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Depression, Anxiety Disorders, Quality of Life and Stress Coping Strategies in Hemodialysis and Continuous Ambulatory Peritoneal Dialysis Patients

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ÖZET:

Hemodiyaliz ve sürekli ayaktan periton diyalizi tedavisi altındaki hastalarda depresyon, anksiyete bozuklukları, yaşam kaliteleri ve stresle başa çıkma tutumları

Amaç: Bu çalışmada hemodiyaliz ve sürekli ayaktan periton diyalizi (SAPD) tedavisi uygulanan kronik böbrek hastaları ve kontrol grubu katılımcılarını depresyon, anksiyete bozuklukları, yaşam kaliteleri ve stresle başa çıkma tutumları açısından karşılaştırmak, psikiyatrik hastalıklarla karşılaşma sıklığını ve bununla ilişkili faktörleri belirlemek amaçlanmıştır.

Yöntem: Çalışmamıza 42 hemodiyaliz ve 41 SAPD tedavisi alan kronik böbrek yetmezliği hastası ile hasta gruplarıyla benzer sosyodemografik özellikler gösteren 41 sağlıklı kişi alındı. Çalışmaya dahil edilme kriterleri; hastaların en az 1 yıldır diyaliz tedavisi altında olmaları, okuryazar olmaları, araştırmaya katılmayı kabul ederek bilgilendirilmiş onam formunu imzalamış olmaları, 18-65 yaş arasında olmaları, önceden bilinen demans, deliryum, organik beyin sendromu, mental retardasyon, psikoz veya bipolar bozukluk tanısı almamış olmaları ve görüşme sırasında alkol ya da kötüye kullanılabilen bir maddenin etkisi altında olmak gibi hastanın kooperasyonunu, gerçeği değerlendirme yetisini ve bilişsel fonksiyonlarını bozarak, görüşme yapmayı ya da ölçekleri doldurmayı engelleyen durumların bulunmaması olarak alınmıştır. Hastalarda psikiyatrik bozukluk varlığını belirlemek amacıyla ilk görüşmede DSM-IV Eksen-I Bozuklukları için Yapılandırılmış Klinik Görüşme (SCID-I) uygulandı. Ayrıca Hastane Anksiyete ve Depresyon Ölçeği (HADS), Kısa Form-36 (SF-36) Yaşam Kalitesi Ölçeği, Stresle Başa Çıkma Tutumları Ölçeği (COPE) ve sosyodemografik veri formları kullanılarak veriler toplandı.

Bulgular: SCID-I'e göre hemodiyaliz hastalarının %59,5'ine, SAPD hastalarının %53,7'sine ve kontrol grubunun %26,8'ine psikiyatrik bozukluk tanısı konuldu. Her üç grupta da en sık depresif bozukluklar görüldü. Stresle başa çıkmada, hemodiyaliz hastalarının SAPD hastalarına göre işlevsel olmayan başa çıkma tutumlarını istatistiksel açıdan anlamlı olarak daha fazla kullandıkları görüldü. SAPD hastalarının Kısa Form-36 fiziksel ve ruhsal bileşen skorlarının ise hemodiyaliz hastalarına göre daha yüksek olduğu gözlendi.

Sonuç: Kronik böbrek yetmezliğinin kendisi kadar tedavi yönteminin de oldukça zorlayıcı olması diğer kronik hastalıklardan ayrılmasına ve psikiyatrik bozuklukların oldukça yaygın görülmesine neden olmaktadır. Sonuç olarak hastaların psikiyatrik açıdan değerlendirilmesi psikiyatrik hastalıkların tanı konup tedavi edilmesi ve yaşam kalitelerinin arttırılması için oldukça önemlidir.

Anahtar sözcükler: Hemodiyaliz, sürekli ayaktan periton diyalizi (SAPD), depresyon, anksiyete, yaşam kalitesi, stresle başa çıkma tutumları

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ABSTRACT:

Depression, anxiety disorders, quality of life and stress coping strategies in hemodialysis and continuous ambulatory peritoneal dialysis patients

Objective: In this study, we aimed to assess patients with chronic kidney disease on hemodialysis or continuous ambulatory peritoneal dialysis (CAPD) and to compare them with matched controls for depression, anxiety disorders, quality of life, and stress coping strategies and to estimate the comorbidity of psychiatric disorders and related risk factors.

Patients and Methods: Patients with chronic kidney disease treated with hemodialysis (42 patients) and those with CAPD (41 patients) were included in this study. A healthy control group (41 volunteers) with matched baseline sociodemographic characteristics was also included. Patients between the ages of 18-65 with a history of ≥1 year of dialysis therapy, who were literate and signed an informed consent were allowed to participate; patients with a history of known dementia, delirium, organic brain syndrome (OBS), mental retardation, psychosis, bipolar disorder, or those who were under the influence of a substance or alcohol that disrupted cooperation, sense of reality and cognitive functions and thereby interfered with the evaluation were excluded from the study. The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) was used to assess current psychiatric disorders. Additional data were also collected from the Hospital Anxiety and Depression Scale (HADS), Health Related Quality of Life Short Form-36 (SF-36), COPE (Coping strategies with stress) Inventory, and sociodemographic data forms.

Results: According to the SCID-I assessment, 59.5% of the patients in the hemodialysis group, 53.7% in the CAPD group, and 26.8% among controls were diagnosed with a psychiatric disorder. In all three groups, the most common psychiatric disorder was depressive disorder. The use of non-functional coping strategies was higher among the patients who were treated with hemodialysis, compared to the CAPD patients. The physical and mental scores of the SF-36 were higher among the patients who were treated with CAPD, compared to those in the hemodialysis group.

Conclusion: As both chronic kidney disease and its treatment are very troublesome, it differs from other chronic diseases, leading to a high incidence of psychiatric disorders. Thus, regular psychiatric assessment of these patients is necessary to effectively diagnose and treat psychiatric disorders and improve quality of life.

Key words: Hemodialysis, continuous ambulatory peritoneal dialysis, depression, anxiety, quality of life, stress coping strategies

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INTRODUCTION

Chronic kidney disease (CKD) refers to a condition where kidney damage lasts for at least 3 months and/or glomerular filtration rate (GFR) falls below 60 mL/min/1.73 m^2 whatever the etiology of underlying kidney disease (1). Once GFR falls below 15 ml/min/1.73 m^2 patients progress into the stage of renal failure and renal replacement therapies such as dialysis and transplantation are required (2). These treatment modalities used in patients with end-stage renal failure seek to prolong longevity and also to improve the quality of life (3). Kidney transplantation is superior to many other treatment methods; however, the number of patients who have transplantation is far below those waiting for transplantation (4). It has been established that a point prevalence figure for ESRD (end stage renal disease) requiring renal replacement therapy was 756 per million population by the end of 2008 in Turkey and from 2008 onwards a total of 54,034 patients have received renal replacement therapy. Of these, 74.5% have undergone hemodialysis, 14.5% had renal transplantation and 10.7% have been treated with peritoneal dialysis (5).

Psychiatric disorders frequently accompany chronic diseases and this is especially true for patients with ESRD. The prevalence of psychiatric hospitalization among ESRD patients who are on dialysis therapy is 1.5-3 times higher compared to other chronic diseases (6) because these patients are likely to encounter many problems caused by the treatment modalities aside from the physical effects of the disease. Both the disease itself and continuous dependency on a machine and/or treatment team have adverse effects on the quality of life (3). With regard to incidence and prevalence of depression in dialysis patients there are no exact numbers established. Figures ranging from 10 to 66% have been reported (7). Suicide rate in dialysis patients was reported to be higher than the normal population (0.195-4.6%) (8).

As hemodialysis and CAPD, two alternative methods of non-transplant renal replacement therapy, are thought to provide comparable results in most patients, comprehensive information and education should be given to all candidate patients in order for patients to make a choice convenient to their life style and personality. This is as important as medical indications in selecting the methods of dialysis (4,9). Although both methods have advantages and disadvantages, it has been observed that the difference in preference mainly arose from insufficient information on both methods. According to the data of the Turkish Society of Nephrology it has been reported that, among the patients beginning hemodialysis in 2008, only 54.5% were regularly followed-up in the predialysis period and that only 49.7% received education (5), suggesting that approximately half of the patients chose the method of dialysis without any education.

The purpose of this study was to compare the patients treated with two different methods of dialysis with respect to depression, anxiety, quality of life, and stress coping strategies.

METHODS

This study included 41 CAPD patients followed up at the Istanbul University Medical School Hospital and Istanbul Training and Research Hospital, 42 hemodialysis patients treated at the private Çapa Hospital and private Fatih Dialysis Center and 41 healthy volunteers as the control group. The control group was composed of health personnel who did not report any chronic physical disease, matched with both study groups with respect to gender, age, the perception of income situation, and marital status. Bezm-i Alem Valide Sultan Education and Research Hospital Ethics Board approved this study. Both the healthy volunteers and patients gave informed consent before being included in the study.

During the first interview, the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) was administered to all subjects in order to assess the presence of psychiatric disorders. In addition, the data was collected through a sociodemographic information form, the Coping Strategies Questionnaire (COPE); Health Related Quality of life Short Form-36 (SF-36), and Hospital Anxiety and Depression Scale (HADS). In the hemodialysis patients, the data was collected after the first hour of the hemodialysis session and it was completed before the last one hour. In CAPD patients, the data was collected upon coming in for routine control to the nephrology department. This study was performed between July 10, 2009 and November 20, 2009.

Measurement Instruments

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I)

The SCID-I is a semi-structured interview for establishing the presence of major DSM-IV Axis I diagnoses. The interview takes 25-60 minutes (10). The scale was developed by First et al. in 1997 (11), and it was adapted to Turkish by Özkürkçügil et al. and the validity and reliability of the scale were established (12).

COPE Assessment Scale (for coping strategies)

The COPE assessment scale was developed by Carver and colleagues (13) in 1989 and Ağargün et al. translated the scale into Turkish and conducted validity and reliability studies for the scale (14). This scale aims to examine how people react when confronted with a difficult situation that causes anxiety. The scale consists of 60 questions and 15 sub-scales. Each of these sub-scales gives information about different strategies for coping with stress. A high score obtained from a subscale implies that particular strategy is used more often.

Quality of Life Short Form-36 (SF-36)

The SF-36 is a scale widely used to measure the quality of life. It was specifically developed to measure quality of life for those with physical diseases. It is used to assess negative as well as positive aspects of health status and is very sensitive in detecting small changes in disability. It examines 8 dimensions of health with 36 items such as physical functioning, role limitations, social functioning, mental health, vitality, pain, and general health perception. Ware and Sherbourne developed the scale in 1992 and Kocyigit translated and tested the Turkish version of scale with respect to validity and reliability (10,15,16).

Hospital Anxiety and Depression Scale (HADS)

The HADS is a four-point Likert-type scale containing a total of 14 questions developed by Zigmond and Snaith to determine the risk for anxiety and depression as well as to measure the level and severity of anxiety and depression in patients with physical diseases (17). The validity and reliability of the scale in Turkish were investigated by Aydemir and colleagues, and it was found to be reliable in screening symptoms of depression and anxiety in patients with physical illnesses (18). The cut-off points for the Turkish version of the scale have been identified as 10 and 7 for the anxiety and depression subscales, respectively (10).

Statistical Analysis

The data was analyzed using the SPSS for Windows version 15.0 (Statistical Package for Social Science) statistical software program. P values of less than 0.05 were considered statistically significant. Three groups were compared for parametric variables using ANOVA and the Tukey test was used for post-hoc analysis. The Kruskal Wallis test was used to compare non-parametric variables between the three groups and post-hoc analysis was made using the Mann Whitney U test. Where the Mann Whitney U test was used for post-hoc analysis, the Bonferroni correction was made and p values of less than 0.017 ($p<0.017$) were accepted as significant. The Chi-square test was used for the analysis of categorical variables. Analysis of covariance (ANCOVA) was used to compare quality of life between the three groups while controlling for age. Logistic regression analysis was used to evaluate the relation of depressive and anxiety disorders with age. Odds ratios were calculated.

RESULTS

With regard to the demographic data (Table 1), no significant difference was found between the CAPD group and the control group for mean age (p=0,861). However, the patients in the hemodialysis group were significantly older than the other two groups (p=0.004 for the CAPD group and p=0.02 for the control group). There was no statistically significant difference between the groups with regard to level of education (p=0.132), gender (p=0.922), marital status (p=0.158), and income perception (p=0.704).

Among hemodialysis patients, the SCID-I interview revealed no psychopathology in 40.5% of the patients, depressive disorders in 33.3%, anxiety disorders in 11.9%, and both anxiety and depressive disorders concurrently in 14.3% of the patients. Among the patients treated with

Table 1: Socio-demographic data of the patient and control groups

	Hemodialysis group n (%)	CAPD group n (%)	Control group n (%)	P
Age	49.07±12.0	40.63±11.9	42.00±11.6	0.003*
Gender				
Famale	23 (54.8%)	24 (58.5%)	24 (58.5%)	0.922**
Male	19 (45.2%)	17 (41.5%)	17 (41.5%)	
Education level				
Literacy	4 (9,5%)	0 (0%)	3 (7,3%)	0.132**
Primary education	22 (52,4%)	19 (46.3%)	14 (34,2%)	
Secondary education	12 (28.6%)	16 (39.0%)	13 (31,7%)	
Higher education	4(9.5%)	6 (14.7%)	11 (26.8%)	
Income perception				
Very low-low	15 (35.7%)	12 (29.2%)	15 (36.5%)	0.704**
Middle	20 (47.6%)	25 (61,0%)	22 (53.7%)	
Good	7 (16.7%)	4 (9.8%)	4 (9.8%)	
Marital status				
Married	32 (76.2%)	30 (73.2%)	26 (63.4%)	0.158**
Single	5 (11.9%)	10 (24.4%)	8 (19.5%)	
Widowed-Divorced	5 (11.9%)	1 (2.4%)	7 (17.1%)	

*ANOVA **chi-square test

Table 2: Comparison of groups with respect to risk for depression and anxiety according to the HAD scale

	Hemodialysis group n (%)	CAPD group n (%)	Control group n (%)	P*
At risk for depression	24 (57.1%)	22 (53.7%)	8 (19.5%)	0.001*
At risk for anxiety	12 (28.6%)	9 (22,0%)	3 (7.3%)	0.044*

*chi-square test

CAPD, 46.3% had no psychopathology, 29.3% had depressive disorders, 12.2% had anxiety disorders, 12.2% had anxiety disorders accompanied by depressive disorders on the SCID-I interview. In the control group, 73.2% of the subjects did not have any psychiatric disorder on the SCID-I interview; however, 14.6% had depressive disorders, 9.8% had anxiety disorders, 2.4% had co-morbid depressive and anxiety disorders. The frequency of SCID-I diagnoses did not differ significantly between the two methods of dialysis (p=0.59). The presence of any psychotic disorder, bipolar disorder, or alcohol and substance abuse disorder were among the exclusion criteria. In this study no diagnoses of eating disorders, somatoform disorders and adjustment disorders were made.

According to the cut-off scores of the HAD depression scale, 57.1% of the hemodialysis patients, 53.7% of the CAPD patients, and 19.5% of the healthy controls were at risk for depression. When the 3 groups were compared as to whether they were at risk for anxiety and depression according to the HAD scale cut-off scores, the difference was statistically significant. However, no statistically significant difference was found in the risk for depression (p=0.75) and anxiety (p=0.48) between two dialysis groups (Table 2).

Coping strategies in the hemodialysis, CAPD and control groups were compared for each of the 15 sub-scales, and they were also examined after combining them under 3 sub-headings. Active coping, planning, restraint coping (avoiding being with people), seeking of instrumental social support, and suppression of competing activities were categorized as problem-focused coping; positive reinterpretation, turning to religion, humor, seeking of emotional social support, and acceptance were categorized as emotion-focused coping; mental disengagement, focusing on and venting of emotions, denial, substance use, and behavioral disengagement were categorized as non-functional coping strategies (19). When participants were evaluated altogether (n=124) turning to religion was the most frequent coping strategy followed by seeking of instrumental social support, and focusing on and venting of emotions (Table 3).

Table 3: Comparison of the coping strategies of the Hemodialysis, CAPD, and Control groups

	Hemodialysis group		CAPD group		Control group		P
	Mean±SD	Median (min-max)	Mean±SD	Median (min-max)	Mean±SD	Median (min-max)	
Problem-focused coping strategies	54,40±5,34	54,0 (46,0-66,0)	52,39±7,83	51,0(40,0-69,0)	56,97±4,65	58,0 (45,0-67,0)	0,004*
Active coping	10,40±1,78	10,0 (7,0-15,0)	11,04±2,75	11,0(6,0-16,0)	12,48±2,19	12,0 (8,0-16,0)	<0,001**
Planning	10,69±1,63	11,0 (8,0-14,0)	10,34±2,51	10,0(6,0-16,0)	12,46±1,71	12,0 (8,0-15,0)	<0,001**
Restraint coping	9,35±1,18	9,0 (8,0-12,0)	8,82±2,22	9,0(4,0-15,0)	9,60±1,71	9,0 (7,0-15,0)	0,115**
Seeking of instrumental social support	14,21±1,31	14,5 (11,0-16,0)	12,51±1,95	13,0(8,0-16,0)	12,12±2,34	12,0 (6,0-16,0)	<0,001**
Suppression of competing activities	9,73±1.34	10,0 (7,0-13,0)	9,65±2,22	9,0(6,0-16,0)	10,29±1,36	10,0 (8,0-13,0)	0,025**
Emotion-focused coping strategies	56,92±4,68	57,5 (43,0-65,0)	56,12±6,44	56,0(38,0-67,0)	55,48±3,97	56,0 (45,0-66,0)	0,337**
Positive reinterpretation	12,11±1,43	12,0 (8,0-15,0)	12,31±1,99	12,0(8,0-16,0)	13,07±1,29	13,0 (11,0-16,0)	0,020**
Turning to religion	14,19±2,25	15,0 (8,0-16,0)	12,92±2,86	13,0(5,0-16,0)	12,29±3,05	13,0 (4,0-16,0)	0,005**
Humor	5,80±1,61	6,0 (4,0-9,0)	6,95±2,31	7,0(4,0-12,0)	7,24±2,35	7,0 (4,0-14,0)	0,012**
Seeking of emotional social support	13,21±1,82	13,0 (8,0-18,0)	11,36±2,49	12,0(5,0-16,0)	11,04±1,89	12,0 (7,0-14,0)	<0,001**
Acceptance	11,59±1,12	12,0 (8,0-14,0)	12,56±1,98	13,0(8,0-16,0)	11,82±1,82	12,0 (9,0-16,0)	0,020**
Non-functional coping strategies	45,40±4,09	46,0 (35,0-55,0)	40,51±6,48	40,0(27,0-52,0)	39,68±6,76	37,0 (29,0-56,0)	<0,001**
Mental disengagement	11,11±1,62	11,0 (8,0-15,0)	10,02±1,95	10,0(4,0-14,0)	9,68±1,55	10,0 (6,0-14,0)	<0,001**
Focusing on and venting of emotions	12,90±1,51	13,0 (8,0-15,0)	12,21±2,36	12,0(8,0-16,0)	12,70±1,72	12,0 (8,0-16,0)	0,385**
Denial	8,09±1,70	8,0 (4,0-12,0)	6,58±2,53	6,0(4,0-14,0)	6,31±2,55	6,0 (4,0-14,0)	<0,001**
Substance use	4,66±1,39	4,0 (4,0-9,0)	4,80±1,72	4,0(4,0-13,0)	4,85±1,57	4,0 (4,0-9,0)	0,727**
Behavioral disengagement	8,61±1,62	9,0 (4,0-12,0)	6,87±2,46	7,0(4,0-11,0)	6,12±2,19	6,0 (4,0-11,0)	<0,001**

*ANOVA, **Kruskal-Wallis

While there was no statistically significant difference among the 3 groups in terms of focusing on and venting of emotions, restraint coping and substance use, there was a statistically significant difference among the 3 groups with regard to the other coping strategies.

When the hemodialysis and the CAPD groups were compared, a statistically significant difference ($p<0.017$) was found with regard to coping strategies, including mental disengagement ($p=0.009$), seeking of instrumental social support ($p<0.001$), denial ($p=0.001$), behavioral disengagement ($p=0.001$), seeking of emotional social support ($p=0.001$) and acceptance ($p=0.005$). No statistically significant difference was observed ($p>0.017$) between these two groups regarding positive reinterpretation ($p=0.626$), focusing on and venting of emotions ($p=0.193$), active coping ($p=0.447$), turning to religion ($p=0.029$), humor ($p=0,023$), restraint coping (avoiding being with people) ($p=0.09$), substance use ($p=0.453$), suppression of competing activities ($p=0.266$) and planning ($p=0.331$). When the hemodialysis group was compared with the control group although no significant difference ($p>0.017$) was noted between the groups in terms of focus on and venting of emotions ($p=0.431$), restraint coping (avoiding being with people) ($p=0.781$), substance use ($p=0.535$) acceptance ($p=0.179$) and suppression of competing activities ($p=0.049$), a statistically significant difference was present between these groups in terms of the other coping strategies.

Comparing CAPD with the control group, a statistically significant difference was found ($p<0.017$) in active coping ($p=0.012$), planning ($p<0.001$), and suppression of competing activities ($p=0.014$).

Problem-focused coping was most frequently seen in the control group and emotion-focused coping was noted most commonly in the hemodialysis patients. Emotion-focused coping was most frequently noted in CAPD patients and no statistically significant difference was found among the three groups ($p=0.337$). When the CAPD patients were compared with the control group, there was a significant difference in problem-focused coping ($p=0.003$), while no difference was found between non-functional coping ($p=0.338$) and emotion-focused coping ($p=0.645$). The hemodialysis group used non-functional coping strategies considerably more frequently than both the control group and the CAPD group ($p<0,001$).

Concerning quality of life, the study groups were compared for individual subscales and physical and mental health summary scales. Based on the raw quality of life subscale scores, high scores indicate better health status (10). These summary scales and all subscales were significantly different between these two groups ($p \leq 0.001$). When quality of life measures were compared

Table 4: Comparison of the groups on quality of life scales

	Hemodialysis group		CAPD group		Control group		P*
	Mean±SD	Corrected mean*	Mean±SD	Corrected mean*	Mean±SD	Corrected mean*	
Physical Components	46,95±9,17	48,05	53,15±7,63	52,44	66,14±5,51	65,73	<0.001
1. Physical function	21,61±5,20	22,27	24,36±3.00	23,94	28,56±2.07	28,31	<0.001
2. Physical role limitation	5,66±1,97	5,67	5,31±1,79	5,31	7,80±0,71	7,80	<0.001
3. Pain	7,69±2,47	7,79	9,45±1,84	9,38	11,22±1,42	11,18	<0.001
4. General health perception	11,97±2,28	12,32	14,01±3,87	13,79	18,55±3,10	18,42	<0.001
Mental components	42,23±6,67	42,59	45,22±6,71	45,00	52,87±3,85	52,74	<0.001
1. Vitality (energy)	13,90±2,89	14,04	14,75±2,46	14,66	15,95±1,73	15,89	0,003
2. Social function	6,64±1,88	6,73	7,43±1,44	7,37	9,24±0,99	9,20	<0.001
3. Emotional role limitation	4,16±1,44	4,17	3,95±1,35	3,94	5,95±0,31	5,94	<0.001
4. Mental health	17,52±2,27	17,63	19,08±3,10	19,01	21,73±2,08	21,69	<0.001

*Corrected mean scores for quality of life measures and p values for covariance analysis when age is taken as a covariant

between the three groups while controlling for age using analysis of covariance (ANCOVA), similar results were obtained (Table 4). The CAPD and the control group were significantly different on 8 subscales of SF-36 and the summary headings ($p<0.017$).

When the groups were evaluated individually, age did not impact significantly on the presence of depression and anxiety. Similarly, when the participants were evaluated together (n=124), logistic regression analysis did not reveal any significant age effect on the presence of depression ($p=0.079$, Odds ratio=1.027, 95% significance interval=0.997-1.058), and anxiety ($p=0.522$, Odds ratio=0.998, 95% significance interval =0.953-1.025).

When the hemodialysis and the CAPD groups were compared based upon physical and mental components, there was no statistical difference in the total scores of the mental component ($p=0.068$); however, there was a statistical difference in the total scores of the physical component ($p =0.001$).

When we compared the hemodialysis patients with the CAPD patients for the subscales, no statistically significant difference was observed ($p>0.017$) in role limitation because of physical problems ($p=0.463$), emotional problems ($p=0.480$), vitality ($p=0.119$), and social functions ($p=0.044$). A statistically significant difference was observed between the hemodialysis and CAPD patients with regard to other quality of life subscales.

DISCUSSION

We aimed to compare patients treated with two dialysis methods with respect to depression, anxiety, quality of life, and stress coping strategies. According to the 2008 data of the Turkish Society of Nephrology, hemodialysis patients in our country are mostly 45-64 years old (42.4%). The second most common age category is 65-74 years (23.1%). Peritoneal dialysis is used most commonly by the 45-64 year age group (46.4%). The second most common age group among peritoneal dialysis patients is 20-44 years (36.4%), which is different from the hemodialysis group (5). Age differences between the groups in our study are consistent with the national data.

Many studies comparing longevity reported no definitive results showing the superiority of one dialysis method over the other. However, there are certain conditions leading to the preference of a particular method. For example, peritoneal dialysis is indicated in young children, in those with severe cardiovascular disease or difficult vascular access, in frequent travelers, and in those not wanting to stay dependent on a machine. It is contraindicated in patients with severe malnutrition, severe abdominal adhesions, hiatal hernia, severe reflux esophagitis, severe psychiatric disease, intellectual deficiency, and in patients with dementia (2).

Besides medical indications and contraindications, psychological evaluation is also important while choosing a dialysis method. The patient has to deal with a disease that limits many aspects of life and causes disability throughout their lifetime. Contrary to many other chronic diseases, chronic kidney disease itself, as well as the methods of treatment, can be quite challenging. Many patients define themselves as dialysis patients rather than patients with kidney failure. The quality of life of patients deteriorates due to the disease itself and treatment methods,

as well as due to many other reasons including physical and mental problems, financial difficulties, sexual dysfunction, loss of business, dietary restrictions, and social problems.

In addition to the medical indications it is necessary to educate and inform patients about the methods of dialysis so that they can make a choice suitable for their life style and personality, because both hemodialysis and CAPD provide equal replacement therapy for patients with end stage renal failure (4,9). For example, while a patient can perform peritoneal dialysis alone or with the help of a family member at home, hemodialysis can be performed only at specialized centers. For this reason, a sense of autonomy and self-care is more possible in peritoneal dialysis. From another perspective, some patients may be resistant to peritoneal dialysis because the abdominal fluid causes a body image disturbance (9).

The incidence and prevalence of depression in dialysis patients have been reported to range from 10 to 66% (7). This wide range of ratios may be due to diverse diagnostic criteria, use of different scales, inclusion of patients at different stages of physical disease and methodological problems such as confusion of depressive symptoms with chronic kidney disease (CKD) symptoms (8). In this study, we administered the Structured Clinical Interview for DSM-IV Axis-I Disorders (SCID-I) and the HADS in order to identify anxiety disorders and depression and the diagnoses were established based on the DSM-IV diagnostic criteria, the gold standard in this regard (20).

A psychiatric diagnosis was made in 59.5% of the hemodialysis patients based on the SCID-I interview. In a study carried out in 2008 with hemodialysis patients, Göker reported that 65.2% of patients had a psychiatric disorder. In the same study, the prevalence of depression and anxiety disorders were reported as 37% and 13%, respectively, which are compatible with our study (21). Cukor and his colleagues found that 29% of hemodialysis patients had depression and 27% had anxiety disorders. In that study, the prevalence of anxiety disorders was higher than our findings (22). Mittal et al. studied 43 peritoneal dialysis and 134 hemodialysis patients, and reported the prevalence of depression as 26.1% in the hemodialysis group and 25.4% in the peritoneal dialysis group (23). Yazıcı et al. in 2008 reported a diagnosis of major depression in 67 of 145 hemodialysis patients (46%) according to the DSM-IV (24). Our findings are compatible with the results of these studies.

In a study by Sağduyu et al. using the HAD scale in 2006, 41.2% of the hemodialysis patients scored above the threshold on the depression subscale and 11.8% scored above the threshold on anxiety subscale. Again, Sağduyu et al. reported in 2009 that among 45 hemodialysis patients 33% had depression and 9% had anxiety disorders according to the HAD scale (25,26). These rates were lower than the scores obtained on the HAD scale in our study.

Salehnia compared the Beck Depression Inventory scores and the Taylor Anxiety scores of patients treated with either hemodialysis or CAPD and reported that the scores of both scales were higher in hemodialysis patients but no significant difference was found between the two groups (27). Watnick et al. examined the prevalence of depressive symptoms in 123 patients using the Beck Depression Inventory immediately after initiation of hemodialysis therapy and reported that they obtained scores above the cut-off value in 44% of patients. In the same study they also reported a statistically significant relationship between depressive symptoms and lower quality of life (28).

In a study by Erengin et al. the level of depression of the patients receiving hemodialysis was higher than the CAPD patients (29). In another study, Çetinkaya et al. reported that the incidence of depression in CAPD patients was 33.3%, compared to 61.3% in hemodialysis patients (30).

It is generally thought that depression and anxiety disorders may be less frequently seen in CAPD, which is less invasive, as well as less restrictive than hemodialysis. However, discrepant results have been reported in various studies in the literature.

Due to a longer duration of life and different treatment alternatives, conventional health care output indicators remain insufficient. Today, the success or failure of a clinical practice or therapeutic alternative is evaluated by a positive or negative improvement in the patient's quality of life in addition to the biological and demographic indicators. In other words, the success of a health initiative is assessed with pain, fatigue, and disability caused by the disease and treatment, rather than just the physical, psychological, and social well being of patients. Several authors concluded that outcome indicators of health related interventions should be based not only on saving lives but also on improving lives (31).

Chronic kidney disease requires a dependency on medical equipment due to both the disease and the methods of treatment. With the beginning of hemodialysis, which is the most commonly performed method of renal replacement therapy, major changes occur in the patient's quality of life due to life-long dependence on machines to maintain life. In the short term, dialysis causes role limitations due to physical problems and deterioration in general health perception, while in the long run, it causes role limitations resulting from physical and emotional problems as well as deterioration in physical functioning and general health perception (32). Associated psychiatric problems may decrease quality of life at least as much as the physical disease.

Patients, especially those who attach importance to high quality of life and those with an increased sense of well-being, comply with dialysis treatment much better. Physicians have to carefully consider the impact of medical decisions on quality of life and discuss these issues in depth with patients and their families. In addition, patient satisfaction with care is an important aspect of quality of life to be assessed (33).

Mittal et al. reported the mean physical component score as 31.8±7.8 in the peritoneal dialysis group and 36.9±8.8 in the hemodialysis group on the SF-36 quality of life scale. There was a statistically significantly difference between the two groups in the mean physical component; however, no statistically significant difference was reported in the average mental component scores (23).

Diaz-Buxo et al. reported the mean physical component score as 33.3±10.4 and the mean mental component score as 47.5±11.7 among 16,755 hemodialysis patients on the SF-36 quality of life scale. The mean physical component score was 33.7±10.6 and the mean mental component score was 47.9±11.6 among 1260 peritoneal dialysis patients (34).

Sağduyu et al. reported the physical component score to be 47.4±15.2 and the mental component score to be 36.6±15.9 in hemodialysis patients (25). Göker et al. found the physical and mental component scores to be 47.29 and 43.27 in hemodialysis patients, respectively (21). Koçer reported the physical component score as 53.09 and the mental component score as 56.07 in hemodialysis patients and a physical component score of 50.15 and a mental component score as 53.59 in peritoneal dialysis patients on the SF-36. There was not a statistically significant difference between the two groups (35). Wasserfallen et al. reported a decrease in quality of life among 455 hemodialysis and 50 peritoneal dialysis patients measured by quality of life scale (QOL), however they did not find a significant difference between the scores of these two groups (36).

It is possible to come across contradictory results about quality of life in the literature. This can be explained by the fact that quality of life is a subjective concept and is a concept that is affected by the person's physical and mental status, beliefs, social relationships, and interaction with the environment.

There are few studies in the literature about coping strategies in patients undergoing dialysis. Cetinkaya et al. found a statistically significant difference in coping strategies of mental disengagement and humor between hemodialysis and CAPD groups. They reported that religious coping was the method most frequently used in both groups (30).

In our study, the coping strategies most commonly used by the hemodialysis group were seeking of instrumental social support, followed by turning to religion, and seeking of emotional social support. Those most frequently used by the CAPD group were religious coping and seeking of instrumental social support followed by focusing on and venting of emotions.

In the control group the most frequently used coping strategy was positive reinterpretation, followed by focusing on and venting of emotions and active coping. When all participants were evaluated together, turning to religion was the most commonly used coping strategy, seeking of instrumental social support was the second, and focusing on and venting of emotions was the third. We found that nonfunctional coping was more common in the hemodialysis group compared to the CAPD and control groups.

Hiçdurmaz reported that turning to religion was frequently used in both patient groups and that active coping was more frequent among CAPD patients than hemodialysis patients in 212 hemodialysis and 149 CAPD patients in Ankara in 2005. Acceptance and positive reinterpretation were the second and the third common coping strategies in the same study among the patients of both groups (37).

Inability of the individual to fulfill the expected psychological, physical, and social functions leads to the

development of some coping strategies to minimize the negative consequences of the disease or to cope fully with the disease. Thus, it would be helpful to know an individual's coping strategies in the case of a stressful situation in order to determine treatment goals and monitor therapeutic efficacy (14). When the hemodialysis and the CAPD patients were compared for coping strategies, although it was found that the CAPD patients had less stress and used fewer coping strategies, it was determined in both groups that the sources of stress and coping strategies used were similar.

Peritoneal dialysis may be preferred by many CKD patients due to quality of life issues. Given that the numbers of kidney transplantations are insufficient, it would be beneficial to provide patients with the necessary information and education while selecting the method of dialysis in order to select the most appropriate treatment option.

As a result, although CKD and treatment methods are the most important factors in the occurrence of psychiatric syndromes, if these disorders are not diagnosed and treated, the physical course, morbidity, and mortality of CKD may also be adversely affected. No matter which treatment method is applied, all CRF patients have to be monitored and followed-up closely not only in terms of physical diseases but also with respect to psychiatric illness in order to effectively diagnose and treat psychiatric disorders and improve the quality of life of patients.

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