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Sexual dysfunction in male patients on hemodialysis: assessment with the International Index of Erectile Function (IIEF)

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In this study we determine the sexual problems and the prevalence of erectile dysfunction (ED) in male hemodialysis patients by means of the International Index of Erectile Function (IIEF). A total of 187 male patients were included in the study. All of the patients who underwent hemodialysis were asked to complete the IIEF questionnaire. The IIEF domain scores were calculated and erectile dysfunction grading was determined on erectile function domain. Patients were also asked to report whether they had disclosed their sexual problems to physicians or not.

The mean age was 49.3 ± 13.2 y and the duration of hemodialysis was 38.1 ± 8.4 months. By means of the IIEF, the prevalence of erectile dysfunction of any degree was 80.7%. The prevalence of any ED for the patients < 50 y and ≥ 50 y was 74.5% and 86.6%, respectively. The prevalence and the severity of ED was significantly higher in patients ≥ 50 y. The frequency of intercourse attempts during the last four weeks was 1–2 in 130 (69.5%) of patients. Only 1% of patients disclosed their erectile problems and sought medical assistance prior to our study.

Erectile dysfunction is highly prevalent in hemodialysis patients. The prevalence and the severity of ED increased with age. Evaluations for ED should be included in routine assessment of hemodialysis patients.

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Introduction

Erectile dysfunction (ED) is a distressing problem in hemodialysis patients. A combination of organic and psychological factors have been reported to take part in the pathophysiology of this condition.[1–3] Although ED is frequently observed in hemodialysis patients, there is no consensus on the prevalence of ED in the literature. Since various definitions and methods were used in previous studies, the prevalence of ED has widely ranged from 41–93%.[3–8] The results of these studies may not be directly comparable and also it is difficult to quantify the severity of ED. As part of the standardization process, validated questionnaires made up of standardized and non-redundant questions for exploring erectile functions have been developed.[9] The International Index of Erectile Function (IIEF) has been shown to be a cross-culturally and psychometrically valid measure of male erectile dysfunction.[9] It is a brief, reliable and self-administered questionnaire of 15 items and has five domains including erectile function, orgasmic function, sexual desire, intercourse satisfaction and overall satisfaction. The IIEF has been shown to be a valid diagnostic tool in discriminating men with and without ED.[9] This questionnaire is currently widely used in clinical trials of ED. However its use in hemodialysis patients for exploring erectile function has been limitedly addressed.[10] We have conducted the following study in order to evaluate the frequency and the severity of erectile dysfunction in hemodialysis patients by means of the IIEF.

Methods

Male patients who underwent hemodialysis therapy were asked to complete the IIEF questionnaire in a self-administered manner. All subjects were chosen from those who had a stable relationship with a partner for more than 6 months. A total of 206 subjects were interviewed and 187 (90.7%) of

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them who completed the questionnaire were included in this study. The mean age was 49.3 ± 13.2 y with a range of 22–79-y-old. We used the Turkish version of the IIEF questionnaire,[9] which had been translated into Turkish and had been modified according to validation tests. The IIEF has five domains, erectile function (six questions (Q1, 2, 3, 4, 5, 15)), intercourse satisfaction (IS) (three questions (Q6, 7, 8)), orgasmic function (two questions (Q9, 10)) sexual desire (two questions (Q11, 12)) and overall satisfaction (OS) (two questions (Q13, 14)). The score for each item ranges from 0–5 for questions 1 through 10 and from 1–5 for questions 11 through 15. The maximum score for the erectile function domain is 30 and subjects who scored ≤ 25 are considered to have ED.[11] For grading the severity of ED, the erectile function domain of the IIEF was used as defined by Cappellari *et al*.[11] Patients who had sexual impairment were asked whether or not they had contacted their physician about their problems. Subjects who have not disclosed this problem were asked to explain the probable reasons. IIEF scores for each question and domains were calculated for all responders and the results were expressed as mean and standard deviation. Student's *t*-test was used to compare the duration of hemodialysis of patients with and without ED. The χ^2 test for trend was used to compare the prevalence and severity of ED according to age group and by decade. Analysis of variance was used to analyse the intercourse and overall satisfaction scores according to ED status. Significance was defined as a P value < 0.05.

Results

The duration of hemodialysis was 38.1 ± 8.4 months (range 8–150 months). The duration of hemodialysis was not significantly different between the patients with and without ED (36.7 *vs* 38.9 months). The underlying etiologies of renal failure were chronic glomerulonephritis ($n = 23$), diabetic nephropathy ($n = 38$), hypertensive nephropathy ($n = 65$), chronic pyelonephritis ($n = 13$), nephrolithiais ($n = 7$), renovascular disease ($n = 6$), adult polycystic disease ($n = 14$) and other etiologies ($n = 21$).

The IIEF questionnaire scores according to five domains for all subjects were as follows: erectile function: 11.5 ± 0.7; orgasmic function: 4.5 ± 0.1; sexual desire: 5.3 ± 0.6; intercourse satisfaction: 6.7 ± 1.2; and overall satisfaction: 5.5 ± 1.5. When the erectile function domain was investigate separately for prevalence, erectile dysfunction of any degree was determined in 80.7% of patients. The prevalence of ED for patients < 50 y and ≥ 50 y were 74.5% and 86.6%, respectively. The severity of ED for the patients < 50 y and ≥ 50 y were as follows: mild in 20% and 16.4% mild to moderate in 22.2% and 12.3%; moderate in 14.4% and 15.4%; and severe in 17.7% and 42.2% of patients, respectively. The severity of ED was significantly higher in patients $\geq$50-y-old ($P = 0.00045$). When the age groups were stratified by decades (Table 1), all of the patients over 70 y were found to have ED of some degree. The prevalence and the severity of ED by decade showed significant increase as the age increased (Table 1; $P = 0.01$). Number of sexual intercourse attempts according to ED status is shown in Table 2. The frequency of intercourse attempts during the last four weeks was 1–2 in 130 (69.5%) patients, 3–4 in 19 (10.1%), five or more in 11 (5.8%) and no attempts in 17 (9%). The frequency of intercourse attempts was higher in patients with no ED and mild ED. Mean intercourse satisfaction scores and mean overall satisfaction scores showed a significant relationship with ED severity (Table 2). Higher scores were observed as the ED severity decreased. Only 16 (1%) of patients disclosed their erectile problems and sought medical assistance prior to our study. The answers for why ED was not disclosed by these patients were as follows: 109 (72%) patients reported that primary disease related problems such as cost of health, dialysis sessions, medications, transplantation problems, anxiety for their future etc., were of utmost importance for them and therefore erectile problems were not a high priority; and 35 (32%) patients reported that they considered sexual impairment as a component of the primary disease which was a life-long disease. Loss of sexual interest, chronic fatigue after dialysis, feeling embarrassment and physicians' unwilling attitude towards this problem were the other reasons.

Table 1 Prevalance and severity of erectile dysfunction in all and according to age group by decade

	Prevalance of ED n *(%)*					
ED severity	*All*	*30–39 y*	*40–49 y*	*50–59 y*	*60–69 y*	*70+ y*
No ED	36 (19.2)	9 (28.1)	10 (20.8)	10 (16.6)	3 (10)	0
Mild	34 (18.1)	7 (21.8)	6 (12.5)	12 (22.2)	3 (10)	1 (7.6)
Mild to moderate	32 (17.1)	7 (21.8)	12 (25)	9 (16.6)	2 (6.6)	1 (7.6)
Moderate	28 (14.9)	4 (12.5)	9 (18.7)	9 (16.6)	6 (20)	0
Severe	57 (30.4)	5 (15.6)	11 (22.9)	14 (25.9)	16 (53.3)	11 (84.6)

Chi square for trend.

Table 2 The relationship between the number of intercourse attempts, satisfaction domain scores and ED status

	ED severity n *(%)*					*Satisfaction Scores*	
	No ED	*Mild*	*Mild/moderate*	*Moderate*	*Severe*	*Mean IS**	*Mean OS**
Number of attempts							
No attempt	1 (5.5)	0	0	1 (5.5)	16 (88.8)	0	2.4
1–2	11 (8.4)	23 (17.6)	28 (21.5)	27 (20.7)	41 (31.5)	7.2	4.9
3–4	13 (46.4)	11 (39.2)	4 (14.2)	0	0	8.1	6.7
5+	11 (100)	0	0	0	0	11.6	8.2
Mean Intercourse Satisfaction Score*	10.7	7.8	6.8	5.2	3.2		
Mean Overall* Satisfaction Score	7.3	6.4	5.6	5.4	2.8		

*Significant on one way ANOVA.

Discussion

Our study showed that ED is a common problem in dialysis patients with a significant decrease in overall satisfaction. Studies of men with uremia have shown varying degrees of erectile impairment (41–93%).[3–8] In the present study ED of any degree was noted in 80.7% of patients. Increasing age was significantly correlated with the prevalence and severity of ED, which is in agreement with the literature.[10]

In a recent study with IIEF-5, it was reported that the prevalence of ED with any degree was 82%.[10] In this report, the prevalence of ED for subjects <50 y and ≥ 50-y-old was 63% and 90%, respectively. Our ED prevalence is relatively high for patients <50 y, when compared with this study. The difference may relate to dialysis techniques, concomitant diseases, medications that we used or may relate to the individual expectations of patients, which may differ cross-culturally. In addition to previous studies we have determined the ED prevalence in different age groups stratified by decade that showed a similar correlation with age as in the general population.[12] To date, limited data are available concerning the five domains of the IIEF in dialysis patients.[13–15] Our results may provide a basis for future research in this field.

Nearly 80% of our study population reported that their frequency of intercourse attempts during the last four weeks were less than 3. In a study by Procci *et al*,[16] the frequency of intercourse per month was reported to be 1.1 in advanced uremia patients aged 40–60 y. We have observed an inversely proportional relationship between ED severity and frequency of intercourse attempts. Decline in frequency of intercourse attempts may be related to a long-standing history of chronic illness, lifestyle limitations and fatigue after dialysis sessions which may also adversely affect the patient psychologically. Primary depression or subclinical depression may also play a role in the reduction in frequency of intercourse.[1,17] Organic factors may also cause a decline in the frequency of intercourse. Nearly all of our study population were undergoing dialysis sessions three times a week which may play a role in diminished frequency of intercourse due to fatigue after dialysis. Hemodialysis patients suffer from chronic fatigue, anxiety and a decline in self-esteem, which may result in lack of sexual interest and thus a decline in frequency of intercourse.

The present study showed that hemodialysis patients rarely report sexual problems to their physicians. Only 1% of our study population has reported that they had contacted their physician regarding ED. Why patients do not disclose impaired sexual function seems to have a multifactorial origin. In our study population priority was given to the primary disease related problems such as cost of therapy, waiting for a transplant, complications, co-morbid conditions etc. Psychological effects of the primary disease, loss of sexual interest, feeling embarrassment and the physician's lack of interest in this field were additional factors that had an influence on not disclosing or overlooking the problem. However when patients were asked to report their sexual problems their motivations were high. In a current study in diabetic and/or hypertensive patients with ED, it was reported that 68.8% of patients wished to be treated and 58.2% wanted physicians to provide information on ED.[18] Because impaired sexuality is often a non-verbal demand, a greater awareness of this problem is needed by physicians in the hemodialysis clinic. Physicians who provide healthcare for hemodialysis patients should be aware of patients' unexpressed expectations and should enhance the disclosure of patients' erectile problems. Thus patients would not feel embarrassed about broaching this problem with their physicians. In this respect the IIEF is a valuable means of unveiling the erectile problems of hemodialysis 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.

A significant number of male hemodialysis patients presented with ED of some degree. This problem adversely affects their quality of life to some extent. While important advances to improve survival on hemodialysis therapy have been achieved, improvements in quality of life should also be sought and

therefore evaluations for ED should be included in routine assessment of hemodialysis patients.

References

1 Palmer BF. Sexual dysfunction in uremia. *J Am Soc Nephrol* 1999; **10**: 1381–1388.
2 Ayub W, Fletcher S. End-stage renal disease and erectile dysfunction. Is there any hope? *Nephrol Dial Transplant* 2000; **15**: 1525–1528.
3 Glass CA, Fielding DM, Evans C, Ashcroft JB. Factors related to sexual functioning in male patients undergoing hemodialysis and with kidney transplants. *Arch Sex Behav* 1987; **16**: 189–207.
4 Rodger RS *et al.* Prevalance and pathogenesis of impotence in one hundred uremic men. *Uremia Invest* 1984; **8**: 89–96.
5 Thurm J. Sexual potency of patients on chronic hemodialysis. *Urology* 1975; **5**: 60–62.
6 Levy NB. Sexual dysfunctions of hemodialysis patients. *Clin Exp Dial Apheresis* 1983; **7**: 275–288.
7 Procci WR. The study of sexual dysfunction in uremic males: Problems for patients and investigators. *Clin Exp Dial Apheresis* 1983; **7**: 289–302.
8 Milne JF, Golden JS, Fibus L. Sexual dysfunction in renal failure: A survey of chronic hemodialysis patients. *Int J Psychiatry Med* 1977; **8**: 335–345.
9 Rosen RC *et al.* The International Index of Erectile Function (IIEF): A multidimensional scale for assessment of erectile dysfunction. *Urology* 1997; **49**: 822–830.
10 Rosas SE *et al.* Prevalance and determinants of erectile dysfunction in hemodialysis patients. *Kidney Int* 2001; **59**: 2259–2266.
11 Cappelleri JC *et al.* Diagnostic evaluation of the erectile function domain of the International Index of Erectile Function. *Urology* 1999; **54**: 346–351.
12 Feldman HA *et al.* Impotence and its medical and psychosocial correlates: results of the Massachusetts male aging study. *J Urol* 1994; **151**: 54–61.
13 Rosas SE, Wassestein A, Kobrin S, Feldman HI. Preliminary observations of sildenafil treatment for erectile dysfunction in dialysis patients. *Am J Kidney Dis* 2001; **37**: 134–137.
14 Chen J *et al.* Clinical efficacy of sildenafil in patients on chronic dialysis. *J Urol* 2001; **165**: 819–821.
15 Turk S *et al.* Erectile dysfunction and the effects of sildenafil treatment in patients on haemodialysis and continuous ambulatory peritoneal dialysis. *Nephrol Dial Transplant* 2001; **16**: 1818–1822.
16 Procci WR, Goldstein DA, Adelstein J, Massry SG. Sexual dysfunction in the male patient with uremia: A reappraisal. *Kidney Int* 1981; **19**: 317–323.
17 Beck AT. The Diagnosis and Management of Depression. *University of Pennsylvania Press: Philadelphia, 1973.*
18 Hakkinen J, Koskimaki J, Auvinen A, Tanimela T. Erectile dysfunction in patients with diabetes and/or hypertension. *Int J Impot Res* 2001; **13**(Suppl 4): S28.