

## Incidence of Erectile Dysfunction in Patients Undergoing Chronic Hemodialysis at a Tertiary Care Center

### ABSTRACT

**Introduction:** Erectile dysfunction (ED) is the inability to achieve and maintain an erection for satisfactory sexual performance. It has been less emphasized sequelae in chronic kidney disease patients undergoing hemodialysis (HD). There is a scarcity of data regarding the incidence and prevalence of ED in patients undergoing HD. **Materials and Methods:** A single-center observational study was conducted between August 2022 and September 2022. After considering inclusion and exclusion criteria, 114 patients were enrolled in the study. They were interviewed, and International Index of Erectile Function score data were collected. Data tabulated age wise. Incidence and prevalence were calculated. **Results:** A total of 114 patients enrolled in the study (n) over the age ranging from 18 to 70 years. The median age is 44 years. Eighty-one (71.05%) patients had ED. Thirty-five patients had severe, 17 had moderate, and 29 had mild ED. There was a statistically significant association of severity of ED with age. In our study, we found out that the prevalence of ED in patients on dialysis is 71.1%. The incidence rate of ED in our study was approximately 61.63%. The incidence rate of our study was approximately 61.63%. **Conclusion:** A multidisciplinary approach for the management of ED in patients on HD may improve the quality of life of the patient.

**Key words:** Erectile dysfunction, Hemodialysis, Chronic kidney disease

### INTRODUCTION

Erectile dysfunction (ED) is the inability to maintain sufficient penile erection for satisfactory sexual performance,<sup>[1]</sup> affecting almost 50% of men in the 40–70 years age range in the general population. Improved life expectancy with the advancements in hemodialysis (HD) has initiated to shift our focus toward improvement of the quality of life of patients undergoing HD. ED is a common feature of chronic renal failure. Various studies reported the prevalence of ED between 30% and 88%.<sup>[2]</sup> The etiology of ED in patients undergoing HD can be organic or psychogenic. There is a scarcity of studies determining the incidence and prevalence of ED in patients undergoing HD in India. Hence, we conducted this study to determine the incidence and severity of ED in patients on HD.

### MATERIALS AND METHODS

Patients coming to artificial kidney unit of Bombay Hospital for HD for more than a year were included in the study. The patients were interviewed from August to September 2022. A total of 114 patients were included in the study. The patient population included adults with an age range of 18–70 years. Patients were interviewed about their sexual function before starting HD and current status based on International Index of Erectile Function (IIEF-5) questionnaire.<sup>[2]</sup>

Akshay Deshpande<sup>1</sup>, Vaibhav Vinkare<sup>1</sup>, Deepak Gupte<sup>1</sup>, Umesh Oza<sup>1</sup>, Srirang Bichu<sup>2</sup>

<sup>1</sup>Department of Urology, Bombay Hospital Institute of Medical Sciences, Mumbai, Maharashtra, India, <sup>2</sup>Department of Nephrology, Bombay Hospital Institute of Medical Sciences, Mumbai, Maharashtra, India.

#### Corresponding Author:

Akshay Deshpande, Department of Urology, Bombay Hospital Institute of Medical Sciences, Mumbai, Maharashtra, India.  
E-mail: deshpane41@gmail.com

#### Exclusion criteria were

Acute renal failure, uncontrolled diabetes, uncontrolled heart disease, refusal to participate in the study, acute complications from uremia, and substance abuse.

Sexual dysfunction was assessed using the IIEF-5 questionnaires as shown in the table [Table 1].

#### Statistical analysis

Analysis was performed using the SPSS program. Chi-squared test ( $\chi^2$ ) and z test of proportions were used to determine the association of ED before and after the start of HD.

**Table 1:** International index of erectile function (IIEF-5) questionnaire

Over the past 6 months	0	1	2	3	4	5
Confidence of achieving and maintaining erection	-	Very low	Low	Moderate	High	Very high
Rigidity of erection enough for penetration	NO sexual activity	Almost never	Less than half times	About half times	More than half times	Always
Maintenance erection post-penetration	NO sexual activity	Almost never	Less than half times	About half times	More than half times	Always
Rigidity to completion of intercourse	NO sexual activity	Extremely difficult	Very difficult	Difficult	Slightly difficult	Not difficult
Satisfaction for patient	NO sexual activity	Almost never/never	Less than half times	About half times	More than half times	Almost always

Sexual health inventory-IIEF score-1-7 severe ED, 8-11 moderate ED, 12-16 mild-to-moderate ED, 17-21 mild ED, ED: Erectile dysfunction

**RESULTS**

Of the 136 patients, 114 met the criteria. The age range of the patients was 19-70 years. Eighty-one patients (71.05%) had ED; classified as severe 35 (30.7%), moderate 17 (14.91%), and mild 29 (25.5%). We observed 57 patients in the age group of 18-44 years and found that 15 (26.31%) had severe ED, 7 (12.5%) had moderate ED, and 18 (32.14%) patients had mild ED [Table 2]. Among the patients aged between 45 and 64 years – mild, moderate, and severe ED were seen in 10 (22.22%), 8(17.78%), and 11 (24.44%) patients, respectively (Table 2). Among the patients above the age of 65 years, out of 12 patients, who were included in the study, one had mild ED, two had moderate, and nine had severe ED. On applying Chi-square test, the *P*-value was found to be <0.05, and the difference is statistically significant.

On comparing the association of ED before and after starting HD, we found that there is a statistically significant difference in ED pre and post-initiation of dialysis in 18-44 and 45-65 years of age. However, there is no statistically significant difference in the age above 65 years. Hence, the incidence of new-onset ED 1 year after beginning of dialysis was -61.63%. Age-specific data show -63% in the 18-44 years group, 55% in the 45-64 years group, and 80% in patients above 65 years age group.

Table 3 shows the incidence of erectile dysfunction in patients with CKD on HD, categorized by their age and on the application of the chi-square test; the difference is significant.

On application of the Z-test of proportion to each group, we concluded that there was a significant rise in ED in a patient undergoing HD in the age groups of 18-44 years and 45-64 years. However, there was no significant rise in numbers above 65 years, *P* > 0.05.

**DISCUSSION**

Erectile dysfunction is a less spoken about ‘quality of life’ problem in a patient with a chronic disease. The factors contributing to ED in patients on dialysis can be illnesses contributing to CKD such as diabetes mellitus, HTN; nutrient deficiency; depression; feeling of embarrassment; loss of

**Table 2:** Prevalence of erectile dysfunction in patients on chronic HD

Age	Severe ED	Moderate ED	Mild ED	Normal	Total (%)
18-44 years	15	7	18	17	57 (50)
45-65 years	11	8	10	16	45 (39.4)
>65 years	9	2	1	0	13 (10.5)
%	35 (30.7)	17 (14.91)	29 (25.4)	33 (28.9)	114 (100)

ED: Erectile dysfunction

**Table 3:** Incidence of erectile dysfunction in patients on chronic HD

Age (years)	IIEF 5 score <21		P-value
	Pre-dialysis	Post-dialysis	
18-44	11	29	<0.05
45-64	9	20	<0.05
>65	8	4	>0.05
Total	28	53	<0.05

sexual interest; lack of counseling; and physician’s disinterest in treating the condition adds to the insult.<sup>[3]</sup>

ED in HD is complex and multifactorial in origin. The mechanism of origin of ED revolves around the disruption of the hypothalamic-pituitary-adrenal axis. Spermatogenesis disorders and changes in plasma levels of gonadotropins, testosterone, prolactin, and zinc have been reported. Secondary hyperparathyroidism, anemia, and other organic and psychological factors were the other hypotheses suggested.<sup>[4]</sup>

In our study, 53 out of 81 patients reported a gradual alteration of ED with HD. It was found that more number of patients had ED after initiation of HD. On the other hand, renal transplantation in the early stages of CKD seems to improve the ED.<sup>[5]</sup>

In our study, we found out that the prevalence of ED in patients on dialysis is 71.1%, which is in agreement with most of the studies conducted.<sup>[6-10]</sup> The prevalence of ED is directly proportional to the age of the patients. However, due to the small sample size, this was not observed in our study.

In our study, we observed that there is a significant incidence of new-onset ED in patients with CKD when they are on HD in patients <65 years. The incidence rate of our study was approximately 61.63%, which was calculated as new-onset ED patients undergoing HD from the risk population. We could

not find a similar study in English literature to corroborate the same.

Here, we would also like to mention the shortcomings of this study as a single-center study, small sample size, and very short-term follow-up. A multicenter study with extensive follow-up is needed.

## CONCLUSION

A multidisciplinary approach for the management of ED in patients with CKD on HD may improve the quality of life of the patients. A nephrologist supervising HD referring patients to an urologist for tackling ED is advisable.

## REFERENCES

1. Droller MJ, Anderson JR, Beck JC. Impotence. NIH Consens Statement 1992;10:1-33.
2. Rosen RC, Cappelleri JC, Smith MD, Lipsky J, Peña BM. Development and evaluation of an abridged, 5-item version of the international index of erectile function (IIEF-5) as a diagnostic tool for erectile dysfunction. *Int J Impot Res* 1999;11:319-26.
3. Gorsane I, Amri N, Younsi F, Helal I, Kheder A. Erectile dysfunction in hemodialysis patients. *Saudi J Kidney Dis Transpl* 2016;27:23-8.
4. El-Assmy A. Erectile dysfunction in hemodialysis: A systematic review. *World J Nephrol* 2012;1:160-5.
5. Ayub W, Fletcher S. End-stage renal disease and erectile dysfunction. Is there any hope? *Nephrol Dial Transplant* 2000;15:1525-8.
6. Arslan D, Aslan G, Sifil A, Cavdar C, Celebi I, Gamsari T, *et al.* Sexual dysfunction in male patients on hemodialysis: Assessment with the international index of erectile function (IIEF). *Int J Impot Res* 2002;14:539-42.
7. Kleinclauss F, Kleinclauss C, Bittard H. Erectile dysfunction in renal failure patients and renal transplant recipients. *Prog Urol* 2005;15:447-55.
8. Rosas SE, Joffe M, Franklin E, Strom BL, Kotzker W, Brensinger C, *et al.* Prevalence and determinants of erectile dysfunction in hemodialysis patients. *Kidney Int* 2001;59:2259-66.
9. Mekki MO, El Hassan KA, El Mahdi EM, Haroun HH, Mohammed MA, Khamis KH, *et al.* Prevalence and associated risk factors of male erectile dysfunction among patients on hemodialysis and kidney transplant recipients: A cross-sectional survey from Sudan. *Saudi J Kidney Dis Transpl* 2013;24:500-6.
10. Seck SM, Dahaba M, Diouf B, Cisse MM, Gueye S, Ka EF, *et al.* The burden of erectile dysfunction in dialysis patients in Senegal. *Hemodial Int* 2011;15:280-3.

**How to cite this article:** Deshpande A, Vinkare V, Gupte D, Oza U, Bichu S. Incidence of Erectile Dysfunction in Patients Undergoing Chronic Hemodialysis at a Tertiary Care Center. *Bombay Hosp J* 2022;64(3):22-24.

**Source of support:** Nil, **Conflicts of interest:** None

This work is licensed under a Creative Commons Attribution 4.0 International License. The images or other third party material in this article are included in the article's Creative Commons license, unless indicated otherwise in the credit line; if the material is not included under the Creative Commons license, users will need to obtain permission from the license holder to reproduce the material. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/> © Deshpande A, Vinkare V, Gupte D, Oza U, Bichu S. 2022.