRF patients on HD and its correlation with other risk factors.

3. Patients and Methods

The present study was carried out on 147 chronic renal failure patients on HD aged (40 to 65 years old) who have regular sexual activities . Patients with major organ affection mental retardation or psychological abnormalities were excluded. Patients were recruited from Fayoum general hospital and Fayoum university hospitals. All patients were subjected to detailed history and thorough medical examination . All patients were asked to Complete a validated Arabic version of the (IIEF5) questionnaire [7] and to complete a questionnaire scanning for other erectile dysfunction risk factors . The IIEF-5 scores were used to correlate the severity of ED to duration of HD therapy and associated diseases as benign prostatic hyperplasia (BPH) diabetes mellitus (DM), hypertension (HTN) and cardiovascular diseases (CVS). Based on the IIEF-5 scores, The severities of ED were defined as follows: normal (no ED): 25-30, mild: 19-24, mild to moderate: 13-18, moderate: 7-12, and severe: 1-6 (according to IIEF-1997). [8]. A blood sample was obtained to assess Total testosterone, Prolactin, Thyroid stimulating hormone (TSH) the glycated hemoglubin (HbA1c) if the patient is diabetic , creatinine , calcium, and hemoglobin.

Statistical analysis: Data was coded and analyzed using the statistical package for social science (SPSS version16) Data was summarized as mean, standard deviation and rang for quantitative variables and percent for qualitative variables. Comparison between groups was done using independent sample t-test, ANOVA (analysis of variants) P-values < 0.05 were considered as statistically significant.

4. Resuls

The present study was carried out on 147 CRF patients on HD recruited from HD units of Fayoum university hospital and Fayoum general hospital . The prevalence of ED according to IIEF5 score was 93.2 % for all HD subjects . The mean age of the patients was 52.96 ± 6.62 years (35 - 62 years).

Regarding the grade ED Based on the IIEF-5 scores, The severities of ED were defined as follows: normal (no ED): 25-30, mild: 19-24, mild to moderate: 13-18, moderate: 7-12, and severe: 1-6 (according to IIEF-1997). In this study it was found that 92.2 of the patients had ED while only 6.8% had no ED and the different grades of ED are shown in fig.1
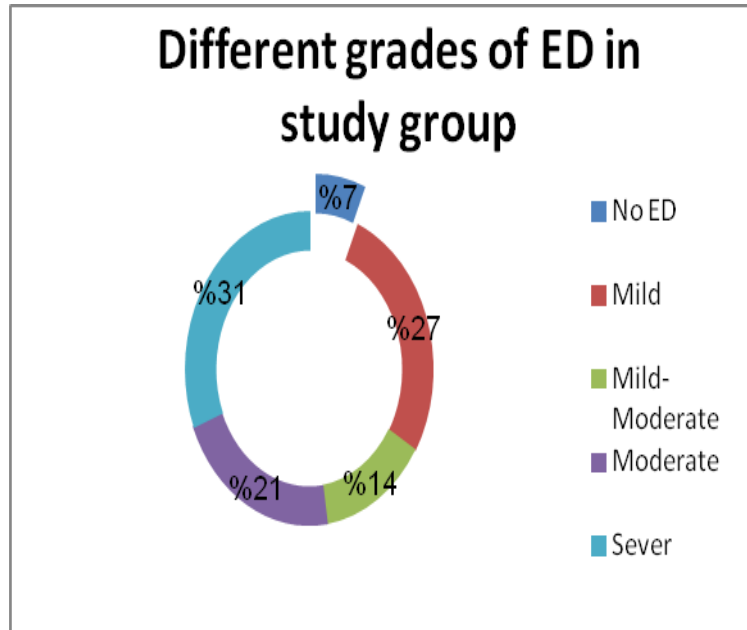

Fig.1 – Different of ED in the study population

ED = erectile dysfunction , NO ED = No erectile dysfunction

In this study it was noted that The prevalence and severity of ED increased with increased patient age and the results were statistically significant also there was a positive association of smoking history and duration with ED and there was no significant association between the BM1 and ED in HD patients of the present study (Table 1) .

Regarding the association of different diseases with ED in the study population 77 out of 78 of diabetics (fig.-2), also78 out of 81 patients with Coronary insufficiency (fig.-3) and 88 out of 91 patients with BPH had ED (P value = < 0.001 , 0.008 and 0.006) (Table 2).

The prevalence of ED among patients receiving Erythropoietin less than two times per week for CRF induced anemia were found to have more (110 out of 113) compared to patients receiving Erythropoietin twice weekly or more (27 out of 34) and the difference was statistically significant (p=0.034) (Table 2) . No statistically significant association was noted as regards HTN heart Failure or the duration of HD (Table 2) . Seventeen patients had subclinical hypothyroidism , thirteen of them had ED with no significant association with ED . Also , there was no significant association between prolactin or testosterone levels and ED in the study group (Table 1) .

Table 1 - Association of socio demographic data with ED in HD patients.

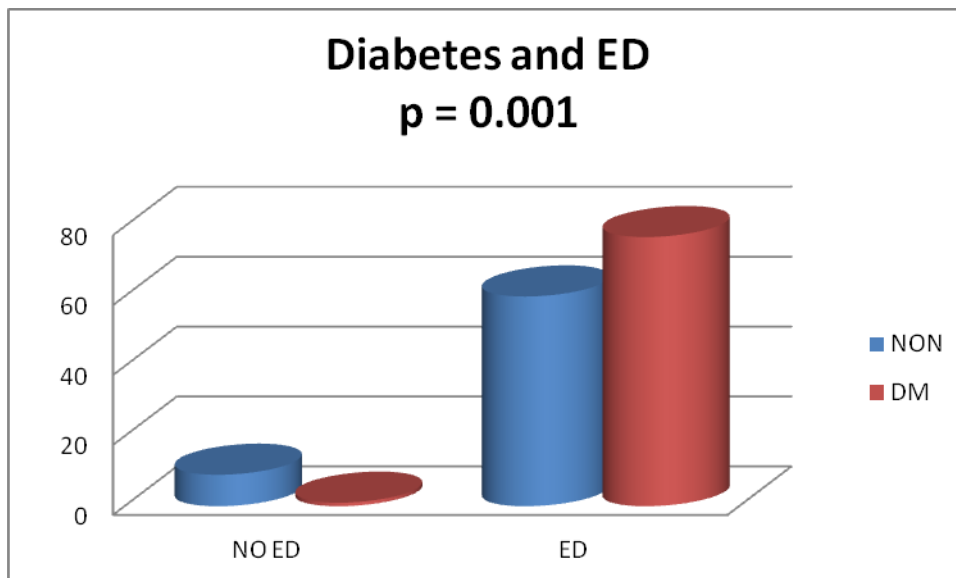| Socio demographic data	No ED		With ED		P-value
	n	%	n	%	
Age (years)					
< 50	7	70	22	16.7	
≥ 50	3	30	115	84.3	< 0.001
Body mass index					
< 25	5	50	63	45	
≥ 25	5	50	75	55	0.844
History of current or previous smoking					
No	2	20	11	9	
Yes	8	80	126	91	0.016
Years of smoking (smoking or smoked)					
< 20	3	30	17	13	
≥ 20	7	70	120	87	0.003

[*]ED = Erectile Dysfunction;

Fig.2- The association of diabetes and ED

ED = erectile dysfunction , NO ED = No erectile dysfunction

DM = diabetes Mellitus

Table 2 - Association of clinical data with ED in HD patients

Clinical data	No ED	With ED	P-value
	n	n	
Diabetes Mellitus			
No	9	60	
Yes	1	77	< 0.001
Hypertension			
No	2	56	
Yes	8	**81**	0.088
Coronary insufficiency			
No	6	59	
Yes	4	78	0.008
heart failure			
No	6	77	
Yes	4	60	0.334
BPH			
No	7	49	
Yes	3	88	0.006
Duration of HD (months)			
< 48	5	66	
≥ 48	5	71	0.244
Erythropoietin therapy			
≥ twice per week	7	27	
< twice per week	3	110	0.034
Hyperptolactinemia			
No	6	121	
Yes	4	16	0.344
Hypothyroidism			
No	7	123	
Yes	3	14	0.584
Abnormal testosterone			
No	6	126	
Yes	4	11	0.436

ED = Erectile Dysfunction; **HD** = hemodialysis;

BPH = Benign prostatic hyperplasia

Table 3 - Association of The cause of CRF with ED in HD patients.

Cause of CRF	Without ED		With ED	P-value
	n		n	
Medication abuse				
No	6		131	
Yes	2		6	0.877
Diabetes Mellitus				
No	9		60	
Yes	1		77	< 0.001
Glomerulonephritis				
No	3		125	
Yes	7		12	0.011
Hypertension				
No	2		56	
Yes	8		**81**	0.088
Polycystic disease				
No	8		133	
Yes	2		4	0.975
Unknown				
No	8		121	
Yes	2		16	0.597
Total	10		137	

CRF = Chronic renal failure **ED** = Erectile Dysfunction; **HD** = hemodialysis;

As regard the etiological cause of CRF and association with ED in HD patients in this study it was found that 72 patients had DM, 19 had Glomerulonephritis , 99 had HTN , 6 had polycystic kidney , 8 had a history of drug abuse and 18 patients the etiology of CRF was unknown. Diabetes and Glomerulonephritis showed significant association with ED in this study (p =0.001 and 0.011) (Table 3).

5. Discussion

Erectile dysfunction (ED) has a higher   prevalence in patients treated for chronic renal insufficiency   and significantly impairing their quality of life [9] . In men with   CRF the etiology of ED is often multifactorial ; uremia, medications, associated co-morbid conditions, physiologic changes with dialysis and the causative pathophysiology leading to the patient's chronic renal failure should all be considered prior to initiating HD [10]. The prevalence of ED in patients on HD   in our study was 93.2%. In previous studies   conducted by [11, 12, 13, 1 , 9] the prevalence   ranged from 41.5 to 86.4% .
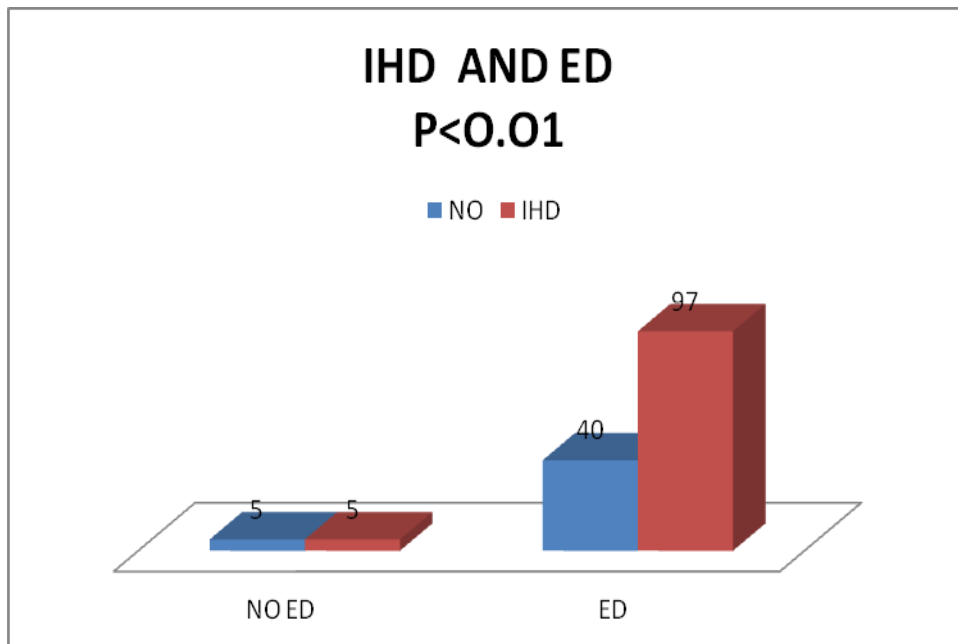
Fig.3 The association of IHD and ED

IHD=Ischemic heart disease , ED = erectile dysfunction

NO= No Ischemic heart disease , NO ED = No erectile dysfunction

In the present study there was a significant correlation between the patient age and the prevalence of ED (Table 1) as 16.4 %, of subjects younger than 50 years had ED while 83.6 % of subjects aged 50 years or more were found to have ED. (p<0.05). Many previous studies were in agreement with our results for example studies conducted by [12, 1, 6, 13]

In the present study there was no significant correlation between BMI and different grades of ED (Table 1) and this agree with results concluded by [13]. Who found that most of patients who have moderate to severe grades of ED were overweight and only 25 % of patients who have mild to moderate grades of ED were obese .

In our study the mean duration of HD was 58 months (9 months to 15 years) and there was no significant association between the duration of HD and the prevalence of ED(Table 2) . This finding is similar to previous studies by [14, 1, 6].

In the current study there was statistically significant association between smoking and its duration and the prevalence of ED (Table 1). This finding is not consistent with [12, 6, 13 , 15] and is consistent with [14] who reported a significant correlation between smoking and ED.

In this study Hypertension was found in 67 % of the study population, but no significant association was detected between HTN and ED (Table 2) and this is consistent with the results of a study conducted by [13]. Also, some anti-hypertensive medications was claimed to worsen sexual function due to their direct effects on the vascular system. In this study there was no significant association   detected between antihypertensive medications and ED. This differs from the results of [16] who reported that beta blockers demonstrated the most negative effects on sexual function in HD patients, while vasodilators increased genital blood flow, hence, alleviated the problem.

 Regarding   DM the presence of DM in our patients was 53%. nearly all (77 out of 78) of them had ED, there was a statistically significant association between DM and ED . Prior studies have repeatedly shown a high prevalence and a significant association of ED with diabetes like [6]) who reported that DM is an independent risk factor for ED in HD patients and [13] who also found a strong association. In our study there were no statistically significant correlation between ED and dyslipidemia and this is similar to the findings of [17] . On the other hand [14] found a statistically significance correlation between dyslipidemia and ED.

 Based on the high prevalence of ED with hypertension, hyperlipidemia, diabetes mellitus and depression, [18] proposed that ED should be used as a marker for these concurrent diseases, and that ED should be given the deserved attention in the assessment profile for these diseases.

In this   study testosterone level was lower than normal in 6 patients and higher than normal in 9 patients. Prolactin level was higher than normal in 20 patients , however the correlation between both of them and ED was statistically insignificant . Also 17 patients had subclinical hypothyroidism   but there was no statistically significant correlation between TSH level and ED.

6. Study Limitations

Factors that limit our findings. The sample size   was relatively small, so this limits the possibility of detecting some interactions such as ED and obesity or hypertension. Being a cross-sectional study, so it is just possible to find an association links between ED and risk factors without certainty of a causal relation between them. Also this study did not assess variables that have been linked to ED, such as autonomic neuropathy, peripheral vascular disease, residual renal functions And lastly data of those patients were collected from only 2 centers and if more centers were included the results may be more representative of all urban and rural population.

7. Conclusion:

Erectile dysfunction is highly prevalent in (HD) patients. The prevalence and the severity of ED increase with age. DIABETES, OBESITY AND ischemic heart disease Evaluations and efficient therapy for ED should be included in routine assessment of (HD) patients.

8. Recommendations

Physicians in the HD units   who should be aware of patients' unexpressed expectations and should enhance the disclosure of patients' erectile problems. Thus, patients would not feel embarrassed while touching this problem

with their physicians. In this respect, the IIEF is a valuable method of unveiling the erectile problems of HD patients. The IIEF is a practicable and self administered questionnaire that can explore this very intimate problem and provide highly informative results. The routine use of IIEF for the diagnosis and treatment of ED should be considered in this group of patients. Also factors associated with increased risk of developing ED in CRF patients like DM , IHD and smoking should be addressed and controlled

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