Original Article

Prevalence of depression in patients on hemodialysis and its impact on quality of life

Zeynep Kizilcik[1], Fatma Deniz Sayiner[2], Alaettin Unsal[3], Unal Ayranci[4], Nedime Kosgeroglu[4], Mustafa Tozun[5]

ABSTRACT

Objective: The aim was to address the prevalence of depression in a group of patients on hemodialys and determine its effect on quality of life (QoL).

Methodology: This cross-sectional study was conducted between 1st March, 2007 and 28th Feb., 2008 in a district of western Turkey. The study group included 294 hemodialys patients. The questionnaire included the patients' sociodemographic characteristics, Beck Depression Scale, and Medical Outcomes Study Short Form-36. Chi-square test and Spearman correlation analyses were used for statistical analyses, with a p value lower than 0.05 being considered significant.

Results: The average age of the study group was 55.89±15.22 years (range=19-86). Prevalence of depression was found to be 27.9%, and was significantly higher in women, in those with older age, in those with lower level of education and in unemployed patients ($p < 0.05$ in each one). The mean scores received from all domains in the SF-36 were significantly lower in depressive patients ($p < 0.001$ in each one). As the scores that patients received from the Beck Depression Inventory (BDI) increased, the scores obtained from all domains in SF-36 showed decrease ($p < 0.001$, for each one).

Conclusion: Depression adversely affecting QoL is a common health problem in hemodialysis patients. Thus, periodic screenings should be done for detection, prevention and control of depression.

KEY WORDS: Depression, Quality of life, Hemodialysis patients.

Pak J Med Sci July - September 2012 Vol. 28 No. 4 695-699

How to cite this article:

Kizilcik Z, Sayiner FD, Unsal A, Ayranci U, Kosgeroglu N, Tozun M. Prevalence of depression in patients on hemodialysis and its impact on quality of life. Pak J Med Sci 2012;28(4):695-699

1. Dr. Zeynep Kizilcik, PhD,
2. Dr. Fatma Deniz Sayiner, PhD, Assistant Professor,
3. Dr. Alaettin Unsal, MD, Professor,
4. Dr. Unal Ayranci, MD, Associate Professor, Medico Social Center,
5. Dr. Nedime Kosgeroglu, PhD, Associate Professor,
6. Dr. Mustafa Tozun, MD, Odunpazari Community Health Center, 26090 Eskisehir, Turkey.

1-3,5: School of Health,
1-5: Eskisehir Osmangazi University, 26480 Meselik Eskisehir, Turkey.

Correspondence:

Dr. Unal Ayranci,
Kurtulus Aile Sagligi Merkezi, Vatan Cd. 12/A, Eskisehir, Turkey.
E-mail: ayranciunal@yahoo.com

* Received for Publication: January 22, 2012
* 1st Revision Received: January 30, 2012
* 2nd Revision Received: April 14, 2012
* Final Revision Accepted: April 27, 2012

INTRODUCTION

Chronic kidney disease (CKD), also known as chronic renal disease, is a progressive loss of renal function over a period of months or years. It is a syndrome characterized with progressive and irreversible loss of nephrones, and today its incidence has been increasing rapidly.[1]

Hemodialysis (HD) patients in addition to having a chronic disease face many physical constraints such as diet, limitation of movement, sexual dysfunction, and also many psychological distress such as depression, anxiety, hopelessness.[2] Somatic symptoms in HD patients are largely known to be due to depression and anxiety.[3] CKD-induced body image and self-esteem loss, mental and physical

dissatisfaction and potential regression of economic power are accepted as reasons for anxiety and depression.[4]

Advanced kidney disease is associated with poor quality of life (QOL), a concept reflecting an individual's subjective perceptions and experiences, due to the effects of uremia on physical and mental health. End-stage renal disease leads to loss in mobility, exercise capacity, and physical function, and is further associated with reduced ability to work and function in daily life.[5]

In this study, the aim was to address the prevalence of depression in a group of Turkish HD patients and its effect on patients' QoL.

METHODOLOGY

This cross-sectional study included 294 HD aged 18 years and over treated at six medical centers where dialysis services were being provided during the study in a district of western Turkey, Eskisehir, between 1st March, 2007 and 28th Feb., 2008. The questionnaires and scales were filled in by a face to face method with the patients treated at those 6 centers in the patients' own houses by the researchers. Each interview lasted approximately one hour. According to the Eskisehir Health Management data for the year 2007, the total number of patients treated in health centers providing dialysis services in the province center was 492. A total of 198 subjects were unable to participate in the study due to the subjects' not accepting because of being in a hurry (n=45), and thus did not accept our invitation to participate at that particular time, the subjects' not being at home (n=67) and the subjects' insufficiency in cooperation in terms of mental status, the subjects' communication problem (n=23), those

Table-I: Distribution of patients with and without depression by some characteristics.

Characteristics	*Depression*			*Statistical Analysis*
	No n(%)	*Yes n(%)*	*Total n(%)*	*x2; p*
Gender				
Women	85 (63.4)	49 (36.6)	134 (45.6)	9.215; 0.002
Men	127 (79.4)	33 (20.6)	160 (54.4)	
Age groups				
39 and below	41 (80.4)	10 (19.6)	51 (17.3)	11.437; 0.022
40-49	36 (75.0)	12 (25.0)	48 (16.3)	
50-59	51 (81.0)	12 (19.0)	63 (21.4)	
60-69	51 (68.9)	23 (31.1)	74 (25.2)	
70 and over	33 (56.9)	25 (43.1)	58 (19.7)	
Education level				
Illiterate	16 (61.5)	10 (38.5)	26 (8.8)	6.867; 0.032
Primary-secondary school	142 (69.6)	62 (30.4)	204 (69.4)	
High school-university	54 (84.4)	10 (15.6)	64 (21.8)	
Marital status				
Single	28 (75.7)	9 (24.3)	37 (12.6)	0.103; 0.748
Married	184 (71.6)	73 (28.4)	257 (87.4)	
Family type				
Nuclear	194 (73.2)	71 (26.8)	265 (90.1)	1.106; 0.293
Patriarchal	18 (62.1)	11 (37.9)	29 (9.9)	
Job status				
Unemployed	183 (70.1)	78 (29.9)	261 (88.8)	4.596; 0.032
Employed	29 (87.9)	4 (12.1)	33 (11.2)	
Onset age for hemodialysis treatment				
39 and below	60 (74.1)	21 (25.9)	81 (27.6)	9.185; 0.057
40-49	38 (77.6)	11 (22.4)	49 (16.7)	
50-59	49 (81.7)	11 (18.3)	60 (20.4)	
60-69	42 (65.6)	22 (34.4)	64 (21.8)	
70 and over	23 (57.5)	17 (42.5)	40 (13.6)	
Duration of hemodialysis treatment (years)				
≤1	66 (75.9)	21 (24.1)	87 (29.6)	2.114; 0.549
2-5	72 (71.3)	29 (28.7)	101 (34.4)	
6-9	43 (74.1)	15 (25.9)	58 (19.7)	
≥10	31 (64.6)	17 (35.4)	48 (16.3)	
Total	212 (72.1)	82 (27.9)	294 (100.0)	

Table-II: Average SF-36 scores in patients with and without depression.

SF-36	*Depression*		*Statistical analysis*
Domains	*No (n=212) X±Sd*	*Yes (n=82)X±Sd*	*t; p*
Physical functioning	42.85±27.46	25.73±25.16	4.905; 0.000
Role-physical	62.85±40.40	38.11±39.52	4.738; 0.000
Bodily pain	68.15±25.01	50.66±22.52	5.524; 0.000
General health perception	50.66±17.29	37.85±16.50	5.773; 0.000
Vitality	50.52±18.27	35.12±17.98	6.508; 0.000
Social functioning	63.21±22.47	48.78±21.64	4.988; 0.000
Role-emotional	65.88±32.52	40.65±36.30	5.772; 0.000
Mental health	64.41±15.56	47.36±19.57	7.818; 0.000

under the age of 18 (n=63), and those with cognitive disorders which may show a co-founding effect with depressive disorders. After all those procedures, eventually, 294(60.0%) HD patients agreed to participate in the study.

The questionnaire prepared with reference to previous studies in literature consisted of 3 parts. One included information about the patients' sociodemographics and disease information. The second part of the questionnaire evaluated the status and the prevalence of depression. Depression was measured by a Turkish version of the Beck Depression Inventory (BDI) consisting of 27 items for the assessment of depression in HD patients, with a cut-off point of 17. The QoL was assessed by Medical Outcomes Study Short Form-36 (SF-36).

The necessary permissions for the study were received from the Provincial Health Directorate and Health Centers. Following the permissions, the written informed consent was received using the Patient Information and Patient Consent Form from the patients treated at the dialysis centers.

The statistical analysis was carried out using Chi-square (x^2) test for categorical variables. The mean SF-36 domain scores were evaluated by student's t test. The relationships between SF-36 and BDI were analyzed by the Spearman Correlation Analysis, with a p value lower than 0.05 being considered significant

RESULTS

One hundred and sixty (54.4%) of HD patients in the study group were men. The average age of the participants was 55.89±15.22 years, ranging from 19 to 86. The average score received from BDI was 13.04±8.30, ranging from 0 to 51.

The prevalence of depression in this study was found to be 27.9% (n=82). The prevalence was higher in women (36.6%), in 70 and over age group (43.1%) and in the unemployed (29.9%) when compared to the others (p<0.05 per one). In addition, it was lower in patients with high school and higher education levels (15.6%) when compared to those with elementary, primary and secondary school education levels (p<0.05). The distribution of the patients with and without depression by some characteristics is given in Table-I.

It was determined that the means of all domain scores obtained from the SF-36 scale were significantly lower in those with depression when compared to the other (P<0.001 in each domain). In other words, the QoL in depressive hemodialysis patients was significantly determined to have decreased.

In those with and without depression, it was determined that the lowest average score for QoL was for the domain 'physical functioning' (25.73±25.16 and 42.85±27.46, respectively). Table-II shows the mean scores of SF-36 domains of those with and without depression. There was a moderately negative relationship between the scores received from SF-36 and the scores received from all the domains of SF-36 scale (p<0.001 per one). In other words, it was found that the QoL was negatively affected as severity of depression increased. The highest correlation with depression was found in the domain 'physical functioning' (r:0.472). The correlation between the scores received from the Beck Depression Scale and SF-36 Scale is presented in Table-III.

Table-III: Comparison of scores that patients obtained from Beck Depression Scale and domain scores of SF-36 scale.

Spearman correlation	*Scores obtained from Beck Depression Scale*	
Domain scores of SF-36 scale	r_s	*P*
Physical functioning	-0.472	0.000
Role-physical	-0.368	0.000
Bodily pain	-0.398	0.000
General health perception	-0.460	0.000
Vitality	-0.465	0.000
Social functioning	-0.360	0.000
Role-emotional	-0.358	0.000
Mental health	-0.463	0.000

DISCUSSION

Some studies indicated that the prevalence of depression in HD patients ranged from 47.0% to 26.0%. In Turkey, it was reported that the same prevalence was between 54.3% and 66.3%.[6,7] A reason for the differences among the studies could be that the cut-off points for BDI were taken in a different way for each study. In this study, more than one in four of HD patients (27.9%) had depression. Our findings also had a high rate of depression; however, it was low when compared to the results of the reported studies in Turkey. An explanation for this could be as follows: Eskisehir is a developed province, ranking 6th among 81 provinces of Turkey in terms of socio-economic development level. As a result, dialysis services in the province are in good condition and the prevalence of depression was reported to decrease with increasing socioeconomic level.[8]

In the general population, the rate of depression in women is known to be higher than in men.[9] This situation is also true for HD patients.[10] Similarly, in our study, the frequency of depression among female HD patients was significantly higher than men ($p<0.05$). In disease process, it is thought that women are forced to assume the roles of both motherhood and spouse as well as business woman, and as a result of these, women are more exposed to stress and tend more to depression. Similarly, some studies[11,12] reported that the frequency of depression in female HD patients was higher.

In this study, 70 years and over age group had a higher prevalence of depression ($p<0.05$). Similarly, there are many studies reporting that prevalence of depression in older HD patients was higher.[13,14] Illiteracy or poor education is a consistent risk factor for common mental disorders such as depression.[15] In this study, as the educational level of patients increased the prevalence of depression showed a decrease ($p<0.05$), in line with the study result by Celik and Acar from Turkiye.[16] They reported that the scores obtained from BDI were higher in those whose level of education was lower than those with high school and over level of education. However, in a study conducted in 12 developed countries by Lopes et al.[17] it was reported that HD patients with high school graduates had a higher risk of depression. A reason for this, which is contrary to our conclusion, may be due to different development levels among countries and sociocultural differences.

Having a job is considered a good indicator of socioeconomic status. It has been reported that depression was more common in people with lower socioeconomic level.[8] This status is indicated to show similarity to HD patients since unemployed people are more prone to depression. Lopes et al[17] reported that depression was higher in unemployed HD patients. Consistent with literature, our study found that the prevalence of depression was higher in unemployed people when compared to employed ones ($p<0.05$).

Depression can be difficult to diagnose in medically ill patients, including those in HD as depression and the medical problem share many physical symptoms, such as the physiological and biochemical effects of uraemia.[18] Advanced kidney disease is associated with poor QoL, due to the effects of uremia on physical and mental health. End-stage renal disease leads to loss in mobility, exercise capacity, and self-assessed physical function, and is further associated with reduced ability to work and function in daily life.[19] As expected in our study, the average scores that the HD patients with depression received from all the domains of SF-36 scale were significantly lower than those without depression.

The mean scores for all the domains of the SF-36 scale with at least one chronic disease in those with depression were significantly lower than those without depression ($p<0.001$ in each domain). There are many studies which reported similar results.[19] In those studies, it is indicated that physical component of QoL in HD patients was affected more when compared to mental component. In parallel, when looked at the average scores of the SF-36 scale in our study, it is seen that they are consistent with literature. Our study found that the average score obtained from the physical domain was lower in both depressive patients and non-depressive patients than the other components of SF-36.

Patients with end-stage renal disease receiving maintenance dialysis suffer from a multitude of physical and emotional symptoms, exhibit a particularly high prevalence of depression, and experience substantial impairments in QoL.[20] In this study, as the scores received from BDI increased, the scores received from all domains of SF-36 showed decrease ($p<0.001$ per domain), which is supported by many studies.[20] This result indicates that depression and impairment of QoL are in collaboration with each other due to similar reasons in HD patients rather than a cause-effect relationships between depression and QoL.

Depression is a common health problem in HD patients, adversely affecting the QoL. Periodic screenings should be done for detection, prevention and control of depression in HD patients to im-

prove their QoL, and to provide their follow-up in terms of depression, and those who are most likely to be at risk of depression should be directed to specialized psychiatric centers.

Limitations of the Study: We are well aware of the limitations of the present study. Firstly, it was performed in a single district, and in a single province, therefore the sample may not be representative of all Turkish HD patients with depression. Secondly, a further limitation is that this study was a cross-sectional study, thus precluding inferences of causality among variables. The last limitation is that the nature of self-reporting may have resulted in under-reporting of the conditions.

ACKNOWLEDGEMENTS

The authors wish to thank the hospital's headmasters, and health management for permission for the study, Eskisehir Health Management, and also the study patients for their valuable efforts and time.

REFERENCES

1. Perazella MA, Khan S. Increased mortality in chronic kidney disease: a call to action. Am J Med Sci 2006;331(3):150–153.
2. Montinaro V, Iaffaldano GP, Granata S, Porcelli P, Todarello O, Schena FP, et al. Emotional symptoms, quality of life and cytokine profile in hemodialysis patients. Clin Nephrol 2010;73(1):36-43.
3. Alvarez-Ude F, Fernández-Reyes MJ, Vázquez A, Mon C, Sánchez R, Rebollo P. Physical symptoms and emotional disorders in patient on aperiodic hemodialysis program. Nefrologia 2001;21(Suppl 2):191-199.
4. Kao TW, Lai MS, Tsai TJ, Jan CF, Chie WC, Chen WY. Economic, social, and psychological factors associated with health-related quality of life of chronic hemodialysis patients in northern Taiwan: a multicenter study. Artif Organs 2009;33(1):61-68.
5. Odden MC, Whooley MA, Shlipak MG. Depression, syress, and quality of life in persons with chronic kidney disease:the hearth and soul study. Nephron Clin Pract 2006;103(1):1-7.
6. Bahar A, Savas H, Yildizgordu E, Barlioglu H. Evaluation of anxiety, depression and sexual life in hemodialysis patients. Anatolia J Psychiatry 2007;8:287-292.
7. Cetinkaya S, Nur N, Ayvaz A, Ozdemir D. Depression, anxiety levels coping strategies with stress hemodialysis and continuous ambulatory in a university hospital. Turkish J Neuropsychiatry 2008;45(3):78-84.
8. Almeida-Filho N, Lessa I, Magalhaes L. Social inequality and depressive disorders in Bahia, Brazil: interactions of gender, ethnicity, and social class. Soc Sci Med 2004;59(7):1339-1353.
9. Stordal E, Bjartveit Kruger M, Dahl NH, Mykletun A, Dahl AA. Depression in relation to age and gender in the general population: the Nord-Trondelag Health Study (HUNT). Acta Psychiatr Scand 2001;104(3):210-216.
10. Lopes AA, Bragg J, Young E, Goodkin D, Mapes D, Combe C, et al. Dialysis Outcomes and Practice Patterns Study (DOPPS). Depression as a predictor of mortality and hospitalization among hemodialysis patients in USA and Europe. Kidney Int. 2002;62(1):199-207.
11. Lopes GB, Matos CM, Leite EB, Martins MT, Martins MS, Silva LF, et al. Depression as a potential explanation for gender differences in health-related quality of life among patients on maintenance hemodialysis. Nephron Clin Pract 2005;115(1):35-40.
12. Vázquez I, Valderrábano F, Fort I, Jofre R, López-Gómez JM, Moreno F, et al. Differences in health-related quality of life between male and female hemodialysis patients. Nefrologia 2004;24(2):167-178.
13. Park HC, Yoon HB, Son MJ, Jung ES, Joo KW, Chin HJ, et al. Depression and health-related quality of life in maintenance hemodialysis patients. Clin Nephrol 2010;73(5):374-380.
14. Kimmel PL. Depression in patients with chronic renal disease: what we know and what we need to know. J Psychosom Res 2002;53(4):951-956.
15. Patel V, Kleinman A. Poverty and common mental disorders in developing countries. Bull World Health Organ 2003;81(8):609-615.
16. Celik HC, Acar T. Examination of depression and anxiety levels in chronic hemodialysis patients by several variables. Firat Med J 2007;12(1):23-27.
17. Lopes AA, Albert JM, Young EW, Satayathum S, Pisoni RL, Andreucci VE, et al. Screening for depression in hemodialysis patients: Associations with diagnosis, treatment, and outcomes in the DOPPS. Kidney Int 2004;66(5):2047-2053.
18. Miura H, Kitagami T, Ohta T. Application of the Zung self-rating depression scale to patients before and after introduction to haemodialysis. Psychiatry Clin Neurosci 1999;53(3):381-385.
19. Rocco MV, Gassman JJ, Wang SR, Kaplan RM. Cross-sectional study of quality of life and symptoms in chronic renal disease patients: the Modification of Diet in Renal Disease Study. Am J Kidney Dis 1997;29(6):888-896.
20. Abdel-Kader K, Unruh ML, Weisbord SD. Symptom burden, depression, and quality of life in chronic and end-stage kidney disease. Clin J Am Soc Nephrol 2009;4(6):1057–1064.

Authors Contribution:

KZ, SFD & AU conceived manuscript. UA & TM designed and did statistical analysis.
KZ, SFD, AU, KN did data collection. AU, UA & TM did manuscript writing.
All authors did review and final approval of manuscript.