

## Erectile Dysfunction in Patients with Chronic Renal Failure

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### ABSTRACT

*Objective:* Determine the prevalence of erectile dysfunction in patients undergoing hemodialysis.

*Materials and Methods:* This cross-sectional study was carried out to determine the prevalence of erectile dysfunction in a population of 58 patients in hemodialysis program. Erectile dysfunction was assessed by using the International Index of Erectile Function (IIEF). Information on demographic data, renal failure, comorbidities, laboratory tests and search for medical treatment for erectile dysfunction by means of interviews and researches in medical charts was obtained. Student t test was utilized to compare the laboratory results between group of patients with and without erectile dysfunction. The chi-square test was utilized to compare the comorbidities and the characteristics of the population studied between the groups of patients with and without erectile dysfunction. The significance level considered was 5%.

*Results:* Mean patient age was  $50.2 \pm 14.6$  years and the time of hemodialysis was  $30.4 \pm 28.4$  months. The prevalence of erectile dysfunction was 60.3%. A progressive increase respecting the age was reported. In patients younger than 50 years, this prevalence reached 31.4% and in patients older than 50 years, this prevalence reached 68.6%. With respect to the comorbidities, hypertensive patients prevailed with 94.8% of the total, whilst diabetic patients represented 24.9%. However only the association between diabetes and erectile dysfunction was significant. Patients with erectile dysfunction presented significantly lower values for serum creatinine and Kt/V. There was no variation between the groups with reference to calcium, potassium, phosphorus, hematocrit, hemoglobin, pre- and post-dialysis urea values. There was no correlation between erectile dysfunction and time of dialysis. Amongst patients with erectile dysfunction, 8.6% sought medical care.

*Conclusions:* The prevalence of erectile dysfunction in patients in hemodialysis program was of 60.3%. Age, diabetes and hemodialysis characteristics are associated to higher incidence of erectile dysfunction.

*Key words:* erectile dysfunction; chronic renal failure; hemodialysis; questionnaires

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### INTRODUCTION

Life expectancy of patients with chronic renal failure (CRF) increased during the last decades with the improvement of renal replacement techniques - dialysis and renal transplantation. However, new complications or aggravation of preexisting diseases

do impair the quality of life of these men. Erectile dysfunction (ED) is frequently observed in patients undergoing hemodialysis (HD) program, with prevalence ranging between 41% and 98% (1-12). From 1997, with the development of the International Index of Erectile Function (IIEF) (13), an instrument was created for uniform assessment of erectile dysfunction.

tion, by standardizing the questions and classifying the answers into categories. This study has been developed to assess erectile dysfunction prevalence in patients with Chronic Renal Failure utilizing the IIEF.

## MATERIALS AND METHODS

Seventy patients older than 18 years have been selected in two hemodialysis centers and from these 58 patients (83%) agreed to participate in the research and signed the Informed Consent. The patients answered the IIEF questionnaire including the six questions about health-related determinants of the erectile function (questions number 1 to 5 and question number 15). The total score ranges from 1 to 30, by being characterized as severe [1 to 6], moderate [7 to 12], mild to moderate [13 to 18], mild [19 to 24], and no dysfunction [25 to 30].

In the standard questionnaire applied sociodemographic data have been obtained (age, civil status and education level), presence of comorbidities (arterial hypertension and diabetes mellitus - DM) and time of hemodialysis.

Hematocrit, hemoglobin, calcium, phosphorus, potassium, pre- and post-dialysis urea and Kt/V values have been all obtained from the medical charts, as well as the cause of the CRF.

Patients presenting ED were questioned if they have already searched for medical care for this problem.

Descriptive analysis of sociodemographic, clinic and laboratory data of the patients has been performed. The Student t test was utilized to compare laboratory results between patients with and without ED. The chi-square ( $\chi^2$ ) test was utilized to compare the comorbidities and the characteristics of the population studied between the groups of patients with and without ED. The significance level considered was 5%.

## RESULTS

The study included fifty-eight (58) patients with age ranging from 21 to 76 years (mean age of  $50.2 \pm 14.6$  years). The proportion between patients

younger and older than 50 years was, respectively, 53.5% and 46.5%. Patients undergone hemodialysis for a minimum period of one week and a maximum period of 102 months (mean of  $30.4 \pm 28.4$  months). Patients' data can be found in Table-1.

The prevalence of ED was 60.3% (Figure-1). Progressive increase respecting the age was found. In patients younger than 50 years, the prevalence of ED was 31.4%, reaching 68.6% in those patients older than 50 years ( $p < 0.05$ ).

No statistic association between sociodemographic variables and ED has been found.

Hypertensive patients prevailed in the study (94.8%) with respect to the diabetic patients (24.9%). However only the association between DM and ED was significant (Table-2).

Time of dialysis was not a factor associated to the presence of ED in the population under study.

**Table 1** – Characteristics of the population studied.

	Number of Patients	%
Age		
21 to 30	5	9
31 to 40	12	21
41 to 50	14	24
51 to 60	9	16
61 to 70	14	24
71 to 80	4	7
Ethnic group		
White	49	84.5
Non-white	9	15.5
Education		
None	5	8.6
Primary school	42	72.4
Secondary school	11	19
Civil status		
Single	6	10.3
Married	51	87.9
Widower	1	1.7
Diabetes mellitus		
Yes	15	24.9
No	43	74.1
Arterial hypertension		
Yes	55	94.8
No	3	5.2

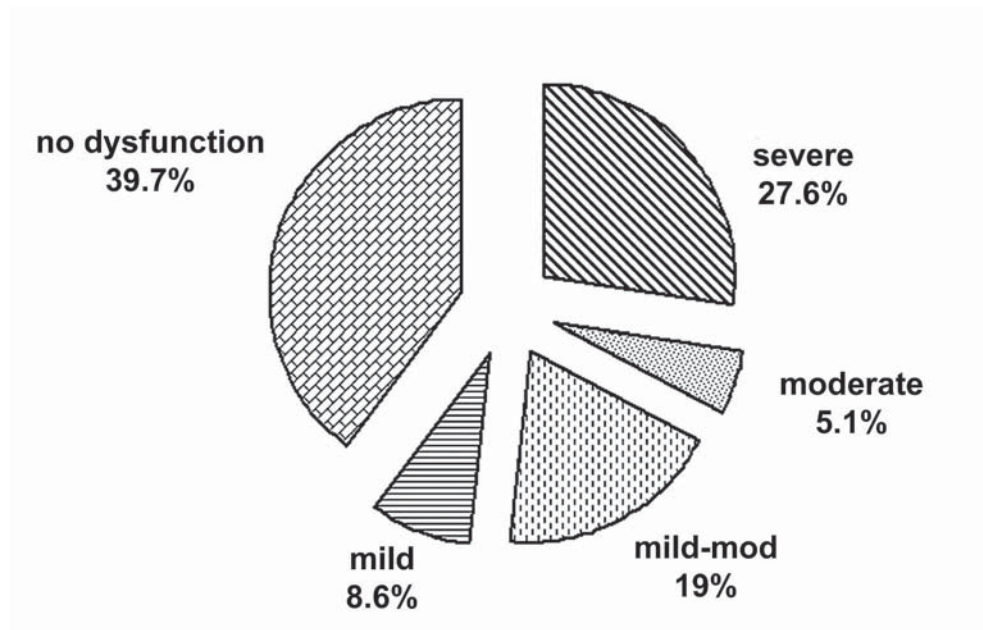


Figure 1 – Erectile dysfunction in patients with chronic renal failure.

Table 2 – Results found in patients with and without erectile dysfunction (ED).

	Without ED (N = 23)	With ED (N = 35)
Age		
Up to 50 years of age	20	11
Older than 51 years of age	3	24*
Diabetes mellitus		
No	22	21
Yes	1	14*
Arterial hypertension		
No	0	3
Yes	23	32
Serum creatinine (mg/dL) <sup>+</sup>	15.9±4.5	11.6±4.3*
Serum calcium (mg/dL) <sup>+</sup>	12.4±17.8	8.7±0.8
KT/V <sup>o</sup>	1.2±0.4	0.9±0.2*
Serum potassium (mEq) <sup>+</sup>	4.8±0.7	4.7±0.7
Hematocrit (%) <sup>+</sup>	30.9±7.3	28.5±7.5
Hemoglobin (g/dL) <sup>+</sup>	9.8±2.3	8.9±2.4
Phosphorus (mg/dL) <sup>+</sup>	8.9±9.7	6.3±1.7
Pre urea (mg/dL) <sup>+</sup>	155.1±31.1	151.9±38.8
Post urea (mg/dL) <sup>o</sup>	62.0±24.5	72.3±28.1

<sup>+</sup> = data expressed as mean ± standard deviation, \* =  $p < 0.05$

Amongst the laboratory tests, only creatinine and the Kt/V presented static statistic relation with the ED (Table-2).

Only three patients (8.6%) searched medical treatment for ED.

## COMMENTS

In our sample, the prevalence of ED was 60.3%. Taking into consideration the only severe category, the prevalence was 27.6%. Initial studies reported that ED in patients undergoing hemodialysis ranged between 41% and 93% (1-3). Since the methodology of such studies was not uniform, the comparison of the results found was not adequate. In studies in which the International Index of Erectile Function (IIEF) was utilized, the prevalence of ED ranged between 57.9% and 86.4% (4-12), evidencing that such dysfunction is frequent in patients with CRF (Table-3). Severe ED affects from 28% to 45% of these patients.

It is found in literature that ED is age-related (6-8,12,14). By stratifying the age of our patients below and above 50 years of age, we found, respectively, 31.4% and 68.6%, of ED prevalence.

The presence of hypertension found in our patients was 94.8%. However, this association was not significant. Several studies with chronic renal patients found in literature do confirm this finding (1-8). Feldman et al. (15) pointed out the occurrence of severe ED in 15% of hypertensive patients treated against 9.6% in the general population. The study does

not indicate, however, if this association was originated from the hypertension or from the use of anti-hypertensive medication by considering that there is also an association between ED and the use of hypotensives. It can be argued that the high degree of vascular impairment (atherosclerosis) present in men with CRF undergoing hemodialysis is at least partially responsible for the erectile mechanism aggravation (15).

With reference to the DM, there was a significant statistic association to the ED. This study indicated that only one amongst the fifteen patients did not have ED. In the patients evaluated by Cerqueira et al. (5), 99% of the diabetic patients presented ED. This association has been also found in other studies (4,8,10,15).

No statistic association of ED has been found with reference to civil status, education or ethnic groups. In the MMAS longitudinal study, Johannes et al. (14) reported that the risk of developing age-related ED was higher in men with lower education degree. In our group, Moreira et al. (16) found that the education was inversely correlated to ED. Study carried out in four North-American cities, including 1,680 men older than 40 years of age, demonstrated that ED was not related to ethnic groups (17).

Time of dialysis was not also a factor associated to the presence of ED in the population under study, similar result was found by other authors (6-8).

Kt/V, measure of the quantity of plasma cleared of urea ( $K \times t$ ) divided by the volume of urea distribution (V) is an index utilized to assess dialysis adequacy. Patients with erectile dysfunction presented statistically significant lower values for Kt/V (0.9) when compared to patients without erectile dysfunction (1.2). Some authors (18,19) recommend one Kt/V of 1.3 for providing adequate hemodialysis. Therefore, the indexes found in our study can indicate that a hemodialysis within acceptable standards may contribute to prevent ED. This relation has not been found in other studies (1,4,7).

Miyata et al. (10) found in literature that higher values of hemoglobin were associated to severe ED. In our study, hematocrit and hemoglobin were both found to be higher in patients without ED, when compared with those with ED, but they show no statistic difference.

**Table 3** – International Index of Erectile Function (IIEF) in man with chronic renal failure.

Author	Year	N	% DE
Turk, S et al.	2001	35	71
Rosas et al.	2001	302	82
Cerqueira et al.	2002	119	57.9
Arslan et al.	2002	187	80.7
Naya et al.	2002	174	86.2
Fernandes Neto et al.	2002	118	86.4
Ali ME et al.	2005	75	82.5

Amongst patients with ED, only three of them (8.6%) sought medical guidance. In the studies with chronic renal patients, the search for medical treatment ranged between 1% and 9.6% (7,8). It is found in literature that less than 10% of men seek medical care for ED (20). Moreira et al. (21) found that the number of individuals with ED that sought medical help was of 42%. The lack of approach regarding sexuality is caused, mostly, by health professionals that are not used to question the topic. The majority of the men doctors (62.5%) and women doctors (71.5%) reported that they do not routinely investigate the sexual function of the male patients. In a routine consultation, only 11.1% and 8.7% of the men doctors and women doctors, respectively, reported they were used to always investigate the sexual function of male patients. Amongst the patients, 78% of them did not refer about having problems to discuss sexual issues with their physicians (21).

## CONCLUSIONS

The prevalence of ED in patients in hemodialysis program was 60.3%. However, only 8.6% of these patients search for medical help. Age, diabetes and hemodialysis characteristics are associated with higher incidence of ED. Physicians and other health professionals shall pay attention to the erection problems in this group of patients in order to provide directions for an adequate medical treatment.

## CONFLICT OF INTEREST

None declared.

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