The Professional Medical Journal
www.theprofesional.com
DOI: 10.17957/TPMJ/16.3171

ORIGINAL PROF-3171

ERECTILE DYSFUNCTION;

PATIENTS ON MAINTENANCE HEMODIALYSIS: ASSESSED BY USING INTERNATIONAL INDEX OF ERECTILE FUNCTION (IIEF)

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Article received on:
13/11/2015
Accepted for publication:
22/01/2016
Received after proof reading:
10/03/2016

ABSTRACT… **Objectives:** Erectile dysfunction (ED) is a very common and distressing health problem in chronic maintenance hemodialysis patients. There is no such data available from Sind province of Pakistan on this issue; we want to highlight the factors and prevalence of erectile dysfunction among hemodialysis patients in this part of our country. **Study Design:** This hospital based observational, cross-sectional study **Setting:** It was conducted at 04 hemodialysis centers of Hyderabad city **Perod:** In 2014 **Methods:** The Study was conducted by using International Index of Erectile Dysfunction (IIEF-5) for determination of prevalence & severity of ED among these patients. Comparative analysis for frequency of ED was also done between urban & rural patients. Adapted Urdu version of IIEF-5 was used for those who cannot understand English pro forma. **Results:** There were total 62 male patients; all of them were on maintenance hemodialysis for more than 6 months. Their ages were between 20 to 59 years with mean 36±11. In this series of patients 80% (n=50) were < 50 years of age while the diabetic patients were 58% (n=36). The overall prevalence of ED observed in patients was 88.7% (n=55) in our study. Severe ED was seen in 30 (48.4%) patients. The prevalence & severity of ED was significantly higher in diabetes mellitus and over 50 years of age. There was higher incidence of ED 94% observed in patients who are living in rural areas as compared to urban areas patients 82%. **Conclusions:** It has been concluded in this study that majority of male hemodialysis patients were suffering from ED problem. Diabetes mellitus and & > 50 years of age has the highest prevalence of ED. Erectile dysfunction is very common and distressing health related issue among hemodialysis patients and this should be addressed with routine clinical evaluation, counselling and appropriate treatment to improve their quality of life.

Key words: Erectile dysfunction, maintenance hemodialysis, IIEF, chronic renal failure, diabetes mellitus

Article Citation: Ansari MR, Kumar P, Das B, Shafiq-ur-Rehman M, Tahir SM, Tahir B. Erectile dysfunction; patients on maintenance hemodialysis: assessed by using international index of erectile function (IIEF)". Professional Med J 2016;23(3):268-273. **DOI:** 10.17957/TPMJ/16.3171

BACKGROUND

There is very high prevalence of erectile dysfunction among hemodialysis patients. Several cross- sectional studies have been published on this issue that also showed high prevalence of ED among hemodialysis population. There is only one study published in our country, Pakistan from Lahore in 2009[1] on this issue.

AIMS & OBJECTIVES

This study was conducted to determine the prevalence of ED in patients who are maintenance hemodialysis in this region of Pakistan (Province of Sind, Hyderabad and adjacent area). The other aim of this study is to compare the prevalence and incidence of ED among urban & rural area patients on hemodialysis.

INTRODUCTION

Erectile dysfunction ED is very commonly observed problem among hemodialysis patients all over the world. In our society majority of the patients do not discuss this distressing problem with their treating physicians, and even they are hiding it from their closely contact social personnel and friends. The exact prevalence of ED in hemodialysis patients is not known but the approximate estimate is between 41% - 93% in various studies.[2, 3] ED in hemodialysis patients is a multifactorial problem including psychological,

neurological, vascular, endocrinological and drugs related. We have conducted this study to determine the prevalence and severity of ED in chronic maintenance hemodialysis patients by using IIEF questionnaire.[4]

METHODS

This study was a cross-sectional and hospital based, carried out at 4 hemodialysis centers of Hyderabad city of Pakistan during 2014. All male patients who were on chronic maintenance hemodialysis therapy for > 6 months were selected. Overall 75 patients who had otherwise healthy spouses and able to perform active sex. 62 patients have agreed to complete the IIEF – 5 Questionnaire Performa. We also used the Urdu modified version of IIEF – 5 for those who cannot understand English version. All the Performa were distributed to the patients after adequate explanation about questionnaire, although 4 patients who were illiterate and cannot fill the Performa were assisted by the doctors who are working in dialysis units of that center. Informal consent were taken from all 62 patients who included in this study. Mean age was 36±11 years with range 21 – 59 years. The maximum score for erectile function is 25, and patients who scored 21 – 25 are considered no erectile dysfunction, mild ED (16 – 20), moderate (11 – 15), and (5 – 10) score is considered as severe ED. A separate Performa used for demographic data which includes age cause of ESRF (end stage renal failure), duration of hemodialysis, frequency of dialysis and regional breakup of patient's i.e. urban and rural areas of Sind province.

The IIEF – 5 score of each responded question and domain were analyzed of all 62 patients and for descriptive purposes quantitative variables presented as mean and SD, results were analyzed by using SPSS 22.0 version. All variables of interests were converted into categorical variables and then Chi-Square test was applied for statistical significance. Statistical significance is defined as p value < 0.05.

RESULTS

This study was conducted according to the methods described, at 04 hemodialysis facilities of Hyderabad city. There were total 62 male patients on maintenance hemodialysis for more than 6 months with mean 21.5, SD ± 17.6 months and were able to perform active sex with their spouse. Their ages were between 20 – 59 years with mean age 36±11 years. 28 (45%) patients were on hemodialysis between 6 – 12 months with mean 8.5 ± 2 months and 34 (55%) were on dialysis for more than 12 months with mean 23.6 ± 10.3 months as shown in table II. According to IIEF questionnaire scoring, the mean ED score was 12.6±5.8 with minimum 5 & maximum 24. Majority of our patients 36 (58%) were diabetic and 26 (42%) patients were non diabetic with different etiologies. 40 (64.5%) patients were on 2/week hemodialysis, 12 (19.3%) and 10 (16.1%) were on once a week hemodialysis schedule. In this study we also subdivided our patients into two categories i.e. rural and urban areas residents to compare weather is there any difference between the two groups and we observed that there is more ED (94%) in patients who belongs to rural areas as compared to urban areas (82%) although does not fulfil the statistical significance as shown in table II.

Parameters	Numbers	p value
Without ED	7 (11.3%)	0.008
With ED	55 (88.7%)	
ED Severity (IIEF Score)	**Number (%)**	**P-Value (Chi Square Test)**
No. ED (21-25)	7 (11.3%)	< 0.001
Mild ED (16 -20)	14 (22.5%)	
Moderate ED (11 - 15)	11 (17.7%)	
Severe ED (5 - 10)	30 (48.4%)	

Table-I. Prevalence of ED with severity in total 62 patients, n (%) using (IIEf-5)

The prevalence of erectile dysfunction of any degree was noted in 55 patients (88.7%) (p 0.008), only 7 patients (11%) who were < 50 years of age were having normal erectile functions. Mild ED was observed in 14 patients (22.5%), moderate ED was noted in 11 patients (17.7%) whereas 30 patients (48.4%) (p < 0.001) were having severe form of ED as shown in table 1 & 5.

ESRD Cause	Diabetes Mellitus	36 (58.0%)	
	Hypertension	6 (9.6%)	
	Glomerular Diseases	9 (14.5%)	
	Stone Diseases	7 (11.3%)	
	Other Diseases	4 (6.4%)	
Frequency of Dialysis	Once a Week	10 (16%)	
	Twice a Week	40 (64.5%)	
	Thrice a Week	12 (19.4%)	
Age in years Mean + SD	All patients 62 Mean 36 years Mean ±SD 36 ±11yrs	Without ED (7)	With ED (55)
		Mean 25 Years	Mean 37.3 Years
		Mean + SD 25 + 1.2	Mean + SD 37 + 11
Rural	34	Without ED 2 (6.2%)	With ED 32 (94%)
Urban	28	5 (16.6%)	23 (82%)
		P Value : 0.225	p Value : 0.257
Duration of Dialysis in Months (21.5 Months SD + 17.6) 6 - 12 Months		With ED	Without ED
	28 (45.2%)	24 (85%)	4 (14%)
	Mean + SD 8.5 + 2 months)		
More Than 12 months		With ED	Without ED
	34 (54.8%)	31 (91%)	3 (8.8%)
	Mean + SD 23.6 + 10.3 months)	P Value : 0.345	P Value : 0.705

Table-II. Baseline Demographic data of Patient Studied n (%)

It is also observed that the prevalence of ED was seen in all 12 patients (100%) who were > 50 years of age, whereas ED was observed in 43 (86%) who were < 50 years of age ($p < 0.05$). The prevalence of ED was highest in diabetic patients 35 (97%) ($p < 0.05$) as compared to non-diabetic patients 20 (77%) ($p > 0.05$) as shown in table III. Duration and frequency of hemodialysis did not showed any significant statistical significance among the patients observed in our study as presented in table II. It is also observed that significant prevalence of ED is associated hypertensive sub-group (p 0.00), rest of the non-diabetic sub-group has no statistically significance as shown in table IV.

Characteristics		With ED	Without ED	P Value
Age	< 50 Years (50)	43 (86%)	7 (13.7%)	**< 0.05**
	> 50 Years (12)	12 (100%)	NIL	**< 0.05**
Diabetes Mellitus (36)		35 (97.2%)	1 (2.8%)	**< 0.001**
Non Diabetes Mellitus (26)		20 (77%)	6 (23.0%)	**NS**

Table-III. Prevalence of ED according to the age group and cause of ESRD, n (%)

Total patients (26)			
Causes	**With ED**	**Without ED**	**p value**
Glomerular diseases	5	4	0.739
Hypertension	6	0	< 0.00
Stone disease	6	1	0.059
Other causes	3	1	0.317

< 50 years of age (total 50), Ed severity using IIEF scoring			
Without ED	Mild ED	Moderate ED	Severe ED
7 (14%)	14 (28%)	11 (22%)	18 (36%)
> 50 years of age (total 12), ED severity using IIEF scoring			
Without ED	Mild ED	Moderate ED	Severe ED
0	0	1 (8.4%)	11 (91.6%)

Table-V. ED severity according to age, n (%)

DISCUSSION

Erectile dysfunction in male hemodialysis patients is very common and multifactorial problem like psychosocial, vasculogenic, hormonal, anemia, neurogenic and pharmacological factors are responsible. In this study 8 out of 9 patients having some degree of ED. This distressing problem is also very common in our conservative society. The overall prevalence of ED in our study is 88.7% which is nearly similar (86%) to the previous study published from Punjab province in 2009.[1] Our study also reflect the high prevalence of ED and are in agreement with those of other studies published from other parts of the world like Iran 87%[5], Turkey 80%[6], Brazil 86.4%[7] and Egypt 82.5%.[8] In this study there is high prevalence of ED in diabetes and increasing age. In our study there were 12 patients with > 50 years of age and all of them were having ED, 11 of them having severe form of ED that reflects very high significance of age factor causing erectile dysfunction as presented in table IV. Similar high prevalence of ED (80%) reported from Turkey in hemodialysis patients[6]. In our study we noted higher incidence of ED (86%) in patients < 50 years of age and 27.4% were having severe ED. If we compare our data with Neto et al[7] who reported prevalence of ED 52.6% in patients < 50 years of age, this difference may attributed to economical, dialysis facilities, associated comorbidities and medication used. There is also very high incidence of ED in diabetic patients on maintenance hemodialysis in our study, our total diabetic patients were 36, and 35 (97.2%) were having some degree of ED as compared to non-diabetic (26 patients), 20 (77%) were having ED and 6 (23%) were without ED as shown in table 4, Similar results was reported by Miyata et al.[9] Age & diabetes are strongly linked with high prevalence of erectile dysfunction reported in several published studies. Combined prevalence of erectile dysfunction in diabetes (not on hemodialysis) of any severity was reported 52% and increasingly prevalent with advancing age. It was reported 40% at the age of 40 years and 70% at the age of 70 years, complete impotence 5% at 40 years 15% at 70 years.[10] The overall combined ED of any severity was 9.6% in general population reported in Massachusetts Male Aging Study.[10] In this study age was the strongest variable associated with ED. After age adjustment there is very high prevalence of ED directly correlated with diabetes mellitus, hypertension, cardiovascular diseases, associated medications and psychological factors. Age and diabetes are also correlated with ED in National Health and Nutrition Survey (NHANES) 2001 - 2002 in US population, and the prevalence reported in men aged >20 years was 18.4% and 51% in men with diabetes.[11] Recently published study in 2015 from Italy reported 52.9% prevalence of ED in type II diabetes.[12] Adjusting age and diabetic factors, the prevalence of ED in hemodialysis patients was significantly higher (88.7%) as compared to NHANES survey 2001 – 2002 on general and diabetic population. Our results also showed significant prevalence of ED in all 6 patients (p 0.00) in hypertensive subcategory, whereas other subgroup has no significance as shown in table 5. This may be related to anti-hypertensive medications and vasculogenic factors that could be suspected regardless of age.[13] Penile vasculopathy has been described by Kaufman et al[14] in which he found cavernous artery occlusive disease in 78% of uremic patients. Duration and frequency of hemodialysis has no significant correlation with erectile dysfunction. Steele et al[15] results on these parameters are also in agreements with our data. In this study we also subdivided our patients into urban (patients in

city areas) and rural (patients living in villages) to see if there is any significant difference between these subgroups. 34 patients were belong to rural areas and 28 patients were living in city region, it has been observed a higher incidence of ED of any degree 94% in rural patients as compared to 82% in urban patients as presented in table 3, although statistically insignificant but this observation need further evaluation and research in future as there is no such data available for comparison. The lower incidence of ED in urban patients may be linked with better awareness of the disease, role of social media, education, facilities of internet and taking of drugs to enhance the sexual efficacy. Another important factor has been brought to our notice and highlighted by most of our patients during discussion regarding the abstinence/lack of interest and co-operation of their spouses during sexual activities as they are having believes that the disease can be transmitted from their husbands, compelling them to avoid sexual activities with their partners.

In conclusion the prevalence of erectile dysfunction is very high among hemodialysis patients in our study. It is strongly associated and statistically significant with advancing age, diabetes mellitus and hypertension. Erectile dysfunction adversely affects the quality of life to considerable extent. Although there is advancement in hemodialysis techniques, availability of hemodialysis facilities even in the smaller towns and improvement in patients' survival, the quality of life of these patients has not yet improved significantly specially in developing countries like Pakistan. Improvement in sexuality is oftenly a non-communicable and unexpressed demand by the patients. In this regard a greater awareness of this problems is needed by physicians and healthcare providers. Arsalan D et al[6] has reported only 1% of hemodialysis patients has reported by themselves regarding ED problem to their treating physicians. Improvement in quality of life especially erectile dysfunction should also be the aim of treating physicians including nephrologist. In this regard evaluation and assessment for ED among hemodialysis population should be done and properly managed by motivation, family counselling and pharmacological interventions to fill the colors in their lives.

LIMITATIONS

1. All of scoring were based on IIEF questionnaire and are self-reported, no other physical or diagnostic tools were applied.
2. Control study was not done to compare the effects of hemodialysis on ED.
3. Small sample size and need to do it on larger scale.

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"Originality is independence, not rebellion; it is sincerity, not antagonism."

George Henry Lewes

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