Evaluation of Disability, Anxiety and Depression in Hemodialysis Patients

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ABSTRACT

• ***Objective:*** *In this study, our aim was to investigate the relationship between chronic physical disease and disability level in patients with chronic renal failure (CRF), who were in a hemodialysis (HD) program in our hospital.*

• ***Material and Method:*** *We enrolled 75 CRF (37 female, 38 male) and 50 healthy controls (22 female, 28 male). The mean age was 51.05±15.87 years in the patient group, and 49.86±17.22 years in the control group. Data from all groups were captured using the Sociodemographic Form (SDF), Brief Disability Questionnaire (BDQ), Short Psychiatric Rating Scale (BPRS), and Hospital Anxiety and Depression Scale (HAD). Statistical evaluation was performed by GraphPad's Prism V.3 package program. For comparisons we used one-way analysis of variance, Tukey's multiple comparison test, independent t-test and chi-square test.*

• ***Results:*** *Anxiety and depression levels and BDQ total scores were significantly higher in the patient group. No significant difference was observed between patient and control groups for the BPRS. The proportions of widowed or divorced, uneducated, unemployed and low-income individuals were found to be significantly higher in the patient group. Moderate and severe disability and depression levels were significantly higher among uneducated individuals. The anxiety level was significantly higher among females.*

• ***Conclusion:*** *In conclusion, there is a tendency for depression and anxiety to be found more frequently among hemodialysis patients. Therefore, patients undergoing hemodialysis treatment should also be evaluated psychologically and treatment should be initiated if necessary.*

• ***Key Words:*** *Anxiety, depression, chronic renal failure, hemodialysis, disability.* ***Nobel Med 2010; 6(1): 39-44***

HEMODİYALİZ HASTALARINDA YETİ YİTİMİ, ANKSİYETE VE DEPRESYON

ÖZET

• **Amaç:** Bu çalışmada amacımız hastanemiz Hemodiyaliz Ünitesinde hemodiyaliz (HD) programındaki kronik böbrek yetmezliği (KBY) tanısı ile izlenen hastalarda kronik bedensel hastalık ve yeti yitimi düzeyi arasındaki ilişkilerin incelenmesidir.

• **Materyal ve Metod:** Araştırmaya 37 kadın, 38 erkekten oluşan toplam 75 KBY'li hasta ve 22 kadın, 28 erkekten oluşan toplam 50 sağlıklı kontrol bireyi alındı. Yaş ortalamaları hasta grubunda 51,05±15,87, kontrol grubunda 49,86±17,22 idi. Gruplara Sosyodemografik Form (SDF), Kısa Yeti Yitimi Anketi (KYA), Kısa Psikiyatrik Değerlendirme Ölçeği (KPDÖ), Hastane Anksiyete Depresyon Ölçeği (HAD) uygulandı. İstatistiksel analizler GraphPad Prisma V.3 paket programı ile yapıldı. Karşılaştırmalarda tek yönlü varyans analizi, Tukey çoklu karşılaştırma testi, bağımsız t testi ve kikare testi kullanıldı.

• **Bulgular:** Çalışmamızda hasta grubunda anksiyete ve depresyon düzeyi ve KYA toplam puanı kontrol grubundan anlamlı olarak yüksekti. KPDÖ açısından iki grup arasında anlamlı fark gözlenmedi. Hasta grubunda dul ya da boşanmışların, eğitimsizlerin, çalışmayanların ve düşük gelir düzeyi bulunanların oranı anlamlı olarak yüksek bulundu.

Eğitimsiz kişilerde orta ve ağır düzeyde yeti yitimi ve depresyon düzeyi anlamlı olarak yüksek bulundu. Anksiyete düzeyi ise kadınlarda anlamlı olarak daha yüksekti.

• **Sonuç:** Sonuç olarak hemodiyaliz hastalarında depresyon ve anksiyete eğiliminin önemli ölçüde arttığı saptanmıştır. Bu nedenle hemodiyaliz tedavisi altındaki hastaların psikiyatrik açıdan da değerlendirmeye alınması ve gerekiyorsa bu yönde tedavi programlarının başlatılmasının uygun olacağı düşünülmektedir.

• **Anahtar Kelimeler:** Anksiyete, depresyon, kronik renal yetmezlik, hemodiyaliz, yeti kaybı. **Nobel Med 2010; 6(1): 39-44**

INTRODUCTION

Renal replacement treatments for chronic renal failure, which occur as a result of irreversible loss of renal functions, include hemodialysis, peritoneal dialysis and renal transplantation.[1] Despite significant advances in treatment that have occurred recently, poor patient compliance and psychological problems are common among patients with End Stage Renal Disease (ESRD). They still have a high mortality rate and a poor quality of life due to physical and psychological problems.[2,3] The prevalence of major depression is increased in patients with chronic disease in general and the prevalence of psychiatric disorders varies between 0-100% among dialysis patients.[4,5] According to O'Donnell, the rate is 6-34%. Wide variations between studies may be due to utilization of different diagnostic criteria and missed cases by reason of spontaneous remission.[6] Diagnostic symptoms among patients with depression include depressive mood, loss of interest, melancholia, anhedonia, psychomotor retardation or confusion, feeling worthless or guilty, thoughts of death or suicide, decreased appetite and weight loss or gain. Moreover, many nonspecific symptoms such as fatigue, insomnia and reduced libido can also be observed.[7,8] Co-morbidity may also cause diagnostic difficulties by masking or simulating symptoms of depression.[9]

Although dialysis prolongs the survival of renal patients, treatment is complicated by reduction in work capacity and physical activities, family issues and sexual problems. Furthermore, psychological problems such as anxiety, desperation, depression, sleep disorders are frequently observed. These situations have negative influences on the clinical course of the disease and on quality of life 2,5. In this study, we compared patients and controls with regard to several psychiatry-related scales: BPRS, HAD Scale, BDQ and SDF. Depression, anxiety and disability and their relationship to data on the sociodemographic form were evaluated.

MATERIAL and METHOD

Fifty healthy controls and 75 patients with end stage renal failure who were being treated in the Hemodialysis Unit of the Istanbul Education and Research Hospital were enrolled the study. We excluded patients who refused to cooperate, and those with general mood disorder or undergoing peritoneal dialysis (PD). From the roster of patients in our hemodialysis (HD) program, we randomly accepted 75 patients who were able to answer the questionnaires and who did not meet any exclusion criteria. All were receiving 4 hours of HD by synthetic membranes and bicarbonate dialysis solution 3 times a week in the HD unit.

The control group was recruited randomly from family members of patients who applied to the clinics, who were age and sex matched to the patient group with no disease, who were able to communicate easily and→

who agreed to answer questionnaires. Written consent was obtained from both control and patient groups. The study was approved by Istanbul Education and Research Hospital Ethical Board.

Age, gender, marital status, education level, work status, occupation, income level, present or past history of psychiatric illness and family history of psychiatric illness of all participants were recorded on a socio-demographic form. Hemodialysis duration was also recorded (Table 1).

All participants were asked to fill out the questionnaires indicated below: BPRS. Each item in the Brief Psychiatric Rating Scale (BPRS) was evaluated by a score from 0 to 6. The total score was obtained by adding up scores for all items. A total score of 0-15 was rated as no syndrome, 15-30 as a minor syndrome, and a score of 30 and above as a major syndrome.

Hospital Anxiety and Depression Scale (HAD) is a self-assessment scale used to determine anxiety and depression risk, level and severity. This scale is not intended for making diagnoses. Instead, it aims to determine risk groups by rapidly screening anxiety and depression in patients with physical illness. Seven questions from the scale investigate depression and 7 anxiety. Of the 14 items, the 7 odd numbered items rate anxiety symptoms and the 7 even numbered items rate depression. Items are evaluated on a 4-point Likert scale (0-3). There are also HAD-A and HAD-D sub-scales. In a Turkish validation study, 10/11 was found to be the cut-off score for the anxiety subscale, 7/8 was found to be the cut-off for the depression subscale. Patients scoring above these levels were rated as under increased risk. The minimal score for each subscale was 0 and the maximal score was 21. BDQ. Brief Disability Questionnaire (BDQ) is concerned with evaluation of the last one month, and included 11 items asking about physical and social disability. A disability total score is obtained by adding up the scores. A total score of 0-4 was rated as no disability, 5-7 as mild disability, 8-12 as moderate disability, and 13 and above as severe disability.

Statistical evaluation was performed using the GraphPad Prism V.3 package program. The data obtained were evaluated by estimating mean and standard deviations. For between group comparisons we used one-way analysis of variance, Tukey's multiple comparison tests, independent t-tests and the chi-square test.

RESULTS

Sociodemographic features of the patient and control groups and comparison of their HAD-A, HAD-D and BDQ scores are presented in Table 1 and Table 2, respectively.

Table 1: Sociodemographic features of the participants

	Patient group (n=75)	Control group (n=50)	p
Age	51.05±15.87 (17-77)	49.86±17.22 (16-71)	0.396
Gender	50.7% male 49.3% female	56% male 44% female	0.558
Marital status	77.3% married 9.3% single 10.7% widowed 2.7% divorced	58% married 34% single 8% widowed 0% divorced	
Education	12% no education 50.7% primary school 16% secondary school 17.3% high school 4% university	4% no education 32% primary school 12% secondary school 26% high school 26% university	0.002
Work status	86.7% unemployed 13.3% employed	46% unemployed 54% employed	0.001
Income	56% low 41.3% moderate 2.7% high	28% low 62% moderate 10% high	0.005

Table 2: A comparison of anxiety, depression and disability levels between the groups

	Patient-control	Gender	Marital status	Education	Duration of dialysis	BDQ
HAD-A	0.005	0.014	0.055	0.374	0.59	0.074
HAD-D	0.001	0.128	0.125	0.028	0.55	0.005
BDQ	0.001	0.052	0.144	0.05	0.6	

The proportion of low-educated, unemployed, divorced individuals with low-income were higher in the patient group.

Depression, anxiety and disability levels were found to be significantly higher in the patient group compared to controls. Rate of depression risk in females was higher than in males. However, the difference was not statistically significant. Also, the anxiety level was found to be significantly higher in females.

According to BPRS results of patients with chronic renal failure, 93.3% of the patient group had no past history, 94.7% had no current history and 90.7% had no family history of psychiatric disorders. Similar results were observed in the control group (96%, 100%, 96%, respectively) (p=0.454).

DISCUSSION

Patient and control groups, which had similar age and sex distributions, were compared by evaluating social, economical and psychological features. The high divorce rates in the patient group can be associated with the→

destructive effects of the disease. It has been observed that interpersonal relationships, daily life and marital relationships are negatively influenced in hemodialysis patients. Depressive symptoms were observed not only in the patient, but also in the spouse. There was also a reduction in perceived social support, disturbed intrafamily dynamics, socioeconomic status and satisfaction with marriage.[10-12] Reductions in marital satisfaction and in social support perception increase predisposition to anxiety and depression and reduce compliance with treatment in ESRD patients. In many studies, being married and having a high quality marriage have been found to be associated with lower depression scores compared to being single and widowed.[13-15] Lack of social support has also been reported to increase mortality.[16-17]

Education level of the patient group was lower than that for the control group. In addition to patient's withdrawal from social life, selection of the control group from accompanying family members might have a role in this difference due to the fact that accompanying family members probably are often the most conscious members of the family. Although a significant relationship was observed between education level and depression, none was found for education and anxiety levels. Similarly, in several previous studies, higher depression scores associated with low educational level were reported.[18, 19]

The reason for the high rates of unemployment, which was an expected result based on the comparison of education levels, might be due to HD treatment that involved 3 to 4 hours 3 times a week, and which is generally unacceptable to most employers. The patients also had more disease-related disability and more limited work opportunities due to their low-educational levels. In parallel, income levels for the patient group was found to be significantly lower. According to the literature, as the socioeconomic status deteriorates, the tendency to depression increases.[15, 18, 20] In our results, no significant difference was observed between socioeconomic status and depression. This might be due to the small sample size. Higher levels of depression and anxiety are observed in patients with chronic renal failure compared to the normal population. Depression is the most frequent psychological disorder in dialysis patients. In several studies, anxiety and depression rates have been reported in different proportions ranging from 10 to 60% in dialysis patients.[6, 8, 12, 21] High depression scores in these patients are risk factors for hospitalization and increased mortality.[2, 3, 22] In our study, similar to previous studies, the risk of depression and anxiety was found to be significantly increased in the patient group. In a Turkish study conducted by Soykan, the prevalence of depression was found to be 32 % in the patient group and 17% in the general population.[5] It was also found that the Beck Scale, which is one of the most frequently used screening tools, can be adapted to the Turkish population.[23] In our study, depression prevalence in the patient group was 37.3%, which was in accordance with the results of previous Turkish studies.[24] In previous studies, both depression and anxiety were reported to be more frequent in females than males.[9, 12, 21, 25-29] It was thought that this difference was due to the sensitivity of females to stressors and their greater concerns about the future. Female's obligations to adopt several social roles such as being a mother, wife, housewife, and business woman might also contribute to this increased stress. Depression and anxiety risk in female patients was higher than in males in our study. Depression levels in uneducated individuals was significantly higher (p=0.028). Low educational levels in the CRF group increases the risk of depression both by increasing unemployment and by negatively influencing patient's adjustment to the disease and the course of developing coping mechanisms. Younger age, female sex, unemployment, being on dialysis for less than 2 years and living alone have been suggested by Craven et al 8 as risk factors for depression.

Disability level was found to be significantly higher in the CRF group compared to controls (p=0.0001). Disability is defined as "a transient or persistent limitation or loss in the ability to perform an activity in an acceptable manner or within acceptable normal limits for the person".[30] Restriction in activities of daily life may be due to physical and/or psychological problems. A significant interaction between disability level and several psychological disorders, especially depression, was reported from population studies.[31, 32] Also, in our study a significant correlation was found between depression symptoms and severe disability level (p=0.005). Wells et al. found that patients with depression have greater social and physical disability than patients with chronic physical illnesses.[9] Major depression, which is frequently observed in patients with chronic medical illness, causes a reduction in productivity and leads to disability.[33] Again, a decrease in educational level was associated with an increase in anxiety-depression scores and disability.[19] Also in our study groups, the disability level was higher in uneducated individuals.

No significant difference was observed between HD duration and disability, anxiety and depression level in our study. Even though some studies found no significant correlation between duration of dialysis and depression[2, 19], others reported higher depression rates in patients who have been on dialysis for a short time period.[8] →

When the personal and family histories of patients and controls were investigated, both groups reported not having a psychiatric disorder before. However, according to the HAD-A and HAD-D assessments, the CRF group had significantly higher anxiety and depression levels compared to controls. This situation was not previously noticed by either patients or their physicians. It has been similarly reported in the literature that depression is frequently neglected in these patients and remains undiagnosed unless it is specifically addressed.[12, 21] This may be due to the predominance of physical symptoms in these patients. Symptoms such as fatigue, anorexia, sleep disorder and reduced libido in patients with depression are nonspecific and comorbid conditions that may cause diagnostic difficulties by masking or simulating depression symptoms.[6-9] Psychiatric problems of patients can be detected earlier by dialysis nurses who have a more intimate relationship with ESRD patients.[34]

The presence of depression or anxiety has been found to be more correlated with quality of life than with sex, educational level, employment status, albumin, hemoglobin and sufficiency of dialysis.[25] Psychiatric assessment of CRF patients at different time points can lead to different outcomes. In a study by Lopes, although no correlation was found between mortality and baseline depression grade of patients, a positive correlation was detected at a 6th month re-assessment.[2]

CONCLUSION

Apart from the chronic renal disease itself, the patient's dependency on the machine, the institution and healthcare professionals lead to problems in the patients family, and in their occupational and social life. Psychiatric problems, which are often omitted by patients and their family, are overlooked and neglected by the physicians as well. The main reasons for this include (i) a negative approach or prejudice of patients, their family and physicians against psychiatric disorders, (ii) lack of knowledge or lack of interdisciplinary communication and cooperation between several medical specialties. Psychiatric assessment of patients undergoing hemodialysis treatment in order to detect symptoms of mental disorders and to initiate appropriate treatment programs will both facilitate psychosocial adaptation of the patients and reduce treatment-related costs by increasing treatment success and decreasing hospitalizations.

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